

**PREPAREDNESS, PREVENTION, and
CONTINGENCY PLAN (PPC)**

TOWAMENCIN MUNICIPAL AUTHORITY

**2225 KRIEBEL ROAD
LANSDALE, PA 19446**

**MONTGOMERY COUNTY,
PENNSYLVANIA**

**AUGUST 2004
(Revised December 2007)
(Revised November 2015)
(Revised January 2019)**

Preparedness, Prevention, and
Contingency Plan (PPC)

Towamencin Municipal Authority

2225 Kriebel Road
Lansdale, PA 19446

Montgomery County,
Pennsylvania

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PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN (PPC)

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INTRODUCTION

This Plan is an update to an existing Preparedness, Prevention and Contingency (PPC) Plan currently in practice at the Towamencin Municipal Authority (TMA). Implementation of this plan is in conjunction with the National Pollutant Elimination System (NPDES) Permit No. PA0039004 and in accordance with the Pennsylvania Department of Environmental Protection (PaDEP) "Guideline for the Development and Implementation of Environmental Emergency Response Plans" dated September 2001. The plan is prepared to demonstrate TMA's compliance with applicable environmental regulations as well as to confirm their commitment to the prevention of pollution incidents and potential harm to the environment and surrounding community.

Outfall 003 is the facility's primary outfall for treated wastewater effluent discharge. Outfall 003, is located at Latitude 40° 13' 45", Longitude 75° 21' 38" (Lansdale, PA USGS quadrangle map). Outfalls 001 and 002 are utilized during high flow periods.

The existing facility has been constructed in several stages beginning in September 1968. Additions to the treatment processes were added in 1976 and 1987. The lime stabilized sludge dewatering system was installed in 1993.

A. DESCRIPTION OF FACILITY

A.1 General Description

Towamencin Municipal Authority is located at 2225 Kriebel Road, Lansdale, PA 19446, Montgomery County, Pennsylvania (Figure 1). The facility covers approximately 11 acres and is bordered on the north by a township park, east by a residential district, on the south and west by Kriebel Road.

The nature of the industrial activity at the TMA consists of sanitary wastewater treatment with discharge to the Towamencin Creek.

There are no significant materials currently, or for the past three years that have been treated, stored or disposed of in a manner to allow exposure to stormwater at the site.

Methods of on-site storage or disposal of significant materials:

The TMA has storage facilities for the following significant materials:

Ferric Chloride Solution:	10,000 gallons
High Sulfur Diesel Fuel:	8,000 gallons
Waste Engine & Hydraulic Oil:	600 gallons
Sodium Hypochlorite Solution:	2,000 gallons
Sodium Bisulfite Solution:	240 gallons
Quick Lime:	30 tons (Dry)
Polyaluminum Chloride:	3,000 gallons

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Materials management practices employed to minimize contact of significant materials with stormwater; materials loading and access areas; and location and description of existing structural and non-structural control measures to reduce pollutants in stormwater runoff

TMA has established procedures, which are followed during the unloading of raw supplies to minimize the potential for releases and provides for rapid response if any releases occur. The general procedure is to thoroughly inspect the area prior to material being unloaded. This includes inspecting transfer piping, valves and pipe couplings, tank level alarms, etc. Process piping, meters, valves, pumps, etc. are also inspected. Spill control abatement materials are immediately available to facilitate containment should a spill occur during unloading. Detailed procedures for major material utilized at the facility are discussed in Section C.1.

The 11 acre facility is subject to precipitation and stormwater runoff from roofs, parking and sidewalk areas, which discharge into storm inlets located in lawn areas and along paved driveways. To minimize such runoffs, the facility employs the Best Management Practices (BMP) of good housekeeping and good repair to minimize the release of materials adjacent to storm water inlets.

Non-hazardous waste from the facility is segregated and placed in specified containers. Residual biosolids are land applied according to PaDEP General Permit No. PAG-080008, or sent to a waste landfill when land application is not available. Non-hazardous waste is disposed offsite through a licensed contractor. Municipal waste collection bins are located in the Administration Building, Stage I & II Chlorination Buildings, the Laboratory, Shop & Garage, Personnel Areas and the Chemical Storage Area and are sent to a municipal waste landfill. The BMP practice of periodically inspecting these areas is employed to verify that the environment in these areas will not be impacted. Daily inspections verify that storage containers are closed and in sound condition and spills or leakages have not occurred.

USGS Map, Site Plan & Process Plans

A copy of the Lansdale quadrangle USGS map identifying the facility location and property boundary is attached as Figure 1.

Figure 2 shows the stormwater drainage system and the wastewater discharge to Outfall 003. The discharges from the parking lots flow to storm sewer inlets, which discharge into the Towamencin Creek at four separate locations designated as NPDES Permitted Outfall 004 through 007.

A.2 Description of Existing Emergency Response Plans

TMA coordinates with the Towamencin Police, the Towamencin Fire Company, local hospitals and Montgomery County emergency response teams. A copy of their Emergency contact list is included in Section B.2.

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A.3 Material and Waste Management

See Appendix B, Table B-1 for a "Summary of Substances & Locations", which includes substances, storage locations, Hazardous Material Identification System Ratings (HMIS), recommended Personal Protection Equipment (PPE) to be utilized when handling each substance and First Aid Procedures in case of injury.

A.4 Pollution Incident History

There has not been any significant leaks or spills of materials within the facility nor in areas that are exposed to precipitation or that otherwise discharge to stormwater drains or the adjacent environment during the lifetime of operations at this facility.

A.5 Implementation for Plan Elements Not Currently in Place

This updated plan does not require new plan elements for implementation. All existing procedures and plan elements will continue to be practiced.

B. PLAN IMPLEMENTATION

B.1 Description of How Plan Is Implemented By Organization

This plan is implemented by TMA. The Facility Emergency Coordinator has primary responsibility for emergency coordination as well as the daily requirements for all process operations, shipping and receiving operations.

B.2 Emergency Coordinators List

The following is a list of emergency coordinators:

Facility Emergency Coordinator:

Ralph Jacoby

Home: 215-453-0574

Cell: 267-772-0356

Alternate Emergency Coordinator:

Matt Detweiler

Cell: 267-640-1350

Plant/Facility Executive Director:

Brent Wagner

Home: 610-367-2077

Cell: 610-741-8427

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B.3 Emergency Coordinator Responsibility

Whenever there is an imminent or actual emergency situation, the emergency coordinator must immediately:

1. Activate communications systems, where applicable, to notify personnel; and
2. Notify local emergency response agencies including the PaDEP.

Whenever there is an emission or discharge, fire or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and aerial dispersion pattern of emitted or discharged materials.

Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the discharge, fire, or explosion. This assessment must consider both direct and indirect effects of the emission, discharge, fire, or explosion.

If the emergency coordinator determines that the facility has had a discharge, fire, or explosion which would threaten human health or the environment, he must immediately notify the applicable local authorities including the county emergency management agency and indicate if evacuation of local areas may be advisable; and immediately notify the PaDEP at 1-484-250-5900 (Emergency Response Norristown, PaDEP Southeast Office) and report the following:

- a. Name of the person reporting the incident,
- b. Name and location of the installation,
- c. Phone number where the person reporting the spill can be reached,
- d. Date, time, and location of the incident,
- e. A brief description of the incident, nature of the materials or wastes involved, extent of any injuries, and possible hazards to human health or the environment,
- f. The estimated quantity of the materials or wastes spilled; and
- g. The extent of contamination of land, water, or air, if known.

When there is a release from an aboveground storage tank which threatens the water supply of downstream users, the downstream users must be notified within 2 hours of the release. Priority for notification is by closest proximity to the release site.

During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fire, explosion, or discharge do not occur, reoccur, or spread to other areas at the installation. These measures shall include where applicable, collecting and containing released materials and moving or isolating containers.

If the facility stops operations in response to a fire, explosion, or discharge, the emergency coordinator must ensure that adequate monitoring is conducted for leaks, valves, pipes, or other equipment.

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Immediately after an emergency, the emergency coordinator, with PaDEP approval, must provide for treating, storing, or disposing of residues, contaminated soil, etc., from a discharge, fire, or explosion at the installation.

The emergency coordinator must ensure that in the affected areas of the installation, no material or waste incompatible with the discharged residues is processed, stored, treated, or disposed of until cleanup procedures are completed; and, all emergency equipment listed in the plan is cleaned and fit for its intended use before operations are resumed.

Within 15 days after the incident, the facility must submit a written report on the incident to the PaDEP. The report must include the following:

- a. Name, address, and telephone number of the individual filing the report,
- b. Name, address, and telephone number of the installation,
- c. Date, time, and location of the incident,
- d. A brief description of the circumstances,
- e. Description and estimated quantity by weight or volume of materials or wastes involved,
- f. An assessment of any contamination of land, water, or air that has occurred due to the incident,
- g. Estimated quantity and disposition of recovered materials or wastes that resulted from the accident; and
- h. A description of what actions the installation intends to take to prevent a similar occurrence in the future.

B.4 Chain of Command

In the event of an emergency or spill, the emergency coordinators listed in B.2 above should be contacted. The list should be posted in TMA administration offices.

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C. SPILL LEAK PREVENTION AND RESPONSE

C.1 Pre-release Planning

In the event of a spill or leak at the facility, it is possible materials could be carried by precipitation drainage into a storm sewer inlet. The facility would respond in a manner to minimize contact with precipitation and potential stormwater runoff by containing the material with physical barriers until the spilled material is removed. Stormwater inlets that have a potential to receive any contaminated runoff would be isolated with physical barriers.

The facility does not dispose of wastes on site. All waste materials are sent off-site for disposal.

Specific material spill or leak prevention procedures are as follows:

Acetylene

Is a flammable, colorless gas at room temperature with a slight garlic odor. The cylinder should always be secured and stored in an upright position and clear of overhead objects, which could fall on top of or against the cylinder damaging valves or plugs. The cylinder should be stored on a wheeled cart to allow for quick removal out of the building in case of gas leakage.

Aluminum Sulfate & Ferric Chloride

Ferric Chloride is received at the storage tank located east of the administration offices and adjacent to the Chemical Building, as shown on Figure 2. The Ferric Chloride is pumped by air into the storage tank. Any spillage is immediately cleaned up with water and vacuums. Utmost care is taken while the Ferric Chloride is transferred from the delivery tanker truck into the storage tank. If there were to be a spill from a tanker truck, spill control supplies and equipment located in the Chemical Building would be used to clean up the spill. A second 10,000 gallon storage tank is available for additional Ferric Chloride or the possible future use of Aluminum Sulfate. Information associated with Aluminum Sulfate including the MSDS is included with this plan in anticipation of the possible substitution of Aluminum Sulfate for Ferric Chloride.

Prior to bulk delivery transfer to Above Ground Storage Tanks, thoroughly inspect transfer piping for cracks, valves and pipe couplings for loose connections, and exercise all control valves to ensure proper operation and complete closure and material isolation. Transfer pipe system and tank flow level alarms should be placed in full operation and tested for proper operation. Process metering and delivery equipment, pumps, piping and valves should be inspected daily for cracks, loose fittings, proper flow control and smooth unrestricted operation. Written logs of delivery system flows, pressures and material consumption totals should be maintained for reference to predict possible leakage within the system prior to a failure.

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Coal Tar Epoxy Pitch Paint

Is a highly flammable and combustible liquid, which is shipped in 5 gallon pails. The containers should be kept tightly closed and sealed when not in use. If only a portion of the total volume of paint is to be used, the container should be immediately sealed to prevent vaporization leakage and accidental spillage from someone bumping into the container. Application of the paint should be performed outdoors in a well ventilated area. To minimize contaminated runoff of spilled material the container should be kept in close proximity to the laborer and away from heavily trafficked areas and as far away from any stormwater inlet as possible. The working area should be isolated and delineated with warning tape to notify other plant personnel to avoid the area.

Dryden Motor Oils, Gear Lubricants, & Hydraulic Oils

Are flammable and combustible liquids when exposed to open flames, heat and combustible materials. The 5 gallon containers should be kept tightly closed and sealed when not in use. If only a portion of the total volume of oil is to be used, the container should be immediately sealed to prevent accidental spillage from someone bumping into the container. These containers generally have a pour spout built into the lid of the container. The use of funnels and drip pans will prevent minor spills around equipment during oil replacement maintenance work. The used waste oil should be appropriately stored until recycled.

Foamy Q&A

Is a janitorial cleaner supplied as a liquid in small containers. Although the material does not support combustion the material can burn if fire is directly placed at the opening producing toxic fumes.

High Sulfur Heating Oil No. 2

Is the fuel supply for the emergency generators, stored in an 8,000 gallon underground storage tank behind the Chemical Building. The tank and surrounding areas is monitored by a Veeder Root Tank Monitoring System. A roof mounted visual and auditory signal will alarm should hydrocarbon vapors be detected. There are two (2) day tanks located within the generator building, which are filled by an automated float switch and transfer pump system. Adjacent to the emergency generator building a diesel fuel dispensing system pump is provided for refueling vehicles. The hose nozzle is equipped with an automatic release valve, which closes upon the release of hand grip.

M-95 Cleaning Compound

Contains muriatic acid (hydrochloric acid) which is used for cleaning inside surfaces. The product is a liquid and is stored in quart sized containers located in the cleaning supplies closet adjacent to the laboratory. The container should be kept tightly closed at all times and only sufficient cleaning liquid used for a single project. The liquid is completely soluble in water, however, some vapors may volatilize into the air during cleaning work. Adequate ventilation is required along with a source of potable water to dilute the liquid into the sanitary sewer system. Mixing the cleaner with any other chemical should be strictly avoided due to hydrochloric acid reactivity.

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Pollu-Treat CL-888 Polymer

Is a quarternary acrylate salt and acrylamide suspended in mineral oil as a white colored viscous liquid with a slight hydrocarbon odor. Prior to bulk delivery transfer from the carboy to the polymer solution dosing tanks thoroughly inspect transfer piping for cracks, valves and pipe couplings for loose connections and exercise all control valves to ensure proper operation and complete closure and material isolation. Transfer pipe system and tank level alarms should be placed in full operation and tested for proper operation. Process metering and delivery equipment, pumps, piping and valves should be inspected daily for cracks, loose fittings, proper flow control and smooth unrestricted operation. Since the polymer is completely soluble in water any spills can be diluted with water and washed into the sanitary floor drains inside the sludge dewatering area.

CIBA Magnafloc No. 1011 Polymer

Is a sodium acrylate and acrylamide copolymer supplied as a free flowing, white colored dry powder, package in plastic lined paper bags. The polymer is loaded by hand into a dust collection dry feed storage bin and automatic feed system. The dry polymer is proportionally fed into a wet solution mixing system and the resulting liquid is stored in a dosing tank. The vacuum dust collection system should be inspected prior to dispensing the dry polymer into the hopper. The dry polymer bags should be opened at the dry feed hopper while the dust collection system is in operation. The dust collection system and filter should be periodically cleaned to maintain proper operation and efficiency. Any dry polymer spillage should be vacuumed into a closed container. Since the polymer is completely soluble in water any liquid spills can be diluted with water and washed into the sanitary floor drains inside the Chemical Building.

Quik-Lime (Pulverized)

Prior to bulk delivery transfer to the Lime Storage Silo thoroughly inspect transfer piping for cracks, valves and pipe couplings for loose connections and exercise all control valves to ensure proper operation and complete closure and material isolation. Transfer pipe system and tank flow level alarms should be placed in full operation and tested for proper operation. The bin activator, Rotary Airlock metering and delivery equipment, lime feed screw conveyor, transfer chutes, diverted gates, safety guards and dust collectors should be inspected daily for cracks, loose fittings, proper flow control and smooth unrestricted operation.

Sodium Bisulfite Solution (40%)

Is a clear liquid with a slight yellow color and a sulfur dioxide odor. Prior to bulk delivery transfer to the dosing storage tanks, thoroughly inspect transfer piping for cracks, valves and pipe couplings for loose connections and exercise all control valves to ensure proper operation and complete closure and material isolation. Transfer pipe system and tank level alarms should be placed in full operation and tested for proper operation. Process metering and delivery equipment, pumps, piping and valves should be inspected daily for cracks, loose fittings, proper flow control and smooth unrestricted operation.

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Sodium Hypochlorite Solution (12.5%)

Is a yellow-green liquid with a chlorine odor. Prior to bulk delivery transfer to the dosing storage tank thoroughly inspect transfer piping for cracks, valves and pipe couplings for loose connections and exercise all control valves to ensure proper operation and complete closure and material isolation. Transfer pipe system and tank level alarms should be placed in full operation and tested for proper operation. Process metering and delivery equipment, pumps, piping and valves should be inspected daily for cracks, loose fittings, proper flow control and smooth unrestricted operation.

ZEP "OJ" Cleaner

Is a slightly hazy liquid with an amber color and an orange odor consisting of sodium hydroxide. The liquid is combustible and should be stored and used away from sources of heat, sparks, open flames and other ignition sources. The cleaner is stored in quart sized containers located in the cleaning supplies closet adjacent to the laboratory. The container should be kept tightly closed at all times and only sufficient cleaning liquid used for a single project. The liquid is completely soluble in water, however, some vapors may volatilize into the air during cleaning work. Adequate ventilation is required along with a source of potable water to dilute the liquid into the sanitary sewer system. Mixing the cleaner with any other chemical should be strictly avoided due to the sodium hydroxide reactivity.

Polyaluminum Chloride (PACL) 300

Is a clear to slightly hazy, odorless liquid with a colorless to amber hue consisting of inorganic soluble aluminum salts. The liquid is not flammable, yet should be stored and used away from sources of heat, sparks, open flames and other ignition sources. The liquid is stored in two 1,500 gallon tanks within masonry secondary containment in a converted portion of the Stage I Sludge Thickener Building as shown on Figure 2, and uses an adjacent 12,000 gallon former sludge thickener tank as auxiliary secondary containment. The tanks are filled from a bulk delivery truck via dedicated 2-inch Schedule 80 PVC fill line with ball valves for flow control. The liquid is completely soluble in water, and is chemically stable under ambient temperature and pressure. The liquid maintains a pH of 2 at normal conditions, and care should be taken to minimize contact with skin, eyes, respiratory, and ingestion pathways. A safety shower is located within 10 seconds and 55 feet of the tanks.

C.2 Material Compatibility

All materials at TMA do not exhibit incompatibility with storage containers nor facility processing equipment. Material safety data sheets (MSDS) are on file at the administrative office and laboratory, as well as at twelve (12) area-specific locations throughout the plant and at the Rittenhouse Road, Hollis Hills, and Milestone Pumping Stations. The MSDS sheets are included in Appendix A. The release of some materials from the storage containers may result in adverse incompatibilities with structures and process equipment. The following is a summary of potential incompatible materials:

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Acetylene – incompatible with oxygen and other oxidizers including halogen compounds. Forms explosive acetylide compounds with copper, mercury, silver and brasses with greater than 66% copper.

Coal Tar Epoxy Pitch Paint – incompatible with strong oxidizers such as liquid chlorine, sodium or potassium hypochlorite, nitric acid and peroxides.

Dryden Motor Oils, Gear Lubricants, & Hydraulic Oils – incompatible with strong oxidizers, heat and open flames.

Ferric Chloride – incompatible with strong alkalis and metals.

Foamy Q&A – incompatible with strong alkalis, hypochlorites, ammonia and cyanides.

High Sulfur Heating Oil No. 2 – incompatible with strong oxidizers.

M-95 Cleaning Compound – incompatible with strong alkalis, hypochlorites, ammonia and cyanides.

Pollu-Treat CL-888 – incompatible with strong oxidizers.

CIBA Magnafloc No. 1011 polymer – incompatible with strong oxidizers.

Sodium Bisulfite Solution (40%) – incompatible with strong oxidizers and acids.

Sodium Hypochlorite Solution (12.5%) – is a strong oxidizer and will react with acids, alcohols, amines, ammonia, isocyanurates, cyanides, detergents, ethers, hydrocarbons and most metals.

ZEP "OJ" Cleaner – incompatible with strong oxidizers and acids.

Polyaluminum Chloride (PACL) 300 – incompatible with sodium hypochlorite (bleach), chlorites, sulfites, strong bases, aqua ammonia, and is corrosive to common metals such as low grade stainless steel, iron, steel, copper, and aluminum.

C.3 Inspection and Monitoring Program

Visual inspections are the means by which this facility will evaluate the effectiveness of good housekeeping, preventive maintenance, and other management practices. Subsequent visual inspections will be used to document if appropriate actions have been taken in response to the inspections, and whether the responses taken have been effective. Visual inspections will address the elements of the plan as provided in Table C.3-1.

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Table C.3-1 Best Management Practices for Visual Inspections

Visual Inspection Program Element	Implementation Procedure
Good Housekeeping	Conduct routine inspection of external areas subject to stormwater contact. Observations of potential points of contact between stormwater and materials managed on site will be made and if appropriate, actions to minimize stormwater contact will be identified and executed.
Preventive Maintenance	Observations will include noting the integrity of structures and condition of equipment with the intent of verifying the reduced likelihood of contact with stormwater. Adequacy of the spill response supplies will be determined in accordance with the procedure outlined in the facility's Plan.
Comprehensive Site Compliance Evaluation	<p>Inspect areas contributing to stormwater runoff associated with industrial activity for evidence of pollutants entering the drainage system.</p> <p>Evaluate whether measures to reduce pollutant loadings are adequate and properly implemented in accordance with PaDEP guidelines. Identify any additional control measures that may be needed?</p> <p>Inspect spill response equipment identified in the plan.</p> <p>Log all visual inspections and retain all completed forms in a file.</p>
Follow-up Evaluations	<p>Determine whether visual inspection deficiencies have been corrected.</p> <p>Maintain log of follow-up inspections by filling out and retaining, as appropriate, all forms.</p>

Qualified personnel, identified in Table C.3-2, are responsible for performing visual site inspections to evaluate evidence of, or potential for, significant materials entering the drainage system. Each comprehensive inspection will document the measures to reduce pollutant loadings (if evidence of pollutant loadings is found) for proper operation:

A visual inspection of items necessary to implement this plan, such as spill response equipment and supplies is executed as part of the facility's program.

The frequency of visual inspections will be quarterly and records of the visual observations will be maintained by the Emergency Coordinator.

If an inspection identified potential sources of pollution, control measures will be evaluated to correct the situation. Within 15 days of the inspection, this PPC plan will be revised to identify the potential source and to address control measures to minimize or eliminate the potential for

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future discharge of the pollutant to the drainage system. These measures will be implemented within 90 days after the inspection.

Inspection reports will be summarized. When the inspection report does not identify incidents of non-compliance, it will certify compliance with the PPC plan and will be signed by a responsible person.

Table C.3-2 Personnel Qualified to Conduct Site Compliance Evaluations

Name and Title	Office Telephone Number
Ralph Jacoby	(215) 855-8165
Matt Detweiler	(215) 855-8165
Brent Wagner	(215) 855-8165

C.4 Preventive Maintenance

A dedicated Maintenance Department is employed at the facility and is responsible for the continual maintenance and operation of all facilities and equipment at the site. Equipment and facilities which could impact stormwater management at the site are routinely evaluated by the Emergency Coordinator for potential impacts to environmental releases. Any recommendations made by the employees regarding upgrades, maintenance or modifications of existing equipment are forwarded to the Emergency Coordinator.

C.5 Housekeeping Program

Housekeeping procedures that are implemented at the facility are presented in Table C.5-1.

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Table C.5-1 Best Management Practices for Good Housekeeping

Housekeeping Program Element	Implementation Procedure
Maintain clean loading and parking areas, lime storage silo and ground or floor storage areas	Identify and remove small spillage of materials from exposure to precipitation. Immediately clean up liquid leaks utilizing vacuums or absorbents. Dry materials should be broom swept or vacuumed. Do not hose down areas that drain to storm sewer inlets.
Do not allow materials to accumulate	Institute regular pickup and disposal of trash and waste materials.
Conduct routine inspections of work area	Check for damaged or corroded containers and equipment. Check for liquid storage tank and piping leaks.
Employ proper storage techniques	Store material inside or under cover whenever possible. Provide adequate aisle space to facilitate material transfer and inspection. Do not store materials near high volume traffic areas.
Identify, label, or mark all material storage containers	Identify the contents and label all containers and tanks. Provide handling and first aid information. Maintain MSDS on site.
Material inventory	Conduct periodic inventory of materials. Check inventory to match quantity received, quantity utilized and quantity in storage. Properly dispose of obsolete or off-specification materials.

C.6 Security

A supervisor is responsible for the storage, warehouse and operation areas. During periods when the facility is not manned, all external doors are locked to prevent unauthorized access. The facility is continuously monitored for fire, loss of utility electric, high influent flows, chemical storage tanks level and diesel fuel supply underground storage hydrocarbon vapor. Visual and auditory alarms will enunciate should any of these events occur.

C.7 External Factor Planning

The result of an external factor such as a power outage would be that the emergency generators would automatically start and transfer the electrical load of the plant to the temporary electrical source. The facility would continue to operate as usual with emergency power until the utility supplied power is restored.

The facility is not located in a floodplain and therefore is not subject to a flooding hazard.

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C.8 Employee Training Program

Employee training is essential for effective implementation of this PPC plan. The general goal of the training program is to create overall sensitivity to environmental pollution prevention concerns at all levels of responsibility. On an activity-specific basis, the goals of the training program are to teach personnel involved in specific high risk activities (e.g. loading/unloading of materials) the components and goals of the PPC plan.

Training Topics include:

- Good housekeeping,
- Material management practices,
- Parameters of concern for environmental contamination,
- Spill prevention and response.

D. COUNTERMEASURES

D.1 Countermeasures by Facility & Contractors

The following is a sequence of the counter measures to be undertaken at the facility in the event of a spill:

1. Maintenance personnel to stop spill at source,
2. Maintenance personnel to contain spill for clean up and notify shift supervisor,
3. Notify Emergency Coordinator and administration office,
4. Maintenance personnel to conduct clean up and put waste in Hazmat Drums,
5. Safety Kleen Corp. to dispose of Hazmat Waste Drums.
6. If containment cannot be handled by maintenance personnel, then Montgomery County Emergency 911 is to be called to have PaDEP and Towamencin Fire Company dispatched to help with containment until J&J Spill Service or CHEMTRECT can be notified to respond for spill clean up and material disposal.
7. After hours, spills are to be called into Ralph Jacoby at home or at cell phone; secondly, Matt Detweiler, and then Brent Wagner.

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D.2 Emergency Response Contacts

The following is a list of emergency response contacts:

<u>Contact</u>	<u>Position</u>	<u>Phone Number</u>
Ralph Jacoby	Facility Emergency Coordinator	Home: 215-453-0574 Cell: 267-772-0356
Matt Detweiler	Alternate Emergency Coordinator	Cell: 267-640-1350
Brent Wagner	Plant/Facility Executive Director	Home: 610-367-2077 Cell: 610-741-8427
J&J Spill Service P.O. Box 370 Blue Bell, PA 19422		Office: 610-277-4511
Safety Kleen Corp. 77 Towpath Road Fairless Hills, PA 19030		Office: 215-736-8699
CHEMTRECT		24 Hrs: 800-424-9300
Paul Mages, PaDEP		Office: 484-250-5900

D.3 Communication Systems

Telephones are used to communicate emergency response needs to summon emergency assistance. Local intercom system can address all internal and external area of the plant site.

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D.4 Evacuation Plan for Personnel

The local intercom system throughout the facility will be used to notify personnel to evacuate. All sections of the facility have exits to the driveway and ultimately to the Kriebel Road main entrance gate. Additionally, the facility has a second gate with access to Towamencin Park to the north. In the event of an emergency, all personnel are to muster at the grass field across from the Kriebel Road main entrance gate. The emergency assembly location is shown on Figure 2.

D.5 Emergency Equipment

The following is a list of available emergency equipment at the facility:

- Oil Only Absorbent Booms
- Oil Only Spill Pads
- Oil Dri
- Storm Sewer Inlet Mats
- First Aid Supplies
- Self Contained Breathing Apparatus (2)
- Eye Wash / Emergency Showers (7)
- Fire Extinguishers (42)
- Chlorine Capping Kit (2)
- Chlorine Leak Monitor System (2)

E. EMERGENCY SPILL CONTROL NETWORK

The administration office contacts Montgomery County Emergency 911 service for dispatch of local Fire Company and contracted emergency response services.

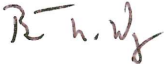
F. ADDITIONAL REQUIREMENTS FOR EPCRA, SECTION 313 FACILITIES

(NOT APPLICABLE)

PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN (PPC)

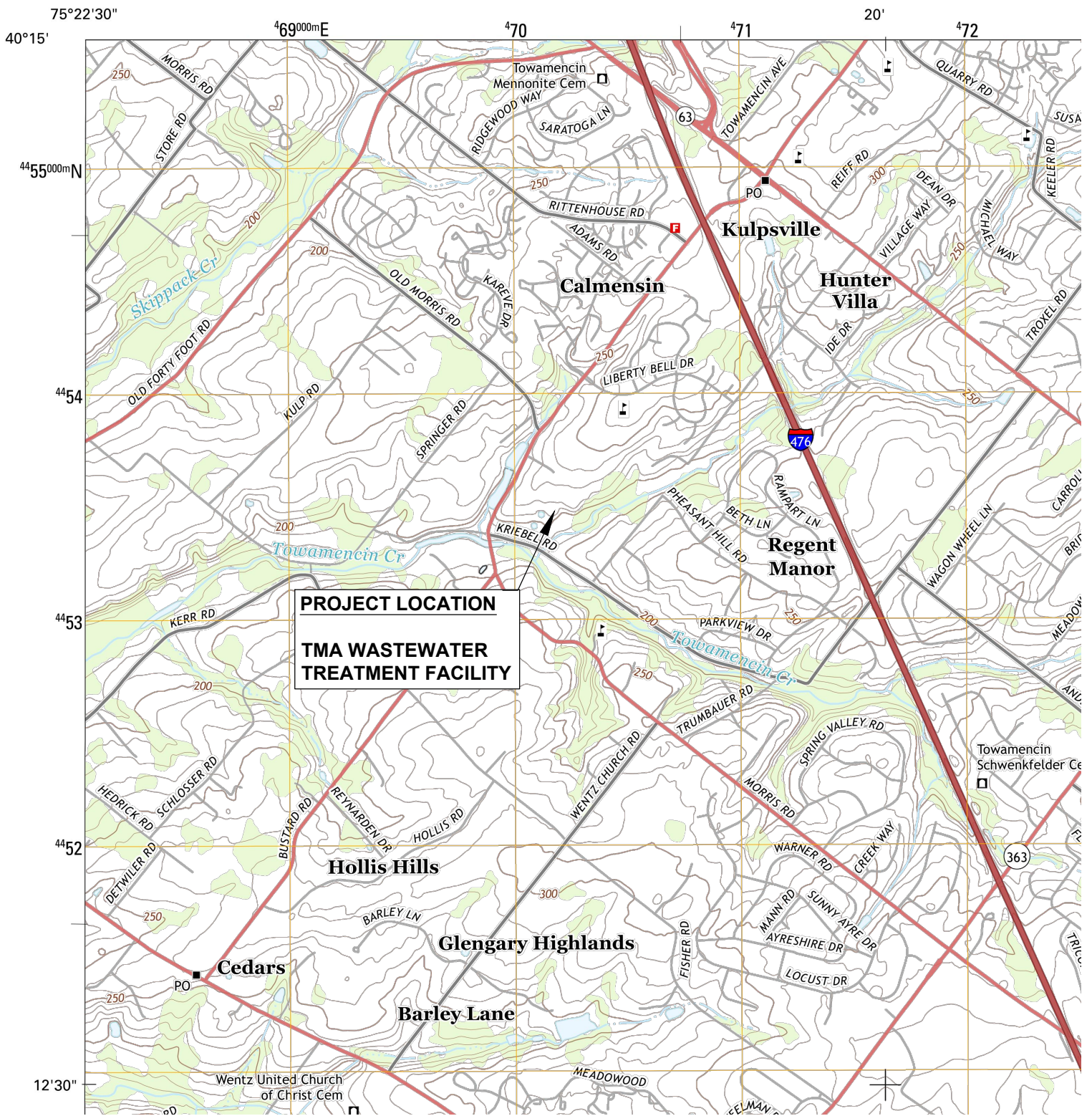
G. SIGNATORY REQUIREMENTS

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.

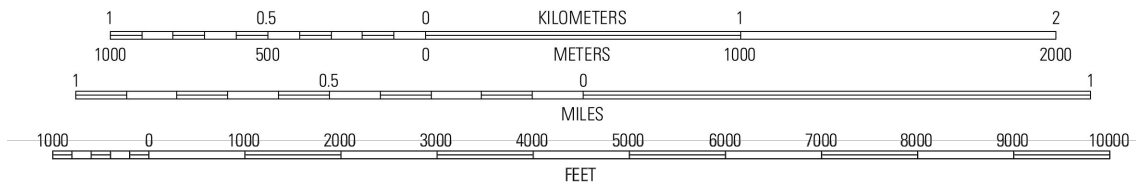
Name and Title	
<u>Brent M. Wagner, Executive Director, TMA</u>	
Signature	Date Signed
	2/11/15

PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN (PPC)

FIGURES

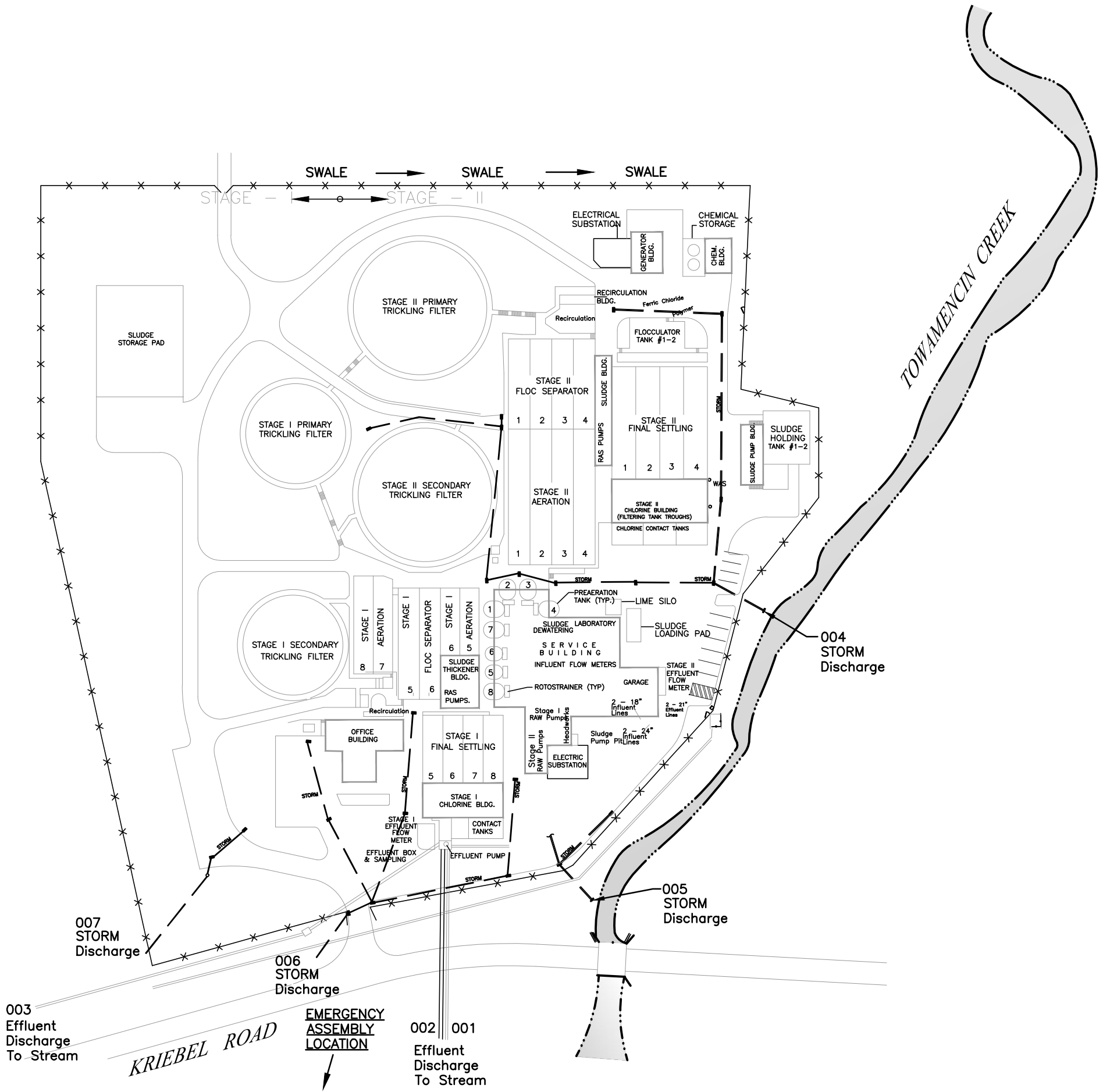
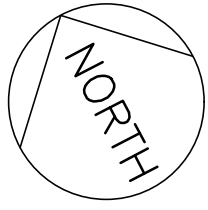


SCALE 1:24 000



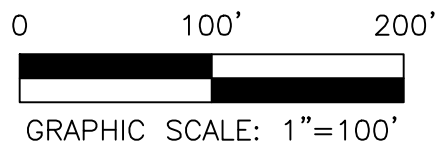
CONTOUR INTERVAL 10 FEET
 NORTH AMERICAN VERTICAL DATUM OF 1988

FIGURE 1
 LANSDALE QUADRANGLE (2013)
 TOWAMENCIN MUNICIPAL AUTHORITY
 WASTEWATER TREATMENT FACILITY



LEGEND

- STORM INLET AND PIPE
- STORMWATER SWALE
- TOWAMENCIN CREEK
- STORM
- SWALE



**TOWAMENCIN MUNICIPAL AUTHORITY
STORMWATER / DISCHARGE MAP
JANUARY 2019**

PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN (PPC)

APPENDIX A

MATERIAL SAFETY DATA SHEETS:

Acetylene / Oxygen

Aluminum Sulfate & Ferric Chloride

Liquid Chlorine

Coal Tar Epoxy Pitch Paint

Dryden Motor Oils, Gear Lubricants, & Hydraulic Oils

Foamy Q&A

High Sulfur Heating Oil No. 2

M-95 Cleaning Compound

Pollu-Treat CL-888

CIBA Magnafloc No. 1011 Polymer

Pulverized Quik Lime (Dry)

Switch Contact Cleaner

Sodium Bisulfite Solution (40%)

Sodium Hypochlorite Solution (12.5%)

ZEP "OJ" Cleaner

Polyaluminum Chloride (PACL) 300

BOC GASES

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: ACETYLENE

1. Chemical Product and Company Identification

BOC Gases,
Division of,
The BOC Group, Inc.
575 Mountain Avenue
Murray Hill, NJ 07974

BOC Gases
Division of
BOC Canada Limited
5975 Falbourn Street, Unit 2
Mississauga, Ontario L5R 3W6

TELEPHONE NUMBER: (908) 464-8100
24-HOUR EMERGENCY TELEPHONE
NUMBER: CHEMTREC (800) 424-9300

TELEPHONE NUMBER: (905) 501-1700
24-HOUR EMERGENCY TELEPHONE
NUMBER: (905) 501-0802
EMERGENCY RESPONSE PLAN NO: 2-0101

PRODUCT NAME: ACETYLENE
CHEMICAL NAME: Acetylene
COMMON NAMES/SYNONYMS: Ethyne, Acetylen, Ethine
TDG (Canada) CLASSIFICATION: 2.1
WHMIS CLASSIFICATION: A, B1, D2B

PREPARED BY: Loss Control (908)464-8100/(905)501-1700
PREPARATION DATE: 6/1/95
REVIEW DATES: 6/1/99

2. Composition, Information on Ingredients

EXPOSURE LIMITS¹:

INGREDIENT	% VOLUME	PEL-OSHA ²	TLV-ACGIH ³	LD ₅₀ or LC ₅₀ Route/Species
Acetylene FORMULA: C ₂ H ₂ CAS: 74-86-2 RTECS #: AO9600000	95.0 to 99.6	Not Available	Simple Asphyxiant	Not Available
Acetone FORMULA: C ₃ H ₆ O CAS: 67-64-1 RTECS #: AL3150000	Not Available	1000 ppm TWA	500 ppm TWA 750 ppm STEL	LD ₅₀ : 1297 mg/kg ingestion/mouse

¹ Refer to individual state of provincial regulations, as applicable, for limits which may be more stringent than those listed here.

² As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

³ As stated in the ACGIH 1998-1999 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

3. Hazards Identification

EMERGENCY OVERVIEW

Flammable colorless gas with slight garlic odor. Dangerous fire and explosion hazard. Avoid heat, sparks and flame. Simple Asphyxiant. This product does not contain oxygen and may cause asphyxia if released in a confined area. Maintain oxygen levels above 19.5%. May cause anesthetic effects. Highly flammable under pressure. Spontaneously combustible in air at pressures above 15 psig. Acetylene liquid is shock sensitive. Contents under pressure. Use and store below 125 °F.

MSDS: G-2
Revised: 6/1/99

PRODUCT NAME: ACETYLENE

ROUTE OF ENTRY:

Skin Contact Yes	Skin Absorption No	Eye Contact Yes	Inhalation Yes	Ingestion No
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HEALTH EFFECTS:

Exposure Limits Yes	Irritant Yes	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None Reported		

Carcinogenicity: -- NTP: No IARC: No OSHA: No

EYE EFFECTS:

None known since product is a gas at room temperature. Contact of liquid acetylene with the eyes may cause temporary irritation.

SKIN EFFECTS:

Skin effects are not likely. Contact with liquid acetylene may cause irritation and dermatitis upon repeated exposures.

INGESTION EFFECTS:

Ingestion is unlikely, since acetylene is a gas at room temperature.

INHALATION EFFECTS:

Acetylene is an asphyxiant and may cause anesthetic effects at high concentrations. High concentrations may exclude an adequate supply of oxygen to the lungs. Effects of oxygen deficiency resulting from simple asphyxiants may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgement, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma, and death.

Under normal operating conditions, acetone is not released from the cylinder. However, if the cylinder is overcharged with acetone or acetylene, acetone may occasionally "spit" out. Acetone is primarily a central nervous system toxin causing headache, nausea, dizziness, vomiting and fatigue. Moderate concentrations may cause respiratory irritation.

Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: May aggravate pre-existing skin disorders.

NFPA HAZARD CODES

Health: 0
Flammability: 4
Instability: 2

HMIS HAZARD CODES

Health: 1
Flammability: 4
Reactivity: 2

RATINGS SYSTEM

0 = No Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

MSDS: G-2

Revised: 6/1/99

PRODUCT NAME: ACETYLENE

4. First Aid Measures

EYES:

None normally required. Consult a physician if direct contact with pressurized material occurs. Immediately flush with low pressure, cool water for at least 15 minutes, opening eyelids to ensure flushing. Get medical attention.

SKIN:

Wash affected areas with soap and warm water. If irritation develops, seek medical attention.

INGESTION:

None normally required.

INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing has stopped administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive. Keep victim warm and quiet.

5. Fire Fighting Measures

Conditions of Flammability: Flammable		
Flash point: Not Available	Method: Not Applicable	Autoignition: Temperature: 565°F (296°C)
LEL(%): 2.2	UEL(%): 80 to 85*	
Hazardous combustion products: Carbon Monoxide, Carbon Dioxide		
Sensitivity to mechanical shock: Not Available		
Sensitivity to static discharge: Not Available		

FIRE AND EXPLOSION HAZARDS:

*Pure acetylene can ignite by decomposition above 15 psig; therefore, the UEL is 100% if the ignition source is of sufficient intensity. Pure acetylene is shock sensitive. Cylinder may rupture violently from pressure when involved in a fire situation.

GASEOUS ACETYLENE IS SPONTANEOUSLY COMBUSTIBLE IN AIR AT PRESSURE ABOVE 15 PSI (207 kPa.). It requires a very low ignition energy so that fires which have been extinguished without stopping the flow of gas can easily reignite with possible explosive force. Acetylene has a density very similar to that of air so when leaking it does not readily dissipate. Gas may travel to a source of ignition and flash back.

Fires involving acetylene occur occasionally at fusible metal pressure relief plugs at the tops and bottoms of cylinders, commonly due to hot metal or slag being dropped on the fusible plugs. When the fusible plug releases a large volume of acetylene will rush out, creating a "roaring" sound. The flame may extend a foot or two away from the cylinder until the pressure is reduced. In some cases, the other end of the cylinder may develop a coating of frost.

EXTINGUISHING MEDIA:

Carbon dioxide, dry chemical.

MSDS: G-2

Revised: 6/1/99

PRODUCT NAME: ACETYLENE

FIRE FIGHTING INSTRUCTIONS:

WARNING: ALWAYS EXTINGUISH A FIRE BEFORE CLOSING THE CYLINDER VALVE. If the flame is small from the fusible plug or valve stem, try to put it out. Use non-sparking tools to close container valves. Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. If the fire is allowed to keep burning it is likely that the fusible plug will melt and result in a large release of acetylene. A glove or heavy cloth or any wet material slapped on the flame will frequently extinguish it.

If the flame is large, burning from a fusible plug, **DO NOT** try to put it out unless the cylinder is outdoors or in a very well ventilated area free from sources of ignition. Usually it is very difficult to extinguish large fires because the escaping acetylene may be reignited by adjacent ignition sources, thereby possibly creating a confined space explosion. Keep containers cool with water spray. Continue to cool fire-exposed cylinders until well after flames are extinguished. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. Direct 500 GPM water stream onto containers above liquid level with remote monitors. Limit the number of personnel in proximity of fire and evacuate surrounding areas in all directions. Continue to cool fire-exposed cylinders until well after flames are extinguished.

6. Accidental Release Measures

Extinguish all ignition sources. No smoking, flames, flares, or sparks in hazard area. Evacuate all personnel from affected areas. Isolate the area for over 1/2 mile in all directions in the event of leakage of a tank, rail car or tank truck. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

If possible to do safely, shut off ignition sources and stop the leak by closing the valve. For small leaks, cylinders may be moved to an area outdoors and away from any source of ignition. Circumstances which, it is advisable to attempt removal of the cylinder are when cylinders are in close proximity to other compressed gases, when highly flammable materials or hazardous materials are in the vicinity of the acetylene cylinder(s), or where protection of the building is unusually difficult and spreading of a fire may produce a major loss of life or property. When the cylinder is removed, it may be hosed down with water to keep it cool. Open valve slowly to let the acetylene escape. Tag the cylinder with "WARNING - Leaking Flammable Gas". Close valve when empty.

7. Handling and Storage

Electrical Classification:

Class 1, Group A.

Acetylene is shipped in a cylinder packed with a porous mass material, and a liquid solvent, commonly acetone. Acetylene is dissolved in the acetone solution and dispersed throughout the porous medium. When the valve of a charged acetylene cylinder is opened, the acetylene comes out of solution and passes out in the gaseous form.

IT IS CRUCIAL THAT FUSE PLUGS IN THE TOPS AND BOTTOMS OF ALL ACETYLENE CYLINDERS BE THOROUGHLY INSPECTED WHENEVER HANDLED. REMOVE AND QUARANTINE IN A SAFE LOCATION ANY DEFECTIVE CYLINDER.

Post "NO SMOKING OR OPEN FLAMES" signs in the storage area or use area. There should be no sources of ignition in the storage or use area. Use only in well-ventilated areas. Stationary customer site vessels should be operated in accordance with the manufacturer's and BOC instructions. Do not attempt to repair,

PRODUCT NAME: ACETYLENE

adjust or in any other way modify the operation of these vessels. If there is a malfunction or other type of operations problem with the vessel, contact the closest BOC location immediately for assistance. Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Outside or detached storage is preferred. DO NOT allow the temperature where cylinders are stored to exceed 125°F (52°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time.

Valve protection caps must remain in place unless container is secured with valve outlet piping to use point. Close valve after each use and when the container is empty. Do not drag, slide or roll cylinders on their sides. Use a suitable hand truck for container movement. Use a pressure reducing regulator when connecting container to piping or systems. Do not use gas directly from container. Do not heat container by any means to increase the discharge rate of product from the container.

Never attempt to repair or alter cylinders. Never tamper with pressure relief devices or fusible plugs. Under no circumstances allow a torch flame to contact the fusible plug. While welding, avoid contact of the cylinder welding equipment or electrical circuits.

If rough handling or other occurrences should cause any fusible plug to leak, move the cylinder to an open space well away from an possible source of a sign on the cylinder warning of "Leaking Flammable Gas".

Unless oxygen and acetylene are separated, there should be a non-combustible partition of at least 5 ft high with a fire resistance rating of one-half hour between cylinders. In the U.S. cylinders stored inside a building near user locations must be limited to a total capacity of 2500 ft³ of gas, exclusive of in-use or attached for use cylinders.

Do not store cylinders on their side. This makes the acetylene less stable and less safe, and increases the likelihood of solvent loss and resultant decomposition.

For additional information, consult the Compressed Gas Association (CGA) pamphlets P-1, G-1, G-1.1, AV-9, G-1.2, G-1.3, G-1.6, G-1.7, LI-A, SB-4-1990; NFPA #51-1984, and OSHA 1910 Subpart H & Q.

8. Exposure Controls, Personal Protection

ENGINEERING CONTROLS:

Provide general room ventilation and local exhaust to prevent accumulation above the exposure limit and to maintain oxygen levels above 19.5%. Mechanical ventilation should be designed in accordance with electrical codes.

EYE/FACE PROTECTION:

Safety goggles or glasses as appropriate for the job.

SKIN PROTECTION:

PVC or rubber in laboratory; as required for cutting and welding.

RESPIRATORY PROTECTION:

Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

OTHER/GENERAL PROTECTION:

Safety shoes.

MSDS: G-2

Revised: 6/1/99

PRODUCT NAME: ACETYLENE

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: 635	psia
Vapor density (Air = 1)	: Not Available	
Evaporation point	: Not Available	
Boiling point	: -118.8	°F
	: -83.8	°C
Freezing point	: -113	°F
	: -80.6	°C
PH	: Not Available	
Specific gravity	: 0.906	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Soluble	
Odor threshold	: Not Available	
Odor and appearance	: Pure acetylene has an ethereal odor. Commercial (carbide) acetylene has a distinctive garlic-like odor; A colorless gas.	

10. Stability and Reactivity

STABILITY:

Unstable - shock sensitive in the liquid state. Do not allow free gas (outside of cylinder) to exceed 15 psig. Do not expose cylinders to sudden shock or heat. Acetylene will decompose violently with cylinder failure.

INCOMPATIBLE MATERIALS:

Oxygen and other oxidizers including all halogens and halogen compounds. Forms explosive acetylide compounds with copper, mercury, silver, brasses containing >66% copper and brazing materials containing silver or copper.

HAZARDOUS DECOMPOSITION PRODUCTS:

Acetylene decomposes at high pressure to its constituent elements of carbon and hydrogen. Carbon monoxide may be produced from burning.

Under certain conditions, acetylene forms readily explosive acetylide compounds when in contact with copper, silver, and mercury. Therefore, use of acetylene and these metals, or their salts, compounds, and high concentration alloys should be avoided.

The presence of moisture, certain acids or alkaline materials tends to enhance the formation of copper acetylides.

HAZARDOUS POLYMERIZATION:

Temperatures as low as 250°F (121°C) at high pressure, or at low pressure in the presence of a catalyst are sufficient to initiate a polymerization reaction. The hazard here is that the polymerization normally liberates heat and may, therefore, lead to ignition and decomposition of acetylene if conditions permit.

PRODUCT NAME: ACETYLENE

11. Toxicological Information

INHALATION:

Low concentrations (10-20% in air) cause symptoms similar to that of being intoxicated. As a narcotic gas or intoxicant, it causes hypercapnia (an excessive amount of carbon dioxide in the blood). Repeated exposures to tolerable levels has not shown deleterious effects. TC_{LO} , human - Inhalation of 20 ppb inhaled has been shown to cause headache and dyspnea.

Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

12. Ecological Information

No data given.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Acetylene, dissolved	Acetylene, dissolved
HAZARD CLASS:	2.1	2.1
IDENTIFICATION NUMBER:	UN 1001	UN 1001
SHIPPING LABEL:	FLAMMABLE GAS	FLAMMABLE GAS

15. Regulatory Information

U.S. FEDERAL REGULATORY INFORMATION

Acetone is regulated as a Hazardous Substance under CERCLA.

Acetylene is listed under the Clean Air Act (CAA) Section 112(r) with a threshold quantity (TQ) of 10,000 pounds.

SARA TITLE III NOTIFICATIONS AND INFORMATION

Releases of acetone in quantities equal to or greater than the reportable quantity (RQ) of 5,000 pounds are subject to reporting to the National Response Center under CERCLA, Section 304 SARA Title III.

SARA TITLE III - HAZARD CLASSES:

Acute Health Hazard
Fire Hazard
Sudden Release of Pressure Hazard
Reactivity Hazard

MSDS: G-2

Revised: 6/1/99

PRODUCT NAME: ACETYLENE

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product does not contain toxic chemicals subject to reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

REGULATED INGREDIENTS

INGREDIENT: Acetone

CAS NUMBER: 67-64-1

REGULATIONS: ILL MAS NJS NJW PAW STC WHM

ILL - Illinois Toxic Substance

MAS - Massachusetts Hazardous Substance

NJS - New Jersey Special Health Hazardous Substance

NJW - New Jersey Workplace Hazardous Substance

PAW - Pennsylvania Workplace Hazardous Substance

INGREDIENT: Acetylene

CAS NUMBER: 74-86-2

PERCENT BY VOLUME: 95.0 to 99.6

REGULATIONS: ILL MAS NJS NJW PAW WHM

ILL - Illinois Toxic Substance

MAS - Massachusetts Hazardous Substance

NJS - New Jersey Special Health Hazardous Substance

NJW - New Jersey Workplace Hazardous Substance

PAW - Pennsylvania Workplace Hazardous Substance

CANADIAN REGULATORY INFORMATION:

In Canada, regulations limit the capacity of acetylene cylinders stored inside a building at user locations to a total capacity of 2160 ft³ of gas in unsprinklered combustible structures, or 6130 ft³ in sprinklered buildings of combustible or non-combustible structures.

16. Other Information

ACGIH	American Conference of Governmental Industrial Hygienists
DOT	Department of Transportation
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
WHMIS	Workplace Hazardous Materials Information System

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

MSDS: G-2

Revised: 6/1/99

PRODUCT NAME
ACETYLENE
SYNONYMS
Ethyne, Ethine
FORMULA
C₂H₂
CHEMICAL FAMILY
Hydrocarbon
HAZARDOUS INGREDIENTS WT.% TLV*

ISSUE DATE
AND REVISIONS 11/1/84
CAS NUMBER
74-86-2
DOT HAZARD CLASS
Flammable Gas
DOT IDENTIFICATION NUMBER
UN 1001
CHEMTREC
800-424-9300
WT% TLV*

Acetylene	100%	None (1)	Acetone	(2)	750 ppm
-----------	------	----------	---------	-----	---------

- 1) Simple Asphyxiant, ACGIH 1984 ed.
- 2) Solution Medium 40% Total Wt. of Cylinder

PHYSICAL DATA

Boiling Point	Liquid Density at Boiling Pt.
-118.5°F (Sublimes)	1.173 GM/L @ 0°C
Vapor Pressure	Gas Density
50 @ 70° F	0.108 LB/CFT.
Solubility in Water	Specific Gravity
Slight	.91
Appearance and Odor	

Colorless Gas with Sweet Garlic Odor

FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used)	Flammable Limits
0°F (Closed Cup)	LEL 2.5 % UEL 80.0 %
Extinguishing Media	

Water Fog

Special Fire Fighting Procedures

Do not extinguish flame. If flame is extinguished before supply is exhausted, there is serious danger of explosion from reignition. Remove or wet down all cylinders exposed to direct heat or open flame.

PHYSICAL HAZARD DATA

Irritant. Mild Asphyxiant. Mild anesthetic if inhaled directly. Will cause burns if ignited. Displaces oxygen in confined areas causing dizziness and death.

Recommended First Aid Treatment - Provide oxygen. Treat areas exposed to compressed gas as burns. Employ First Aid techniques recommended by the Red Cross.

COMPATIBILITY DATA

Stability: Stable X. Conditions to Avoid: Except in specially constructed cylinders, do not use at pressures above 15 psig.

Stability: Stable

Compatibility (Materials to avoid) - Natural rubber, copper alloys above 65% silver, silver, mercury, halogens, acids, potassium permanganate, metallic sodium and potassium.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon Monoxide

Hazardous Polymerization: May Occur. Conditions to Avoid: All Not Occur.

All Not Occur

SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled - Remove cylinder to safe outdoor location and, if possible, allow contents to vent to atmosphere. Eliminate all sources of ignition away from cylinders.

Safe Disposal Method - Vent to atmosphere at slow rate in safe outdoor location. Remove all valves and fuse plugs and allow cylinder to continue venting.

SPECIAL PROTECTION INFORMATION

Wear leather gloves and aprons when welding, cutting or brazing. Safety glasses with filter lenses, shade #4 or darker. Respiratory protection is not normally required. Do not enter area of high acetylene concentration until first purging with inert gas and then ventilating with air. Provide local exhaust or mechanical ventilation if welding or cutting in confined areas. Use air supplied respirator for extreme confined areas where TLV's may be exceeded when welding, cutting or brazing.

Storage Recommendations

Keep away from heat, sparks and open flame. Secure all cylinders in an upright position and protect against physical damage. Refer to NFPA #51-1963 and CGA-Pl, "Safe Handling of Compressed Gases." Keep cylinders stored away from oxygen cylinders, oils and excelsiors. Refer to OSHA 1910 Subpart H and Subpart Q.



Leaders in Aluminum Chemistry

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: 020
MSDS DATE: 11-1-03
SUPERCEDES: 2-1-98
PRODUCT NAME: ALUMINUM SULFATE SOLUTION

CHEMTREC 24-HOUR EMERGENCY PHONE: (800) 424-9300

I. PRODUCT IDENTIFICATION

HMIS HAZARD RATINGS

HEALTH HAZARD 2 FIRE HAZARD 0 REACTIVITY 0

Based on the National Paint & Coatings Association HMIS rating system.

SARA / TITLE III HAZARD CATEGORIES (See Section X)

Immediate (ACUTE) Health: YES Reactive Hazard: NO
Delayed (CHRONIC) Health: NO Sudden Release of Pressure: NO
Fire Hazard: NO

MANUFACTURER United States Aluminate Company Telephone
9411 Philadelphia Road, Suite H (800) 882-3883
Baltimore, MD 21237

PRODUCT NAME: Aluminum sulfate solution
CHEMICAL FAMILY: Inorganic salts
SYNONYMS: Alum
MOLECULAR FORMULA: $Al_2(SO_4)_3 \cdot (14 H_2O)$
MOLECULAR WGT: < 590
PRODUCT USE: pH control in papermaking/water treatment
DOT PROPER SHIPPING NAME: Environmentally hazardous substances,
liquid, N.O.S. (Aluminum sulfate, solution)
DOT HAZARD CLASS: 9
DOT IDENTIFICATION NUMBER: UN 3082
DOT PACKING GROUP: III
DOT HAZARDOUS SUBSTANCE: Aluminum sulfate, reportable quantity 5,000
lbs.
DOT MARINE POLLUTANT: N/A
ADDITIONAL DESCRIPTION: None known.

CAS = CHEMICAL ABSTRACT SERVICE NUMBER
PEL = OSHA PERMISSIBLE EXPOSURE LIMIT
TLV = ACGIH THRESHOLD LIMIT VALUE, CURRENT

ND =NO RELEVANT INFORMATION FOUND OR NOT AVAILABLE
CORP=CORPORATE EXPOSURE LIMIT
=SEE CHRONIC EFFECTS INFORMATION NA = NOT APPLICABLE

IMPORTANT: THE INFORMATION PRESENTED HEREIN, WHILE NOT GUARANTEED, WAS PREPARED BY COMPETENT TECHNICAL PERSONNEL AND IS TRUE AND ACCURATE TO THE BEST OF OUR KNOWLEDGE, NO WARRANTY, OR GUARANTY, EXPRESS OR IMPLIED IS MADE REGARDING PERFORMANCE, STABILITY, OR OTHERWISE. THIS INFORMATION IS NOT INTENDED TO BE ALL-INCLUSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING AND STORAGE. OTHER FACTORS MAY INVOLVE OTHER OR ADDITIONAL SAFETY OR PERFORMANCE CONSIDERATIONS. WHILE OUR TECHNICAL PERSONNEL WILL BE HAPPY TO RESPOND TO QUESTIONS REGARDING SAFE HANDLING AND USE PROCEDURES, SAFE HANDLING AND USE REMAINS THE RESPONSIBILITY OF THE CUSTOMER. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OR VIOLATE ANY FEDERAL, STATE OR LOCAL LAWS.



II. PHYSICAL DATA

PHYSICAL STATE:	Liquid
BOILING POINT, @ 760 mm Hg, 60 °F:	Similar to water
VAPOR PRESSURE, mm Hg @ 60 °F:	NA
SPECIFIC GRAVITY @ 60 °F:	1.32 - 1.34
DENSITY, lbs/gallon @ 60 °F:	11.1
SOLUBILITY IN H ₂ O, % by Wt.	Completely soluble
VAPOR DENSITY (Air = 1):	Similar to water
APPEARANCE AND ODOR:	Clear to amber or light green liquid with negligible odor.
ODOR THRESHOLD (PPM):	NA
EVAPORATION RATE:	Similar to water
COEFFICIENT WATER/OIL DISTRIBUTION:	NA
MAX USE / DOSE IN DRINKING WATER	ND

III. IMPORTANT COMPONENTS

COMPONANT	CAS. NO.	%	TWA CEILING	REFERENCE
Aluminum sulfate	010043-01-3	< 50	2 mg / M3	OSHA/ACGIH

IV. HEALTH HAZARD INFORMATION

EMERGENCY AND FIRST AID PROCEDURES

EYES: Immediately irrigate with plenty of water for 15 minutes. Obtain medical attention if irritation persists.

SKIN: Remove contaminated clothing without delay. Flush skin thoroughly with water. Do not reuse clothing without laundering.

EFFECTS OF OVEREXPOSURE

The acute oral (rat) LD50 for this material is greater than 3,3000 mg/kg. The estimated acute dermal (rabbit) LD50 and 4 hour inhalation (rat) LC50 values are greater than 2,000 mg/kg and greater than 5 mg/L, respectively. Direct contact with this material may cause mild eye and skin irritation. Inhalation overexposure may cause irritation of the respiratory tract.



TOXICOLOGY DATA

The acute oral (rat) LD50 for aluminum sulfate as an OSHA regulated component is 1900 mg/kg. Acute overexposure to aluminum sulfate may produce skin and eye irritation. Inhalation overexposure to aluminum sulfate dust may cause irritation to the respiratory tract.

The acute oral (rat) LD50 and acute 1-hour inhalation (rat) for sulfuric acid as an OSHA regulated component are 2,140 mg/kg and 347 PPM (0.348 mg/L/4hr), respectively. Sulfuric acid is corrosive to the skin and eyes. Concentrated sulfuric acid can also be corrosive to the nose, mucous membranes, respiratory tract and gastrointestinal tract. Inhalation of the vapors or mist can cause pulmonary edema, emphysema or permanent changes in pulmonary function. Chronic exposure has been reported to be associated with dermatitis, chronic bronchitis, gastritis, erosion of dental enamel, conjunctivitis, increased frequency of respiratory tract infections and cancer of the larynx, lungs and upper respiratory tract.

V. SPECIAL PROTECTION

ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT (PPE)

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure. Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water. Avoid skin contact. Protective clothing such as impervious gloves, apron, workpants, long sleeve work shirt, or disposable coveralls are recommended to prevent skin contact. For operations where eye or face contact can occur, wear eye protection such as chemical splash-proof goggles or face shield. Eyewash equipment and safety shower should be provided in areas of potential exposure. Where exposures are below the Permissible Exposure Limit (PEL), no respiratory protection is required. Where exposures exceed the PEL, use respirator approved by NIOSH for the material and level of exposure. See "GUIDE TO INDUSTRIAL RESPIRATORY PROTECTION" (NIOSH).

VI. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY:

Under normal conditions product is stable.

INCOMPATIBILITY:

See Handling and Storage Section. This product is incompatible with alkalis. When handling this product, avoid contact with aluminum, tin, zinc, iron, and alloys containing these metals. Do not mix with strong alkalis.



HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition may produce sulfur dioxide or sulfur trioxide.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:

Material is not known to polymerize.

VII. FIRE AND EXPLOSION DATA

FLASH POINT:	Not applicable
AUTO IGNITION TEMP:	Not applicable
FLAMMABLE LIMITS IN AIR, BY VOLUME	
UPPER:	Not applicable
LOWER:	Not applicable
DECOMPOSITION TEMP:	Not available

EXTINGUISHING MEDIA AND FIRE FIGHTING INSTRUCTIONS

Use water spray, carbon dioxide or dry chemical to extinguish fires. Use water to keep containers cool. Wear self-contained, positive pressure breathing apparatus and full fire fighting protective clothing. See Section V. for special protective clothing.

VIII. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS:

Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Prevent material from coming in contact with common metals.

IX. ENVIRONMENTAL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Where exposure level is not known, wear NIOSH approved, positive pressure, self-contained respirator. Where exposure level is known, wear NIOSH approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Special Protection, Section V, wear rain suit. Cover spills with some inert absorbent material; sweep up and place in a waste disposal container. Flush area with water.

WASTE DISPOSAL METHOD:

Disposal must be made in accordance with applicable governmental regulations.



ECOLOGICAL INFORMATION:

No aquatic LC50, BOD, or COD data available. OCTANOL/H₂O PARTITION COEF: NA

X. ADDITIONAL REGULATORY INFORMATION

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemical by means of a hazard communication program including labeling, material safety data sheets, training and access to written record. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III hazard categories for this product are indicated in Section I. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40 CFR Part 370. Please consult those regulations for details.

This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C.

XI. PREPARATION INFORMATION

For additional Non-emergency health, safety, or environmental information telephone (800) 882-3883, or write to:

United States Aluminate Company
9411 Philadelphia Road, Suite H
Baltimore, MD 21237

For Emergencies: CHEMTREC 24 HOUR EMERGENCY PHONE (800) 424-9300

This Material Safety Data Sheet (MSDS) covers the following materials:

- Aluminum sulfate solution

WARNING LABEL INFORMATION

STATEMENTS OF HAZARD:

WARNING! CAUSES EYE AND SKIN IRRITATION.



United States Aluminate Company



433-20

MATERIAL SAFETY DATA SHEET

MSDS NUMBER : 020
 MSDS DATE : 2-1-98
 SUPERCEDES : 3-11-97
 PRODUCT NAME : ALUMINUM SULFATE, LIQUID
 (For specific products see Section XI)

CHEMTREC 24 HOUR EMERGENCY PHONE: CHEMTREC (800) 424-9300

I. PRODUCT IDENTIFICATION

HMIS HAZARD RATINGS

HEALTH HAZARD 1 FIRE HAZARD 0 REACTIVITY 0
 Based on the National Paint & Coatings Association HMIS rating system.

SARA / TITLE III HAZARD CATEGORIES (See Section X)
 Not applicable under SARA TITLE III

MANUFACTURER'S NAME AND ADDRESS	United States Aluminate Company 9411 Philadelphia Road, Suite H Baltimore, MD 21237	Telephone (800) 531-5778
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CHEMICAL NAME: Aluminum sulfate, liquid
 CHEMICAL FAMILY: Inorganic salt
 SYNONYMS: Liquid alum, papermaker's alum
 MOLECULAR FORMULA: $Al_2(SO_4)_3 \cdot (14H_2O)$
 MOLECULAR WGT: < 590
 PRODUCT USE: Flocculent in water treatment (max use/dose in potable water is 150 mg/l)

DOT PROPER SHIPPING NAME: Environmentally hazardous substances, liquid, N.O.S.
 (aluminum sulfate, solution)
 DOT HAZARD CLASS: 9
 DOT IDENTIFICATION NUMBER: UN 3082
 DOT PACKING GROUP: III
 DOT HAZARDOUS SUBSTANCE: Aluminum sulfate, reportable quantity 5,000 lbs.
 DOT MARINE POLLUTANT: NA
 ADDITIONAL DESCRIPTION REQUIREMENT: NA

CAS = CHEMICAL ABSTRACT SERVICE NUMBER ND =NO RELEVANT INFORMATION FOUND OR NOT AVAILABLE
 PEL = OSHA PERMISSIBLE EXPOSURE LIMIT CORP =CORPORATE EXPOSURE LIMIT
 TLV = ACGIH THRESHOLD LIMIT VALUE, CURRENT =SEE CHRONIC EFFECTS INFORMATION NA = NOT APPLICABLE

IMPORTANT: THE INFORMATION PRESENTED HEREIN, WHILE NOT GUARANTEED, WAS PREPARED BY COMPETENT TECHNICAL PERSONNEL AND IS TRUE AND ACCURATE TO THE BEST OF OUR KNOWLEDGE, NO WARRANTY, OR GUARANTY, EXPRESS OR IMPLIED IS MADE REGARDING PERFORMANCE, STABILITY, OR OTHERWISE. THIS INFORMATION IS NOT INTENDED TO BE ALL-INCLUSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING AND STORAGE. OTHER FACTORS MAY INVOLVE OTHER OR ADDITIONAL SAFETY OR PERFORMANCE CONSIDERATIONS. WHILE OUR TECHNICAL PERSONNEL WILL BE HAPPY TO RESPOND TO QUESTIONS REGARDING SAFE HANDLING AND USE PROCEDURES, SAFE HANDLING AND USE REMAINS THE RESPONSIBILITY OF THE CUSTOMER. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OF VIOLATE ANY FEDERAL, STATE OR LOCAL LAWS.

II. PHYSICAL DATA

PHYSICAL STATE:	Liquid
BOILING POINT, @ 760 mm Hg, 60 °F:	Similar to water
VAPOR PRESSURE, mm Hg @ 60 °F:	NA
SPECIFIC GRAVITY @ 60 °F:	1.32 - 1.34
DENSITY, lbs/gallon @ 60 °F:	11.1
SOLUBILITY IN H ₂ O, % by Wt.	Completely soluble
VAPOR DENSITY (Air = 1):	Similar to water
APPEARANCE AND ODOR:	Water white liquid with negligible odor.
ODOR THRESHOLD (PPM):	NA
EVAPORATION RATE:	Similar to water
COEFFICIENT WATER/OIL DISTRIBUTION:	NA
MAX USE / DOSE IN DRINKING WATER	150 mg/l

III. IMPORTANT COMPONENTS

OSHA REGULATED COMPONENTS

COMPONENT	CAS. NO.	%	TWA CEILING	REFERENCE
Aluminum sulfate	010043-01-3	< 50	2 mg / M3	OSHA/ACGIH

IV. HEALTH HAZARD INFORMATION

EMERGENCY AND FIRST AID PROCEDURES

EYES: Immediately irrigate with plenty of water for 15 minutes.

SKIN: Wash affected areas of skin with soap and water.

EFFECTS OF OVEREXPOSURE

The estimated acute oral (rat) LD₅₀, acute dermal (rabbit) LD₅₀, and 4 hour inhalation (rat) LC₅₀ values for this material are >2,000 mg/kg, > 2,000 mg/kg and > 5 mg/L, respectively. Direct contact with this material may cause mild eye and skin irritation. Inhalation overexposure may cause irritation of the respiratory tract.

TOXICOLOGY DATA

The acute oral (rat) LD₅₀ for aluminum sulfate as an OSHA regulated component is 1900 mg/kg. Acute overexposure to aluminum sulfate may produce skin and eye irritation. Inhalation overexposure to aluminum sulfate dust may cause irritation to the respiratory tract.

V. SPECIAL PROTECTION

ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT (PPE)

Engineering controls are not usually necessary if good hygiene practices are followed. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water. Avoid unnecessary skin contact. Impervious gloves and apron are recommended to prevent skin contact. For operations where eye or face contact can occur, wear eye protection such as chemical splash-proof goggles or face shield. Where exposures are below the Permissible Exposure Limit (PEL), no respiratory protection is required. Where exposures exceed the PEL, use respirator approved by NIOSH for the material and level of exposure. See "GUIDE TO INDUSTRIAL RESPIRATORY PROTECTION" (NIOSH).

X. ADDITIONAL REGULATORY INFORMATION

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemical by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III hazard categories for this product are indicated in Section I. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40 CFR Part 370. Please consult those regulations for details.

This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C.

XI. PREPARATION INFORMATION

For additional non-emergency health, safety, or environmental information telephone (410) 918-2230, or write to:

United States Aluminate Company
9411 Philadelphia Road, Suite H
Baltimore, MD 21237

For Emergencies: CHEMTREC 24 HOUR EMERGENCY PHONE (800) 424-9300

This Material Safety Data Sheet (MSDS) covers the following materials:

- Aluminum sulfate, liquid

WARNING LABEL INFORMATION

STATEMENTS OF HAZARD:

CAUTION! MAY CAUSE EYE AND SKIN IRRITATION



MATERIAL SAFETY DATA SHEET

PRODUCT NAME: CHLORINE

1. Chemical Product and Company Identification

BOC Gases,
Division of
The BOC Group, Inc.
575 Mountain Avenue
Murray Hill, NJ 07974

BOC Gases
Division of
BOC Canada Limited
5975 Falbourne Street, Unit 2
Mississauga, Ontario L5R 3W6
TELEPHONE NUMBER: (905) 501-1700

TELEPHONE NUMBER: (908) 464-8100
24-HOUR EMERGENCY TELEPHONE
NUMBER: CHEMTREC (800) 424-9300

24-HOUR EMERGENCY TELEPHONE
NUMBER: (905) 501-0802
EMERGENCY RESPONSE PLAN NO: 2-0101

PRODUCT NAME: CHLORINE
CHEMICAL NAME: Chlorine
COMMON NAMES/SYNONYMS: Bertholite, Molecular Chlorine
TDG (Canada) CLASSIFICATION: 2.3 (5.1)
WHMIS CLASSIFICATION: A, D1A, D2B, E, C

PREPARED BY: Loss Control (908)464-8100/(905)501-1700
PREPARATION DATE: 6/1/95
REVIEW DATES: 6/1/99

2. Composition, Information on Ingredients

EXPOSURE LIMITS¹:

INGREDIENT	% VOLUME	PEL-OSHA ²	TLV-ACGIH ³	LD ₅₀ or LC ₅₀ Route/Species
Chlorine FORMULA: Cl ₂ CAS: 7782-50-5 RTECS #: FO2100000	100.0	1 ppm Ceiling	0.5 ppm TWA 1 ppm STEL	LC ₅₀ : 293 ppm inhalation/rat (1H)

¹ Refer to individual state or provincial regulations, as applicable, for limits which may be more stringent than those listed here.

² As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

³ As stated in the ACGIH 1998-1999 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.
IDLH: 10 ppm

3. Hazards Identification

EMERGENCY OVERVIEW
Greenish yellow gas with bleach-like choking odor. Corrosive and poison gas. Contact may cause severe irritation or corrosive burns to the eyes, skin and mucous membranes. Inhalation may result in chemical pneumonitis, pulmonary edema, and respiratory collapse. Nonflammable. Oxidizer. May react violently with reducing agents. Can accelerate combustion. Contents under pressure. Use and store below 125 °F.

PRODUCT NAME: CHLORINE

ROUTE OF ENTRY:

Skin Contact Yes	Skin Absorption No	Eye Contact Yes	Inhalation Yes	Ingestion No
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HEALTH EFFECTS:

Exposure Limits Yes	Irritant Yes	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects Other agents that irritate the respiratory system		

Carcinogenicity: -- NTP: No IARC: No OSHA: No

EYE EFFECTS:

Corrosive and irritating to the eyes. Contact with the liquid or vapor causes painful burns and ulcerations. Burns to the eyes result in lesions and possible loss of vision.

SKIN EFFECTS:

Corrosive and irritating to the skin and all living tissue. It hydrolyzes very rapidly yielding hydrochloric acid. Skin burns and mucosal irritation are like that from exposure to volatile inorganic acids. Chlorine burns exhibit severe pain, redness, possible swelling and early necrosis.

INGESTION EFFECTS:

Ingestion is unlikely.

INHALATION EFFECTS:

Corrosive and irritating to the upper and lower respiratory tract and all mucosal tissue. Symptoms include lacrimation, cough, labored breathing, and excessive salivary and sputum formation. Excessive irritation of the lungs causes acute pneumonitis, pulmonary edema, and respiratory collapse which could be fatal. Residual pulmonary malfunction may also occur. Chemical pneumonitis and pulmonary edema may result from exposure to the lower respiratory tract and deep lung.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: May aggravate pre-existing eye, skin, and respiratory conditions.

NFPA HAZARD CODES

Health: 4
Flammability: 0
Instability: 0
OXIDIZER

HMIS HAZARD CODES

Health: 3
Flammability: 0
Reactivity: 0

RATINGS SYSTEM

0 = No Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

4. First Aid Measures

EYES:

PERSONS WITH POTENTIAL EXPOSURE SHOULD NOT WEAR CONTACT LENSES. Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 30 minutes. Seek immediate medical attention.

SKIN:

Flush affected area with copious quantities of water while removing contaminated clothing. Seek immediate medical attention.

PRODUCT NAME: CHLORINE

INGESTION:

None required.

INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. If breathing is difficult, administer oxygen. Unconscious persons should be moved to an uncontaminated area and given artificial resuscitation and supplemental oxygen. Assure that mucus or vomited material does not obstruct the airway by use of positional drainage. Delayed pulmonary edema may occur. Keep the patient under medical observation for at least 24 hours.

5. Fire Fighting Measures

Conditions of Flammability: Not flammable		
Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEL(%): None	UEL(%): None	
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

FIRE AND EXPLOSION HAZARDS:

Strong oxidizer. Most combustible materials burn in chlorine as they do in oxygen producing irritating and poisonous gases. Flame impingement upon steel chlorine container will result in iron/chlorine fire causing rupture of the container. Cylinder may rupture violently from pressure when involved in a fire situation.

EXTINGUISHING MEDIA:

Use media suitable for surrounding materials. If it can be done without risk, stop the flow of chlorine which is accelerating the fire.

FIRE FIGHTING INSTRUCTIONS:

Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire exposed cylinders until well after flames are extinguished. Additional chemical protective clothing should be worn as necessary to prevent skin contact. Continue to cool fire exposed cylinders until well after flames are extinguished.

6. Accidental Release Measures

Evacuate all personnel from affected area. Deny entry to unauthorized and unprotected individuals. Extinguish all ignition sources. No smoking, sparks, flames, or flares in hazard area. Appropriate protective equipment is essential to prevent exposure. A leak near incompatible, flammable or combustible materials may create a fire or explosion hazard. Consult a HAZMAT specialist and the appropriate emergency telephone number in Section 1 or your closest BOC location. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs.

PRODUCT NAME: CHLORINE

7. Handling and Storage

Electrical classification:

Nonhazardous.

Most metals corrode rapidly with wet chlorine. Systems must be kept dry. Lead, gold, tantalum and Hastelloy are most resistant to wet chlorine.

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<250 psig) piping or systems. Do not heat cylinder by any means to increase rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into cylinder.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated areas of non-combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125°F (52°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full & empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Separate from combustibles, organic, and easily oxidizable materials. Isolate from acetylene, ammonia, hydrogen, hydrocarbons, ether, turpentine, finely divided metals, and other incompatible materials. Outside or detached storage is preferred.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

For additional storage recommendations, consult Compressed Gas Association's Pamphlet P-1.

8. Exposure Controls, Personal Protection

ENGINEERING CONTROLS:

Hood with forced ventilation may be used for small quantities. Use local exhaust ventilation in combination with enclosed processes as needed to prevent accumulation above the exposure limit.

EYE/FACE PROTECTION:

Gas-tight safety goggles and full faceshield or full-face respirator.

SKIN PROTECTION:

Protective gloves or fully encapsulated vapor protective clothing. (Butyl rubber, neoprene, and Teflon ® provide adequate protection for exposures to chlorine greater than 8 hours.)

RESPIRATORY PROTECTION:

Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

OTHER/GENERAL PROTECTION:

Safety shoes, safety shower, eyewash "fountain"

PRODUCT NAME: CHLORINE

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure at 70 °F	: 100.2	psia
Vapor density at STP (Air = 1)	: 2.47	
Evaporation point	: Not Available	
Boiling point	: -29.3	°F
	: -34.1	°C
Freezing point	: -149.8	°F
	: -101	°C
pH	: Not Available	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Very Soluble	
Odor threshold	: Not Available	
Odor and appearance	: Greenish-yellow gas with sharp suffocating odor. Liquid is amber colored.	

10. Stability and Reactivity

STABILITY:

Stable

INCOMPATIBLE MATERIALS:

Strong oxidizer. Will react with organic and other oxidizable materials. Reacts explosively or forms explosive compounds with many common substances including acetylene, ether, turpentine, ammonia, fuel gas, hydrogen and finely divided metals. Reacts with water to form corrosive acidic solution.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. Toxicological Information

INHALATION:

Inhalation of chlorine concentrations as low as 1 ppm may cause nose, throat and conjunctiva irritation. Irritation becomes more pronounced at concentrations of 1.3 ppm and above with coughing and labored breathing. Death may occur after a few breaths at 1000 ppm. Delayed effects following high exposure may include bronchitis, edema, and pneumonia.

SKIN AND EYE:

Extremely irritating to the skin, eyes, and mucous membranes. Can cause corrosive burns. May cause corrosion of the teeth. Prolonged exposure to low concentrations may cause chloracne.

CHRONIC:

Repeated contact with low concentrations may cause dermatitis.

OTHER:

Experimental evidence indicates the possibility of mutagenic, teratogenic, and reproductive effects in animals.

12. Ecological Information

No data given.

MSDS: G-23

Revised: 6/1/99

PRODUCT NAME: CHLORINE

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER	United States DOT	Canada TDG*
PROPER SHIPPING NAME:	Chlorine	Chlorine
HAZARD CLASS:	2.3	2.3 (8)
IDENTIFICATION NUMBER:	UN 1017	UN 1017
SHIPPING LABEL:	POISON GAS, CORROSIVE	POISON GAS, CORROSIVE

* Described in accordance with the UN Recommendations on the Transport of Dangerous Goods, 10th Edition.

Additional Marking Requirement: "Inhalation Hazard"

If net weight of product \geq 10 pounds, the container must be also marked with the letters "RQ".

Additional Shipping Paper Description Requirement: "Poison-Inhalation Hazard, Zone B"

If net weight of product \geq 10 pounds, the shipping papers must be also marked with the letters "RQ".

15. Regulatory Information

Chlorine is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 2,500 pounds.

SARA TITLE III NOTIFICATIONS AND INFORMATION

Chlorine is listed as an extremely hazardous substance (EHS) subject to state and local reporting under Section 304 of SARA Title III (EPCRA).

The presence of chlorine in quantities in excess of the threshold planning quantity (TPQ) of 100 pounds requires certain emergency planning activities to be conducted.

Releases of chlorine in quantities equal to or greater than the reportable quantity (RQ) of 10 pounds are subject to reporting to the National Response Center under CERCLA, Section 304 SARA Title III.

SARA TITLE III - HAZARD CLASSES:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard
Sudden Release of Pressure Hazard
Reactivity Hazard

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

CAS NUMBER	INGREDIENT NAME	PERCENT BY VOLUME
7782-50-5	CHLORINE	100.0

This information must be included on all MSDSs that are copied and distributed for this material.

PRODUCT NAME: CHLORINE

16. Other Information

ACGIH	American Conference of Governmental Industrial Hygienists
DOT	Department of Transportation
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
WHMIS	Workplace Hazardous Materials Information System

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

CAPITAL CONTROLS
COLMAR, PA
(215)997-4000

MATERIAL
SAFETY
DATA
SHEET

Cat. No.: Z11653
Part#(s): 622B007U01

date 03/22/02

SECTION I IDENTIFICATION

Product Name: Chloralert Electrolyte
Chemical Name:
Synonym: Modified Glycerine
Formula: N/A

SECTION II HAZARDOUS INGREDIENTS DATA

Ingredients:	CASRN	%	Threshold Limit Values			
			OSHA-TWA		OSHA-STEL	
			ppm	mg/m3	ppm	mg/m3
Glycerol (MILD IRRITANT)	56-81-5	87.6	NE	NE	NE	NE
Acetic Acid (IRRITANT)	64-19-7	3.6	NE	NE	NE	NE
Potassium Bromide (IRRITANT)	7758-02-3	8.8	NE	NE	NE	NE

SECTION III PHYSICAL DATA

Boiling Point	: 290 C	% Volatile by Volume	: N/D
Vapor Pressure @ 20 C degrees	: 1.00	Evaporation Rate (Butyl Acetate = 1)	: N/D
Vapor Density	: N/D	Specific Gravity	: 1.3
Solubility in Water	: miscible	Melting Point	: N/A
Appearance and Odor	: liquid		

SECTION IV EXPLOSION AND FIRE HAZARD DATA

Flash Point:	390 F	Flammable Limits:
Test Mode:	PMCC	LEL: N/D UEL: N/D

Extinguishing Media: water, carbon dioxide, dry chemical powder, foam
Special Fire Fighting Procedures: Firefighters must wear self-contained breathing apparatus and fully protective equipment.

Unusual Fire and Explosion Hazards: Use water spray to disperse vapor.

 * CAPITAL CONTROLS provides the information contained herein in good *
 * faith but makes no representation as to its comprehensiveness or *
 * accuracy. Individuals receiving this information must exercise their *
 * independent judgement in determining its appropriateness for a par- *
 * ticular purpose. CAPITAL CONTROLS makes no representations or war- *
 * ranties, either expressed or implied of merchantability, fitness for *
 * particular purposes with respect to the information set forth herein *
 * or to which the information refers. Accordingly CAPITAL CONTROLS *
 * will not be responsible for damages resulting from the use of or *
 * reliance upon this information. *

 . N/A = Not Applicable; NE = Not Established; N/D = No Data

MATERIAL SAFETY DATA SHEET

Cat. No.: Z11653 - Page 2

SECTION V HEALTH HAZARD

Route(s) of Entry: Inhalation: yes Skin: yes Ingestion: yes
RTECS#: NA Carcinogenicity: no
Health Hazards (acute and chronic): Product is classified as an irritant that will do harm by most routes of exposure. Refer below for specific hazard information. Handle with caution.
Medical Conditions Generally Aggravated by Exposure: NE

Signs and Symptoms of Exposure: Chemical will be harmful by ingestion, inhalation, or absorption through the skin. It will be an irritant to the areas of the mucous membranes, and to the eyes should exposure be extensive. The toxicological properties of this product are limited due to minimal research, but certain compounds therein are known to be harmful irritants of the skin and eyes and if ingested can cause internal damage. Handle with the care required by good laboratory technique.

Emergency and First Aid Procedures:

Skin Contact: Wash affected area with copious amounts of water.
Eye Contact: Flush eyes with water for at least 15 minutes.
Inhalation: Remove to fresh air. Give oxygen or artificial respiration, as needed.
Ingestion: Drink 1 or 2 glasses of water. Call physician. Seek medical treatment if discomfort persists.

SECTION VI REACTIVITY DATA

stability: stable
Conditions to Avoid: high temperature
Incompatibility: strong oxidizing agents, sodium hypochlorite
Hazardous Decomposition Products: acrolein
Hazardous Polymerization: will not occur
Conditions to Avoid: high temperature, free radical sources

SECTION VII SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: Wear self-contained breathing apparatus, rubber boots and gloves. Absorb on sand, vermiculite, sawdust and put in a container for future disposal. Wash and ventilate spill site after pickup is complete.

Waste Disposal Method: Dissolve or mix the material with a combustible Dispose of insolvent and burn in and EPA licenced chemical incinerator equipped with an afterburner and scrubber. Dispose in compliance with all local, state, and Federal regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection: OSHA/MHSA approved respirator if needed

Ventilation: mechanical ventilation

Protective Gloves: rubber

Eye Protection: safety goggles

Other Protective Equipment: safety shower and eye bath

SECTION IX SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage: Store material at room temperature. Keep storage container tightly closed. Avoid contact with skin and eyes. Do not inhale. Wash thoroughly after handling.

MATERIAL SAFETY DATA SHEET

Coopers Creek Chemical Corporation

1. Chemical Product and Company Identification

Manufacturer: Coopers Creek Chemical Corp. 884 River Road, West Conshohocken, PA 19428-2699

Telephone Contacts: Office: (610) 828-0375 CHEMTREC 24-Hour Emergency Phone No.: 1-800-424-9300

Product Code: 9075

Label Name: Cooper Black No. 775 Epoxy (A)

Synonym: Pitch paint

Chemical Class: Tar pitch mixture of solvents, solids

2. Composition/Information on Ingredients

Component	CAS Reg. Number	Appr. Wt %	OSHA-PEL		ACGIH TLV	
			TWA	Ceiling	TWA	STEL
Coal tar pitch, high temp. May include:	65996-93-2	35	0.2 mg/m ³ *	NE	0.2 mg/m ³ *	NE
Acenaphthene	83-32-9		NE	NE	NE	NE
Acenaphthylene	208-96-8		NE	NE	NE	NE
Anthracene	120-12-7		NE	NE	0.2 mg/m ³ *	NE
Benzo[a]anthracene	56-55-3		NE	NE	A2	NE
Benzo[a]pyrene	50-32-8		0.2 mg/m ³ *	NE	A2	NE
Benzo[b]fluoranthene	205-99-2		NE	NE	A2	NE
Benzo[ghi]perylene	191-24-2		NE	NE	NE	NE
Benzo[k]fluoranthene	207-08-9		NE	NE	NE	NE
Carbazole	86-74-8		NE	NE	NE	NE
Chrysene	218-01-9		0.2 mg/m ³ *	NE	A2	NE
Dibenz[a,h]anthracene	53-70-3		NE	NE	NE	NE
Dibenzofuran	132-64-9		NE	NE	NE	NE
Fluoranthene	206-44-0		NE	NE	NE	NE
Fluorene	86-73-7		NE	NE	NE	NE
Indene	95-13-6		NE	NE	10 ppm	NE
Indeno[1,2,3-cd]pyrene	193-39-5		NE	NE	NE	NE
1-Methylnaphthalene	90-12-0		NE	NE	NE	NE
2-Methylnaphthalene	91-57-6		NE	NE	NE	NE
Naphthalene	91-20-3		10 ppm	NE	10 ppm	15 ppm
Phenanthrene	85-01-8		.2 mg/m ³ *	NE	0.2 mg/m ³ *	NE
Pyrene	129-00-0		0.2 mg/m ³ *	NE	0.2 mg/m ³ *	NE
Talc	14807-96-6	26	20 mppcf	NE	2 mg/m ³ TD-AF	NE
Xylene	1330-20-7	20	100 ppm	NE	100 ppm	150 ppm
Polyamide resin	68082-29-1	11	NE	NE	NE	NE
n-Propoxy propanol	1569-01-3	3	NE	NE	NE	NE
Silica sand (quartz)	7631-86-9	2	**	NE	0.1 mg/m ³ RF	NE
2,4,6-tris-DMP	90-72-2	1	NE	NE	NE	NE
Soya lecithin	8002-43-5	2	NE	NE	NE	NE

Notes on Exposure Limits: NE=Not Established.

RF = Respirable Fraction. TD = Total Dust. AF= Asbestos Free.

*For benzene-(or cyclohexane-) soluble fraction of coal tar pitch volatiles.

**PEL for crystalline quartz (respirable): 10 mg/m³/(%SiO₂+2). PEL for Quartz (total dust): (30 mg/m³)/(%SiO₂+2)

3. Potential Health Effects

Hazardous Material Identification System (HMIS) Classification:

Health: 2* Flammability: 3 Reactivity: 0 Personal Protection: Depends upon conditions.

Inhalation:

High vapor concentrations are irritating to the nose and throat. Overexposure can cause headache, dizziness, drowsiness, and unconsciousness. Persons with impaired lung function or asthma-like conditions may experience breathing difficulties due to the irritancy effects of the aromatic solvent.

Eye Exposure:

Vapors can irritate eyes. Liquid contact can cause redness, tearing, and irritation. Solids may scratch eyeball. Repeated or prolonged exposure may cause eye damage. Hot material can burn eye tissue, possibly resulting in loss of eyesight.

Skin Exposure:

Liquid and vapors can cause skin irritation and dermatitis, including acne. Coal tar pitch is a phototoxic substance that, in the presence of ultraviolet light (sunlight), can cause a skin reaction similar to an exaggerated sunburn, frequently causing blisters. Existing skin disorders (e.g., eczema) may be aggravated by exposure to this material. Hot material can cause severe heat burns.

Ingestion:

Swallowing can cause severe gastrointestinal irritation, nausea, vomiting, and depression of the central nervous system. Solvent can enter the lungs during swallowing or vomiting, causing lung inflammation and damage.

Delayed Effects:

Long-term overexposure to coal tar pitch can affect skin pigmentation and cause growths on the skin or skin cancer. It may cause cancer of the lungs, kidneys, or bladder. Long-term overexposure to solvents in this mixture can irreversibly cause liver or kidney damage and may cause embryofetotoxicity.

Chronic Effects / Carcinogenicity Determinations:

Coal tar pitch has been determined by IARC to be a human carcinogen. Coal tar pitch and several of its specific ingredients, including benzo[a]pyrene, have been determined by NTP to cause cancer in experimental animals.

4. First Aid Measures

Inhalation:

Remove subject to fresh air immediately. Give artificial respiration if breathing has stopped. Administer oxygen if breathing is difficult. Consult a physician if symptoms persist.

Eye Contact:

Flush eyes with plenty of water for at least 15 minutes (see ANSI Z358.1-1990). Consult a physician at once if hot material has contacted eye. Otherwise, seek medical attention if irritation persists.

Skin Contact:

If contacted by unheated material or light spray, remove contaminated clothing, including shoes. Then remove material from skin with vegetable oil and wash thoroughly with soap and water. Hydrocortisone cream may be used for relief of skin irritation. Consult a physician if irritation persists.

If contacted by hot liquid, do not remove clothing in affected areas. Instead, immerse affected area immediately in ice-cold water until all heat has dissipated. Then wrap them in gauze and get medical attention promptly.

Ingestion:

Do not give anything by mouth. Do not induce vomiting, pulmonary complications can result. Consult a physician or poison control center at once.

5. Fire Fighting Measures

Ignition Data:

<i>Flash Point:</i>	86°F, 30°C
<i>Lower Flammable Limit:</i>	1.0 percent (est.)
<i>Upper Flammable Limit:</i>	7.0 percent (est.)
<i>Autoignition Temp:</i>	463 C/867 F (est.)
<i>Combustion Products:</i>	Can include oxides of nitrogen, carbon, and possibly sulfur.

Fire Fighting Guidelines:

Extinguishing media: Use Class B extinguishant, e.g., dry chemical, foam, carbon dioxide, or water fog. In closed tanks, water or foam may cause frothing or eruption.

Wear respirator (pressure demand, self-contained breathing apparatus, MSHA/NIOSH-approved) and full protective gear for working fires. Cool exposed containers with water spray. Keep personnel removed from upwind of fire.

6. Accidental Release Measures

Personal Protection:

Follow all precautions given in Section 8, and, in addition, wear permeation-resistant, elastomeric boots or overshoes.

Clean-Up:

Eliminate all sources of ignition and, if indoors, ventilate spill area. Stop source of spill or leak if possible. Contain spillage by diking with sand, earth, pigs, or other inert material in order to prevent spillage from entering sewers or open bodies of water and/or to prevent soil contamination.

In compliance with 40 CFR Part 302, report the release immediately to the National Response Center if amount released exceeds 157 pounds, an amount based upon the concentration of benzo[b]fluoranthene (RQ - 1 lb.) present in this material and listed in Table 302.4.

Allow hot material to cool, then transfer spillage to labeled recovery containers.

7. Handling and Storage

Eliminate ignition sources. Store in tightly closed, labeled containers protected from physical damage and separated from oxidizers. Storage locations should meet, as a minimum, all applicable requirements of NFPA 30 - *Flammable and Combustible Liquids Code* (1993) as it applies to Class IC liquids.

8. Engineering Controls/Personal Protective Equipment

Ventilation and Containment:

Keep containers closed when not in use. If indoors, use either local or general exhaust ventilation sufficient to keep vapor and fume levels below applicable exposure limits. If outdoors, stay upwind whenever practical to do so.

Respiratory Protection:

If ventilation/containment measures are not reliably protect against inhalation overexposure, wear MSHA/NIOSH approved respirator suitable for protection from the vapor concentrations encountered.

Eye Protection:

Wear splash goggles (per appropriate ANSI standard) when pouring or transferring this material. Do not wear contact lenses.

Skin Protection:

Avoid skin contact by wearing permeation-resistant, elastomeric gloves and clothes with long sleeves and pants. Replace elastomeric protective equipment whenever it becomes swollen, gummy, torn, or shows evidence of barrier loss. Apply a solvent-resistant skin barrier cream to areas of skin that may come into contact with material. If working out-of-doors, first apply sunscreen lotion with a high sun block protection factor to skin exposed to sunlight, then apply barrier cream.

Other Protective Measures:

An eyewash station and emergency shower (ANSI Z358.1-1990) should be readily available.

Personal Hygiene:

Remove product from skin with vegetable oil whenever observed; reapply barrier cream as appropriate. Wash hands and forearms with soap and water after handling, and especially before eating or smoking. Shower at the end of each work shift. Launder contaminated clothing separate from other laundry before reuse.

9. Physical and Chemical Properties

Appearance:	Black, viscous liquid	Specific Gravity:	Approx. 1.22
Odor:	Hydrocarbon solvent	Pct. Volatiles:	23 (est.)
Water Solubility:	Negligible	Initial Boiling Pt:	139° C/282° F
Vapor Density:	Above 1.0	Vapor Pressure:	6.6 mm Hg @20° C (est.)
Flash point (Pensky Martins)	86° F	VOC/Gallon (lbs. Per gallon)	2.85 lbs./gallon maximum (mixed)

10. Stability and Reactivity*Stability:*

This material is stable under normal conditions of storage and handling. That is, it does not react with common substances (air, water, etc.), nor polymerize, nor decompose during foreseeable conditions of storage or use.

Reactivity:

Material reacts violently with strong oxidizers such as liquid chlorine, sodium or potassium hypochlorite, nitric acid and peroxides.

11. Toxicological Information

INTENTIONALLY OMITTED

12. Ecological Information

INTENTIONALLY OMITTED

13 Disposal Considerations*Containers:*

Empty containers may contain hazardous residues that could burn or cause container to rupture violently if heated or ignited. Observe all MSDS and label precautions until containers are reconditioned. Do not weld on or apply heat or flame to container. Prevent unauthorized reuse of containers. Follow all applicable federal, state, and local regulations in disposing of containers.

Waste Disposal:

Incinerate at a permitted facility in accordance with local and state regulations. If flash point of waste liquid is below 140 F, store and ship waste as *Unlisted Hazardous Wastes Characteristic of Ignitability*, RCRA #D-001, RQ: 100 lbs. (per 40 CFR Parts 261 and 262). If waste is a solvent-free dry solid, it is not classified as Hazardous Waste.

14. Transport Information

Packaged Shipment - DOT Bill of Lading Descriptions

Up to 5 gal:

Paint, Class 3, UN1263, PG III

Drums:

RQ, Paint, Class 3, UN1263, PG III
(xylene, tar pitch/HAZ SUB: benzo[a]pyrene, benzo[b]fluoranthene)

Packaged Shipment - IMO/IMDG Description (check latest IMDG to confirm specific requirements)

Paint, Class 3, UN1263, PG III
(xylene, tar pitch/HAZ SUB: benzo[a]pyrene, benzo[b]fluoranthene)

15. Regulatory Information

All Ingredients of this product are listed on the TSCA Inventory in accordance with Section 8(b).

The following ingredients are reportable under SARA Section 313 (40 CFR Part 372, Subpart D):

Name	CAS Number	Concentration, wt. pct
Xylene	1330-20-7	15-17
Ethyl Benzene	100-41-4	2-4
Polycyclic Aromatic Compound Category	None	0-2

CALIFORNIA PROPOSITION 65: "WARNING: This product contains chemicals known to the State of California to cause cancer."

16. Other Information

Prepared and Issued- December 2002. This MSDS conforms to the requirements of ANSI Z400.1.

This Material Safety Data Sheet and the information it contains is offered to you in good faith as accurate. We believe this information to be correct but cannot guarantee its accuracy or completeness. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable for their particular circumstances.

Any photocopy must be of this entire document.

MATERIAL SAFETY DATA SHEET

Coopers Creek Chemical Corporation

1. Chemical Product and Company Identification

Manufacturer: Coopers Creek Chemical Corp. 884 River Road, West Conshohocken, PA 19428-2699

Telephone Contacts: Office: (610) 828-0375 CHEMTREC 24-Hour Emergency Phone No.: 1-800-424-9300

Product Code: 0076 Label Name: Cooper Black No. 775 Part B

Synonym: bis-Phenol A epoxy resin Chemical Class: Epoxide

2. Composition/Information on Ingredients

Component	CAS Reg. Number	Appr. Wt %	OSHA-PEL		ACGIH TLV	
			TWA	Ceiling	TWA	STEL
Epoxy resin	25068-38-6	100	NE	NE	NE	NE

Notes on Exposure Limits: NE=Not Established.

3. Potential Health Effects

Hazardous Material Identification System (HMIS) Classification:

Health: 1* Flammability: 1 Reactivity: 0 Personal Protection: Depends upon conditions.

Inhalation:

Spray mist may irritate nose and throat.

Eye Exposure:

Spray mist or liquid can irritate the eyes. Repeated or prolonged exposure may cause eye damage.

Skin Exposure:

Liquid contact can cause burns or severe skin irritation and dermatitis. Some individuals may experience allergic skin reaction and skin sensitization. Existing skin disorders (e.g., eczema or skin allergy) may be aggravated by exposure to this material.

Ingestion:

May cause gastrointestinal irritation or distress if swallowed.

Delayed Effects:

This material is a moderate skin sensitizer, a condition which may not appear until many exposures have occurred.

Chronic Effects / Carcinogenicity Determinations:

No component of this material has been classified as carcinogenic by IARC, NTP, or OSHA.

4. First Aid Measures

Inhalation:

Remove subject to fresh air immediately. Give artificial respiration if breathing has stopped. Administer oxygen if breathing is difficult. Consult a physician if symptoms persist.

Eye Contact:

Flush eyes with plenty of water for at least 15 minutes (see ANSI Z358.1-1990). Consult a physician if irritation persists.

Skin Contact:

Remove contaminated clothing, including shoes. Flush affected areas thoroughly with water (and soap, if available) for at least fifteen minutes. Consult a physician if irritation persists. Launder clothing before reuse. Discard contaminated shoes; they cannot be decontaminated.

Ingestion:

Consult a physician or poison control center at once for instructions.

5. Fire Fighting Measures***Ignition Data:***

Flash Point: 485°F, 252°C
Lower Flammable Limit: Not determined
Upper Flammable Limit: Not determined
Autoignition Temp: Not determined
Combustion Products: Oxides of carbon.

Fire Fighting Guidelines:

Extinguishing media: Use Class B extinguishant, e.g., dry chemical, foam, carbon dioxide, or water fog.

Wear respirator (pressure demand, self-contained breathing apparatus, MSHA/NIOSH-approved) and full protective gear for working fires. Cool exposed containers with water spray. Keep personnel removed form upwind of fire.

6. Accidental Release Measures***Personal Protection:***

Follow all precautions given in Section 8, and, in addition, wear permeation-resistant, elastomeric boots or overshoes.

Clean-Up:

If indoors, ventilate spill area. Stop sources of leak if possible. Contain spillage by diking with sand, earth, pigs, or other inert material in order to prevent spillage from entering sewers or open bodies of water and/or to prevent soil contamination.

No component of this material is reportable under 40 CFR Section 302 requirements.

Transfer spillage to labeled recovery containers.

7. Handling and Storage

Store containers separate from oxidizers, and meet, as a minimum, all applicable requirements of NFPA 30 – *Flammable and Combustible Liquids Code* (1993) as it applies to Class III B liquids. If material temperature is above its flash point, handle as a Class I liquid.

8. Engineering Controls/Personal Protective Equipment***Ventilation and Containment:***

Keep containers closed when not in use. If indoors, use either local or general exhaust ventilation sufficient to keep vapor and fume levels below applicable exposure limits. If outdoors, stay upwind whenever practical to do so.

Respiratory Protection:

If ventilation/containment measures are not reliably protect against inhalation overexposure, wear MSHA/NIOSH-approved respirator suitable for protection from the vapor concentrations encountered.

Eye Protection:

Wear splash goggles (per appropriate ANSI standard) when pouring or transferring this material. Do not wear contact lenses.

Skin Protection:

Avoid skin contact by wearing permeation-resistant, elastomeric gloves and clothes with long sleeves and pants. Replace elastomeric protective equipment whenever it becomes swollen, gummy, torn, or shows evidence of barrier loss.

Other Protective Measures:

An eyewash station and emergency shower (ANSI Z358.1-1990) should be readily available.

Personal Hygiene:

Wash hands with soap and water after handling, and especially before eating or smoking. Shower at end of work shift. Wash contaminated clothing before reuse.

9. Physical and Chemical Properties

Appearance:	Clear liquid	Specific Gravity:	1.17
Odor:	Slight	Pct. Volatiles:	0
Water Solubility:	Negligible	Initial Boiling Pt:	Above 200 C/392 F
Vapor Density:	Not appl.	Vapor Pressure:	Negligible

10. Stability and Reactivity**Stability:**

This material is stable under normal conditions of storage and handling. It does not react with common substances (air, water, etc.), nor does it polymerize. Decomposition is not expected in normal handling.

Reactivity:

Material can react with strong oxidizers or strong acids.

11. Toxicological Information

INTENTIONALLY OMITTED

12. Ecological Information

INTENTIONALLY OMITTED

13 Disposal Considerations**Containers:**

Empty containers may contain hazardous residues (vapor, liquid, or solid). All MSDS and label precautions should be observed until containers are reconditioned. Do not apply heat, flame-cut, or weld on container. Crush or puncture containers before discarding them to prevent unauthorized reuse.

Waste Disposal:

Incinerate at a permitted facility in accordance with local and state regulations.

14. Transport Information**Packaged Shipments - DOT Bill of Lading Descriptions****Up to 5 gal:**

NOT DOT-REGULATED

Drums:

NOT DOT-REGULATED

Packaged Shipment - IMO/IMDG Description (check latest IMDG to confirm specific requirements)

Up to 5 gal:

NOT REGULATED

Drums:

NOT REGULATED

15. Regulatory Information

No ingredient of this material is reportable under SARA Section 313 (40 CFR Part 372, Subpart D):

Name	CAS Number	Concentration, wt. pct
None		

16. Other Information

Prepared and Issued- December 2002. This MSDS conforms to the requirements of ANSI Z400.1.

This Material Safety Data Sheet and the information it contains is offered to you in good faith as accurate. We believe this information to be correct but cannot guarantee its accuracy or completeness. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable for their particular circumstances.

Any photocopy must be of this entire document.

MATERIAL SAFETY DATA SHEET

Date Issued: 12/27/02

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc.
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Paradene AW Hydraulics Oil
22 AW, 32 AW, 46 AW, 68 AW, 100 AW, 150 AW, 220 AW,
320 AW, and 460 AW

Part Number: 4011, 4021, 4031, 4041, 4051
4061, 4071, 4091, 4101

Chemical Family: Petroleum Oil (Hydraulic Oil)
Product Appearance & Odor: Clear Light Amber Color
Mild Petroleum Hydrocarbon Odor

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

<u>COMPONENTS</u>	<u>CAS NO. OF COMPONENTS</u>	<u>APPROXIMATE CONCENTRATION</u>
Lubricating Oil Base Stock	64742-6500	Greater than 85%
Proprietary Additives	Mixture	Less than 15%

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour workday. Basis: OSHA Reg. 29 CFR 1910.1000

CERCLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. **US TSCA Inventory:** All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity (TPQ),** EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. **Toxic Chemical Release Reporting,** EPA Regulation 40 CFR 372 (SARA Section 313): Not Applicable.

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined	Percent Volatile by Volume: NEGLIGIBLE
Specific Gravity (H ₂ O=1): .8500/.8900	Vapor Pressure: NEGLIGIBLE
Pour Point: -32°C/-7°C	Vapor Density: GREATER THAN AIR
Viscosity: 100°C cSt 4.4/32.0	Evaporation Rate: NEGLIGIBLE
Solubility in Water: Negligible, less than 0.1%	

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
205 (401) / 260 (500)

AUTO IGNITION TEMPERATURE:
Not Determined

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0

UNUSUAL FIRE & EXPLOSION HAZARDS:

None

Basis: Recommended by Castrol Heavy Duty Lubricants Inc.

Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (Continued)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS: Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks, which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. US Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.

Keep product out of sewers and watercourses by dicing or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritations persist, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively nontoxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIAL SAFETY DATA SHEET

Date Issued: February 22, 1999

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Castrol Paradene R&O Oils
10, 22, 32, 46, 68, 100, 150, 220, 320, 460

Part Number: 4022,4032,4042,4052,4062,4072,
4082,4092,4102,4112

Chemical Family: Petroleum Oil(Lubricating Oil)

CAS Number (For Finished Product):

COMPLEX MIXTURE

Product Appearance & Odor : Clear Liquid, Yellow Color
Mild, Bland Petroleum Odor

CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

Table with 3 columns: COMPONENTS, CAS NO. OF COMPONENTS, APPROXIMATE CONCENTRATION. Rows include Lubricating Oil Base Stock and Proprietary Additives.

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour work day. Basis: OSHA Reg 29 CFR 1910.1000

CERCLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. US TSCA Inventory: All components of this material are on the US TSCA Inventory. Threshold Planning Quantity (TPQ), EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. Toxic Chemical Release Reporting, EPA Regulation 40 CFR 372 (SARA Section 313): Not Applicable

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Table with 2 columns: Physical Property, Value. Rows include Boiling Range, Specific Gravity, Pour Point, Viscosity, Solubility in Water, Percent Volatile by Volume, Vapor Pressure, Vapor Density, Evaporation Rate.

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. C, (F.): 173(343)/260(500)
AUTOIGNITION TEMPERATURE: NOT DETERMINED

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification

Health - 1
Flammability - 1
Reactivity - 0

Basis: Recommended by Castrol Heavy Duty Lub.

Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

UNUSUAL FIRE & EXPLOSION HAZARDS: None

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (CONTINUED)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS : Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing: launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. U.S. Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802. **PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:** Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.

Keep product out of sewers and watercourses by diking or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively non-toxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIAL SAFETY DATA SHEET

Date Revised: 12/27/02

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc.
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Tec II Motor Oils
SAE Grades 5W20, 5W30, 10W30, 10W40, 20W50

Part Number: 1573, 1575, 1099, 1299, 1499

Chemical Family: Petroleum Oil (Motor Oil)
Product Appearance & Odor: Clear, Dark Amber Liquid
Mild Bland Petroleum Odor

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

<u>COMPONENTS</u>	<u>CAS NO. OF COMPONENTS</u>	<u>APPROXIMATE CONCENTRATION</u>
Lubricating Oil Base Stock	64742-54-7 64741-88-4	Greater than 80%
Proprietary Additives	Mixture	Less than 20%

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour workday. Basis: OOHs Reg. 29 CFR 1910.1000

CERLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. **US TSCA Inventory:** All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity (TPQ), EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304):** None. **Toxic Chemical Release Reporting, EPA Regulation 40 CFR 372 (SARA Section 313):** Zinc Compound 1.5%

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined	Percent Volatile by Volume: NEGLIGIBLE
Specific Gravity (H ₂ O=1): .8614/.8860	Vapor Pressure: NEGLIGIBLE
Pour Point: -39°C/-26°C	Vapor Density: GREATER THAN AIR
Viscosity: 100°C cSt 8.51/20.28	Evaporation Rate: NEGLIGIBLE
Solubility in Water: Negligible, Less than 0.1%	

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
204(400)/227(440)

AUTO IGNITION TEMPERATURE:
Not Determined

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0

UNUSUAL FIRE & EXPLOSION HAZARDS:
None

Basis: Recommended by Castrol Heavy Duty Lubricants Inc.
Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (Continued)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS: Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing: launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks, which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. US Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.

Keep product out of sewers and watercourses by dicing or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritations persist, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively nontoxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIAL SAFETY DATA SHEET

Date Issued: 01/14/03

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc.
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Castrol Non-Detergent Motor Oils
SAE 10, 20, 30, 40, 50
Chemical Family: Petroleum Oil (Motor Oil)
Product Appearance & Odor: Clear Liquid, Yellow Color
Mild, Bland Petroleum Odor

Part Number: 1018, 1028, 1038, 1048, 1058
CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

<u>COMPONENTS</u>	<u>CAS NO. OF COMPONENTS</u>	<u>APPROXIMATE CONCENTRATION</u>
Lubricating Oil Base Stock	64742-54-7 64741-88-4	Greater than 85%
Proprietary Additives	Mixture	Less than 15%

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour workday. Basis: OOHs Reg. 29 CFR 1910.1000

CERCLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. **US TSCA Inventory:** All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity (TPQ),** EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. **Toxic Chemical Release Reporting,** EPA Regulation 40 CFR 372 (SARA Section 313): Not Applicable

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined	Percent Volatile by Volume: NEGLIGIBLE
Specific Gravity (H ₂ O=1): .8708/.8866 aprox.	Vapor Pressure: NEGLIGIBLE
Pour Point: -26°C/-10°C	Vapor Density: GREATER THAN AIR
Viscosity: 100°C cSt 6.5/19.3	Evaporation Rate: NEGLIGIBLE
Solubility in Water: Negligible, less than .1%	

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
215(419)/282(540)

AUTO IGNITION TEMPERATURE:
NOT DETERMINED

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0

UNUSUAL FIRE & EXPLOSION HAZARDS:

None

Basis: Recommended by Castrol Heavy Duty Lubricants Inc.

Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (Continued)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS: Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing: launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks, which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. US Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.

Keep product out of sewers and watercourses by dicing or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritations persist, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively nontoxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIAL SAFETY DATA SHEET

Date Issued: 12/27/02

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc.
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Castrol AGRI Powermax SAE 15W40

Part Number: 1617

Chemical Family: Petroleum Oil (Motor Oil)
Product Appearance & Odor: Clear, Dark Amber Liquid
Mild, Bland Petroleum Odor

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

<u>COMPONENTS</u>	<u>CAS NO. OF COMPONENTS</u>	<u>APPROXIMATE CONCENTRATION</u>
Lubricating Oil Base Stock	64742-54-7	Greater than 60%
Proprietary Additives	Mixture	Less than 40%

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour workday. Basis: OOHs Reg. 29 CFR 1910.1000
CERCLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. US TSCA Inventory: All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity (TPQ)**, EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. **Toxic Chemical Release Reporting**, EPA Regulation 40 CFR 372 (SARA Section 313): This product contains approximately 1.5% zinc compounds. This is a non-controlled product under W.H.M.I.S.

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined	Percent Volatile by Volume: NEGLIGIBLE
Specific Gravity (H ₂ O=1): .8733	Vapor Pressure: NEGLIGIBLE
Pour Point: -25°C	Vapor Density: GREATER THAN AIR
Viscosity: 100°C cSt 14.8	Evaporation Rate: NEGLIGIBLE
Solubility in Water: Negligible, Below 0.1%	

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
205 (400)

AUTO IGNITION TEMPERATURE:
Not Determined

NATIONAL FIRE
PROTECTION ASSOCIATION
(NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0

UNUSUAL FIRE & EXPLOSION HAZARDS:
None

Basis: Recommended by Castrol Heavy Duty Lubricants Inc.

Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (Continued)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS: Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks, which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. US Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.

Keep product out of sewers and watercourses by dicing or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritations persist, call a physician.

SKIN CONTACT: In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively nontoxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIAL SAFETY DATA SHEET

Date Revised: 12/27/02

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc.
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Tec II Motor Oils
SAE Grades 5W20, 5W30, 10W30, 10W40, 20W50

Part Number: 1573, 1575, 1099, 1299, 1499

Chemical Family: Petroleum Oil (Motor Oil)
Product Appearance & Odor: Clear, Dark Amber Liquid
Mild Bland Petroleum Odor

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

<u>COMPONENTS</u>	<u>CAS NO. OF COMPONENTS</u>	<u>APPROXIMATE CONCENTRATION</u>
Lubricating Oil Base Stock	64742-54-7 64741-88-4	Greater than 80%
Proprietary Additives	Mixture	Less than 20%

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour workday. Basis: OOHs Reg. 29 CFR 1910.1000

CERCLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. **US TSCA Inventory:** All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity (TPQ), EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304):** None. **Toxic Chemical Release Reporting, EPA Regulation 40 CFR 372 (SARA Section 313):** Zinc Compound 1.5%

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined	Percent Volatile by Volume: NEGLIGIBLE
Specific Gravity (H ₂ O=1): .8614/.8860	Vapor Pressure: NEGLIGIBLE
Pour Point: -39°C/-26°C	Vapor Density: GREATER THAN AIR
Viscosity: 100°C cSt 8.51/20.28	Evaporation Rate: NEGLIGIBLE
Solubility in Water: Negligible, Less than 0.1%	

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
204(400)/227(440)

AUTO IGNITION TEMPERATURE:
Not Determined

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0

UNUSUAL FIRE & EXPLOSION HAZARDS:
None

Basis: Recommended by Castrol Heavy Duty Lubricants Inc.

Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (Continued)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Minimize breathing of gases, vapor, fumes or decomposition products. Use Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion. supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS: Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing: launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks, which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. US Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802. Keep product out of sewers and watercourses by dicing or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact. **WASTE DISPOSAL:** Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritations persist, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water. **INGESTION:** If ingested, DO NOT induce vomiting; call a physician immediately. **INHALATION:** Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively nontoxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIAL SAFETY DATA SHEET

Date Issued: 12/27/02

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: **Castrol Heavy Duty Lubes Inc**
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Castrol ISOLUBE EP 68, 100, 150, 220,
320, 460, 680

Chemical Family: Synthesized Hydrocarbon
Product Appearance & Odor: Clear Liquid, Yellow Appearance
Petroleum Odor

Part Number:3460 3560, 3660, 3760, 3770,
3960, 3980

CAS Number (For Finished Product):

COMPLEX MIXTURE

CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Lubricating Oil Base Stock Proprietary Additives	72623-88-0, 72623-85-9, 64742-54-7 Mixture	Greater than 80% Less than 20%

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour work day. Basis: OSHA Reg 29 CFR 1910.1000

CERCLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. US TSCA Inventory: All components of this material are on the US TSCA Inventory. Threshold Planning Quantity (TPQ), EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. Toxic Chemical Release Reporting, EPA Regulation 40 CFR 372 (SARA Section 313): N/A

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined
Specific Gravity (H₂O=1): 0.848/0.85
Pour Point: -45°C/-27°C
Viscosity: 100°C cSt 10.38/62.2
Solubility in Water: Negligible, below 0.1%

Percent Volatile by Volume: NEGLIGIBLE
Vapor Pressure: NEGLIGIBLE
Vapor Density: GREATER THAN AIR
Evaporation Rate: NEGLIGIBLE

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
227(440)/226(439)

AUTO IGNITION TEMPERATURE:
NOT DETERMINED

**NATIONAL FIRE
PROTECTION ASSOCIATION
(NFPA)-Hazard Identification**
Health - 1
Flammability - 1
Reactivity - 0

UNUSUAL FIRE & EXPLOSION HAZARDS:

None

Basis: Recommended by Castrol Heavy Duty Lubes Inc

Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (CONTINUED)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.** Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS: Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing: launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. U.S. Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.

Keep product out of sewers and watercourses by diking or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, **DO NOT** induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively non-toxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIAL SAFETY DATA SHEET

Date Issued: December 22, 1999

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Castrol E.P. Gear Lubricant
2EP(68), 3EP(100), 4EP(150), 5EP(220), 6EP(320), 7EP(460), 8EP(680)

Part Number: 3023, 3033, 3043, 3053, 3063
3073, 3083

Chemical Family: Petroleum Oil(Gear Oil)
Product Appearance & Odor: Clear Dark Brown Liquid
Mild Bland Odor

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Lease-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Lubricating Oil Base Stock	64741-88-4	Greater than 80%
Proprietary Additives	64742-54-7 Mixture	Less than 20%

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour work day. Basis: OSHA Reg 29 CFR 1910.1000

CERCLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. US TSCA Inventory: All components of this material are on the US TSCA Inventory. Threshold Planning Quantity (TPQ), EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. Toxic Chemical Release Reporting, EPA Regulation 40 CFR 372 (SARA Section 313): Not Applicable

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined	Percent Volatile by Volume: NEGLIGIBLE
Specific Gravity (H ₂ O=1): .8844/1.9194	Vapor Pressure: NEGLIGIBLE
Pour Point: -27.C/-12.C	Vapor Density: GREATER THAN AIR
Viscosity: 100 C cSt 8.7/36.4	Evaporation Rate: NEGLIGIBLE
Solubility in Water: Negligible, less than .1%	

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. C, (F.)
215(420)/229(445)

AUTOIGNITION TEMPERATURE:
NOT DETERMINED

NATIONAL FIRE
PROTECTION ASSOCIATION
(NFPA)-Hazard Identification

Health - 1
Flammability - 1
Reactivity - 0

Basis: Recommended by Castrol Heavy Duty Lubricants Inc
Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

UNUSUAL FIRE & EXPLOSION HAZARDS:

None

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (CONTINUED)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS : Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. U.S. Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802. **PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:** Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.

Keep product out of sewers and watercourses by diking or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively non-toxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIAL SAFETY DATA SHEET

Date Issued: 05/27/03

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc.
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Castrol Pyroplex Red (NLGI #1 & #2)

Part Number: 5125, 5225

Chemical Family: Petroleum Oil (Grease)
Product Appearance & Odor: Red, semi-solid
Bland Odor

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health - 1 Flammability - 1 Reactivity - 0

Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

<u>COMPONENTS</u>	<u>CAS NO. OF COMPONENTS</u>	<u>APPROXIMATE CONCENTRATION</u>
Lubricating Oil Base Stock	64742-65-0 64742-54-7 64742-57-0	Greater than 85%
Proprietary Additives	Mixture	Less than 15%

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour workday. Basis: OOHs Reg. 29 CFR 1910.1000

CERCLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. **US TSCA Inventory:** All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity (TPQ),** EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. **Toxic Chemical Release Reporting,** EPA Regulation 40 CFR 372 (SARA Section 313): Zinc compounds 2.0%

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined
Specific Gravity (H₂O=1): .89@16°C
Pour Point: Freezing Point 0°F
Viscosity: N/A
Solubility in Water: Negligible, less than .1%

Percent Volatile by Volume: NEGLIGIBLE
Vapor Pressure: NEGLIGIBLE
Vapor Density: GREATER THAN AIR
Evaporation Rate: NEGLIGIBLE

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
460°F

AUTO IGNITION TEMPERATURE:
NOT DETERMINED

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0

Basis: Recommended by Castrol Heavy Duty Lubricants Inc.

Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

UNUSUAL FIRE & EXPLOSION HAZARDS:

None

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (Continued)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.

Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS: Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing: launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks, which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. US Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.

Keep product out of sewers and watercourses by dicing or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritations persist, call a physician.

SKIN CONTACT: In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively nontoxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.

Date last revised: October 22, 2001

FERRIC CHLORIDE - DRINKING WATER GRADE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ferric Chloride - Drinking Water Grade

Chemical Name/Synonyms: Iron (III) Chloride Solution

Chemical Formula: FeCl_3

Cas Number: 7705-08-0

HS Tariff Classification Number: data not available

Tax ID Number: data not available

Manufacturer:

PVS Technologies, Inc.

10900 Harper Avenue

Detroit, Michigan 48213

Telephone: (313) 571-1100 (for product information)

Fax: (313) 571-6765

****FOR TRANSPORTATION EMERGENCY ONLY, 24 HOURS EVERYDAY, CALL****

****CHEMTREC, 1-800-424-9300****

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS Registry #</u>	<u>% by weight</u>
Ferric Chloride	7705-08-0	37 - 45
Water	7732-18-5	Balance

Hazardous Ingredients: Ferric Chloride

Exposure Limits (ppm):

<u>Component</u>	<u>OSHA TLV</u>	<u>ACGIH TLV</u>	<u>NIOSH</u>
Ferric Chloride (as soluble iron salts)	1 mg/m ³ , 8-hr TWA	1 mg/m ³ , 8-hr TWA	1 mg/m ³ , 8-hr TWA

3. HAZARDS IDENTIFICATION

Emergency Overview

A reddish brown liquid with a slight odor of iron/acid. Avoid inhaling concentrated vapor or mist, may cause irritation of respiratory tract. May result in severe liver and/or kidney damage, if swallowed, and can be fatal. Do not induce vomiting. Avoid contact with skin. Liquid, mist, or vapor can cause irritation to all human tissue. Contact with eyes can result in visual loss unless removed quickly by thorough irrigation with water. **Caution:** May release irritating and toxic gases of hydrogen chloride during fire. Contain spills and keep liquid out of water sources. See Sections 3, 4, 5, and 6.

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.

Date last revised: October 22, 2001

FERRIC CHLORIDE - DRINKING WATER GRADE

Potential Health Effects (Acute and Chronic)

INHALATION: Inhalation of concentrated mist or vapor may cause irritation of the respiratory tract.

INGESTION: Ingestion may cause severe liver and/or kidney damage, and may be fatal.

DIRECT CONTACT: The product is an irritant. Contact may include irritation with dryness, discomfort or rash. Ferric chloride has been infrequently associated with skin sensitization in humans. Extensive exposure could lead to skin sensitization

DIRECT EYE CONTACT: Contact with eyes may cause irritation and tearing and eye tissue discoloration, and may result in permanent visual loss unless removed quickly by thorough irrigation with water.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

CARCINOGENS (NTP, IARC, or OSHA): No

4. FIRST AID MEASURES:

INHALATION: Remove victim to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

INGESTION: If swallowed, do NOT induce vomiting. Give victim water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

DIRECT CONTACT: Flush with water until material is removed. Remove contaminated clothing. Wash clothing before reuse.

DIRECT EYE CONTACT: Immediately flush with water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of eye/lid tissue. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flammability: Product not flammable.

Flash Point: not applicable

Method used: TCC

OXIDIZING PROPERTIES: data not available

AUTOFLAMMABILITY: not applicable

AUTOIGNITION TEMPERATURE: not applicable

FLAMMABLE LIMITS, % BY VOLUME:

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.

Date last revised: October 22, 2001

FERRIC CHLORIDE - DRINKING WATER GRADE

Lower flammable limit: not applicable

Upper flammable limit: not applicable

EXTINGUISHING MEDIA: Use water spray, fog, foam, dry chemical, CO₂ or other agents as appropriate for surrounding fire.

FIRE FIGHTING INSTRUCTIONS: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. During fire, irritating and toxic gases of hydrogen chloride may be generated by thermal decomposition. Cool exterior of storage tanks.

FIRE AND EXPLOSION HAZARDS: None

SENSITIVITY TO MECHANICAL IMPACT/STATIC DISCHARGE: not applicable

6. ACCIDENTAL RELEASE MEASURES

Contain spill in order to prevent contamination of water way; neutralize with lime or soda ash. Flush with water in accordance with applicable regulations to waste treatment system. Avoid runoff into storm sewers and ditches which lead to waterways. Spills of 1000 pounds (454 kilograms) or more must be reported to the **National Response Center, (800) 424-8802**. If water pollution occurs, notify the appropriate authorities.

7. HANDLING AND STORAGE

Store away from heat, strong alkalis (such as caustic soda and alkali metals. Keep containers closed and dry. Protect container from physical damage. Use handling equipment (pumps, hoses, etc.) compatible with product, i.e., polyethylene, polypropylene, PVC, Teflon, rubber, FRP, and titanium. See Section 10 for types of packaging materials to avoid. Avoid contact with bare metals other than titanium. Avoid breathing vapors and/or mist. Avoid contact with eyes and skin. Wash thoroughly after handling. Follow all MSDS/label precautions even after container is emptied because they may retain vapor and product residues.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Good general ventilation should be sufficient to control airborne levels of vapor and mist.

RESPIRATORY PROTECTION: If airborne concentrations exceed the published exposure limits use NIOSH/MSHA approved, full face respirator as appropriate. Consult respirator manufacturer to determine appropriate equipment.

PROTECTIVE GLOVES: Wear impervious rubber gloves.

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.

Date last revised: October 22, 2001

FERRIC CHLORIDE - DRINKING WATER GRADE

EYE PROTECTION: Wear splash proof chemical safety goggles. Do not wear contact lenses.

OTHER PROTECTIVE EQUIPMENT: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

WORK/HYGIENIC PRACTICES: Avoid ingestion and breathing mist. Ferric Chloride will permanently stain clothing and temporarily stain skin. Avoid contact with skin and clothing. Wash thoroughly after handling.

OTHER PRECAUTIONS: None.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	reddish brown
Odor:	slightly iron/acid
Odor Threshold:	data not available
Physical State:	liquid
Vapor Pressure (REID):	negligible
Specific Gravity:	40% solution = 1.432 at 17.5° C (water = 1)
Solubility in Water:	complete
pH:	<2.0
Boiling Point:	230° F or 110° C
Vapor Density:	not applicable (Air = 1)
Evaporation Rate:	1 (Butyl Acetate = 1)
Freezing Point:	(-58)° F or (-50°) C
Coefficient of Water/Oil Distribution:	not applicable
Viscosity:	data not available
% Solids:	not applicable
% VOC:	not applicable

For information on FLASH POINT, FLAMMABILITY, OXIDIZING PROPERTIES, AUTOFLAMMABILITY, and EXPLOSIVE PROPERTIES, please see Section 5.

10. STABILITY AND REACTIVITY

GENERAL: This product is stable and hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Material is stable when properly handled. Material is acidic and corrodes all common metals except titanium. Avoid contact with strong alkalis and alkali metals.

HAZARDOUS DECOMPOSITION PRODUCTS: May release hydrogen chloride gas at elevated temperatures.

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.

Date last revised: October 22, 2001

FERRIC CHLORIDE - DRINKING WATER GRADE

11. TOXICOLOGICAL INFORMATION

Immediate Effects: Can cause severe liver and/or kidney damage if swallowed, and may even be fatal. See Section 3 for other immediate health hazards.

12. ECOLOGICAL INFORMATION

Fat Head Minnows LC50 > 1000 ppm ; Daphnia Magna LC50 > 1000 ppm

13. DISPOSAL CONSIDERATIONS

Dispose of spilled, neutralized, or waste product, contaminated soil and other contaminated materials in accordance with all local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT (Department of Transportation)
Proper Shipping Name: Ferric Chloride, Solution
Hazard Class: 8
Identification Number: UN2582
Packing Group: III
Label: Corrosive
Emergency Response Guide Book Number: 60
Corrosive: **To metals only (not to skin)**

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA:

This product is hazardous by definition of Hazard Communication Standard (29CFR1910.1200).

SARA TITLE III (Superfund Amendments and Reauthorization Act of 1986)

Section 311/312 Hazard and Physical Hazards:

Immediate yes

Delayed yes

Fire: no

Pressure: no

Reactivity: no

CERCLA/SUPERFUND (40 CFR 117, 302)

Ingredient
ferric chloride, solution

RQ (Reportable Quantity)
1000 pounds, anhydrous basis

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.
FERRIC CHLORIDE, SOLUTION

DATE PREPARED: 02/05/98 5:01 PM

CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ferric Chloride Solution
Chemical Name/Synonyms: Iron (III) Chloride Solution
Chemical Formula: $FeCl_3$
CAS Number: 7705-08-0
HS Tariff Classification Number: data not available
Tax ID Number: data not available

Manufacturer:

PVS Technologies, Inc.
10900 Harper Avenue
Detroit, Michigan 48213
Telephone: (313) 571-1100 (for product information)
fax: (313) 571-6765

****FOR TRANSPORTATION EMERGENCY ONLY, 24 HOURS EVERYDAY, CALL****
****CHEMTREC, 1-800-424-9300****

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS Registry #</u>	<u>% by weight</u>
Ferric Chloride	7705-08-0	32 - 45
Hydrochloric Acid	7647-01-0	<=3.0
Water	7732-18-5	Balance

Hazardous Ingredients: Ferric Chloride, Hydrochloric Acid,
Exposure Limits (ppm):

<u>Component</u>	<u>OSHA TLV</u>	<u>ACGIH TLV</u>	<u>NIOSH</u>
Ferric Chloride (as soluble iron salts)	1 mg/m ³ , 8-hr TWA	1 mg/m ³ , 8-hr TWA	1 mg/m ³ , 8-hr TWA
Hydrochloric Acid (as hydrogen chloride gas)	5 ppm ceiling	5 ppm ceiling	100 ppm IDLH

3. HAZARDS IDENTIFICATION

Emergency Overview

A reddish brown liquid with a slight odor of iron/acid. Avoid inhaling concentrated vapor or mist, may cause irritation of respiratory tract. May result in severe liver and/or kidney damage, if swallowed, and can be fatal. Do not induce vomiting. Avoid contact with skin. Liquid, mist, or vapor can cause immediate irritation to all human tissue. Contact with eyes can result in permanent visual loss unless removed quickly by thorough irrigation with water. **Caution:** May release irritating and toxic gases of hydrogen chloride during fire. Contain spills and keep liquid out of water sources. See Sections 3, 4, 5, and 6.

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.
FERRIC CHLORIDE, SOLUTION

DATE PREPARED: 02/05/98 5:01 PM

MSDS Status: The entire MSDS has been revised, October 27, 1997

To the best of our knowledge, the information contained herein is accurate. However, neither PVS Chemicals, Inc., nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user.

All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Consult the manufacturer for further information.

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.
FERRIC CHLORIDE, SOLUTION

DATE PREPARED: 02/05/98 5:01 PM

Coefficient of Water/Oil Distribution: not applicable
Viscosity: data not available
% Solids: not applicable
% VOC: not applicable

For information on FLASH POINT, FLAMMABILITY, OXIDIZING PROPERTIES, AUTOFLAMMABILITY, and EXPLOSIVE PROPERTIES, please see Section 5.

10. STABILITY AND REACTIVITY

GENERAL: This product is stable and hazardous polymerization will not occur.
INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Material is stable when properly handled. Material is acidic and corrodes most metals. Avoid contact with strong alkalis and alkali metals.

HAZARDOUS DECOMPOSITION PRODUCTS: May release hydrogen chloride gas at elevated temperatures.

11. TOXICOLOGICAL INFORMATION

Immediate Effects: Can cause severe liver and/or kidney damage if swallowed, and may even be fatal. See Section 3 for other immediate health hazards.

12. ECOLOGICAL INFORMATION

Fat Head Minnows LC50 > 1000 ppm ; Daphnia Magna LC50 > 1000 ppm

13. DISPOSAL CONSIDERATIONS

Dispose of spilled, neutralized, or waste product, contaminated soil and other contaminated materials in accordance with all local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT (Department of Transportation)
Proper Shipping Name: Ferric Chloride, Solution
Hazard Class: 8
Identification Number: UN2582
Packing Group: III
Label: data not available
Emergency Response Guide Book Number: 60
Corrosive: To metals only (not to skin)

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA:

This product is hazardous by definition of Hazard Communication Standard (29

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.
FERRIC CHLORIDE, SOLUTION

DATE PREPARED: 02/05/98 5:01 PM

Potential Health Effects (Acute and Chronic)

INHALATION: Inhalation of concentrated mist or vapor may cause irritation of the respiratory tract.

INGESTION: Ingestion may cause severe liver and/or kidney damage, and may be fatal.

DIRECT CONTACT: The product is an irritant. Contact may include irritation with dryness, discomfort or rash. Ferric chloride has been infrequently associated with skin sensitization in humans. Extensive exposure could lead to skin sensitization

DIRECT EYE CONTACT: Contact with eyes may cause irritation and tearing and eye tissue discoloration, and may result in permanent visual loss unless removed quickly by thorough irrigation with water.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

CARCINOGENS (NTP, IARC, or OSHA): No

4. FIRST AID MEASURES:

INHALATION: Remove victim to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. **Get immediate medical attention.**

INGESTION: If swallowed, do NOT induce vomiting. Give victim water or milk. Call a physician or poison control center immediately. **Get immediate medical attention.** Never give anything by mouth to an unconscious person.

DIRECT CONTACT: Flush with water until material is removed. Remove contaminated clothing. Wash clothing before reuse.

DIRECT EYE CONTACT: Immediately flush with water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of eye/lid tissue. **Get immediate medical attention.**

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flammability: Product not flammable.

Flash Point: not applicable

Method used: TCC

OXIDIZING PROPERTIES: data not available

AUTOFLAMMABILITY: not applicable

AUTOIGNITION TEMPERATURE: not applicable

FLAMMABLE LIMITS, % BY VOLUME:

Lower flammable limit: not applicable

Upper flammable limit: not applicable

EXTINGUISHING MEDIA: Use water spray, fog, foam, dry chemical, CO₂ or other agents as appropriate for surrounding fire.

FIRE FIGHTING INSTRUCTIONS: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. During fire, irritating and toxic gases of hydrogen chloride may be generated by thermal decomposition. Cool exterior of storage tanks.

FIRE AND EXPLOSION HAZARDS: None

SENSITIVITY TO MECHANICAL IMPACT/STATIC DISCHARGE: not applicable

MATERIALS SAFETY DATA SHEET

PVS TECHNOLOGIES, INC.

Date last revised: October 22, 2001

FERRIC CHLORIDE - DRINKING WATER GRADE

RCRA:

If discarded in its purchased form, this product would be a hazardous waste by characteristic. Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

This product contains no Class I or Class II Ozone Depleting Chemicals

TSCA:

All compounds contained in this product are in the TSCA inventory

DOT:

Please see Section 14.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

The following label hazard ratings are recommended for containers of Ferric Chloride, Solution: (Hazard Index Key: 4 = severe; 3 = serious; 2 = moderate; 1 = slight; 0 = minimal)

<u>NFPA</u>		<u>HMIS</u>	
Health	not rated	Health	3
Flammability	not rated	Flammability	0
Reactivity	not rated	Reactivity	0

To the best of our knowledge, the information contained herein is accurate. However, neither PVS Chemicals, Inc., nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Consult the manufacturer for further information.



Spartan Chemical Company, Inc.

Material Safety Data Sheet

SECTION I: PRODUCT INFORMATION

Product Name or Number (as it appears on label):

FOAMY Q&A

Product Number: 3200; 3202

Spartan Chemical Company, Inc.

10 Spartan Drive

Summeesville OH 43537

Product Division:

Janitorial

Product/Technical Information: 1-(800)-537-8990
 Medical Emergency: 1-(888)-314-6171 (24 hours)
 Chemical Leak/Spill Emergency: CHEMTREC 1-(800) 424-9300 (24 hours)

Shipping Description: Cleaning compounds, liquid, n.o.s.	
NFPA Ratings:	HMIS Ratings:
Health: 3 - Serious	Health: *3 - Serious; Chronic Hazard
Fire: 0 - Minimal	Fire: 0 - Minimal
Reactivity: 0 - Minimal	Reactivity: 0 - Minimal
	Pers. Prot. Equip.: See Section VIII

SECTION II: HAZARDOUS INGREDIENTS

Listed when present at 1% or greater, carcinogens at 0.1% or greater) All component chemicals are listed or exempted from listing on the TSCA Inventory" of chemical substances maintained by the U.S. Environmental Protection Agency.

Chemical Name(s)	% W	CAS Registry No.	Table Z- 1 - A			Carcinogen
			TWA mg/m ³	STEL mg/m ³	CEILING mg/m ³	
Phosphoric acid	10-15	7664-38-2	1	3 (NIOSH)	Not Established	No
Hydroxyacetic acid	1-5	79-14-1	Not Established	Not Established	Not Established	No
*2-Butoxyethanol	1-5	111-76-2	120 [skin]	Not Established	Not Established	No
Nonyl phenol ethoxylate	1-5	9016-45-9	Not Established	Not Established	Not Established	No
Cocoamidopropyl hydroxysultaine	1-5	70851-08-0	Not Established	Not Established	Not Established	No
Alkyl dimethyl benzyl ammonium chloride	< 1	68424-85-1	Not Established	Not Established	Not Established	No

Comment: *This substance is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA) and of 40 CFR 372.

SECTION III: PHYSICAL DATA

Boiling Point:	200-210 °F	Vapor Pressure:	Undetermined
Vapor Density (AIR = 1):	Unknown	Solubility in Water:	Complete
pH:	< 2	Specific Gravity (H ₂ O=1):	1.09
Evaporation Rate (but.ace.=1):	<1	Percent Solid by Weight:	15-25
Physical State:	Liquid		
Appearance & Odor:	Purple liquid, Citrus/floral fragrance		

SECTION IV: FIRE & EXPLOSIVE HAZARD DATA

Flash Point:	> 200°F	Method Used:	ASTM-D56
Flammable Limits:	Not Established	Flame Extension:	N/A
Extinguishing Media:	Product does not support combustion. Use extinguishing media appropriate for surrounding fire.		
Special Fire Fighting Procedures:	Wear NIOSH approved self-contained breathing apparatus and protective clothing. Cool fire-exposed containers with water spray.		
Unusual Fire & Explosive Hazards:	Combustion products are toxic.		

SECTION V: HEALTH HAZARD DATA

Threshold Limit Value:	Not Established	Primary Routes of Entry:	Inhalation, Skin Contact, Eyes & Oral
Effects of Overexposure-Conditions to Avoid:	<p>CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE AND SKIN BURNS: Symptoms may include pain, redness, swelling and tissue damage. Harmful if absorbed through the skin. MAY BE FATAL IF SWALLOWED. Symptoms may include nausea, vomiting, pain and diarrhea. INHALATION OF SPRAY MIST MAY CAUSE RESPIRATORY IRRITATION. Breathing spray mist may cause coughing and difficulty breathing. Contains 2-butoxyethanol which may cause central nervous system depression with symptoms such as headache; dizziness; nausea and drowsiness. Exposure to 2-butoxyethanol may cause blood cell; liver and kidney damage based on animal data. Do not get in eyes on skin or clothing. Do not swallow. Avoid breathing product mist. Wash thoroughly with soap and water after handling.</p>		
Conditions Aggravated by Use:	Use of this product may aggravate preexisting skin; eye and respiratory disorders including asthma and dermatitis.		

Emergency & First Aid Procedures:

Eyes:	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses after the first 5 minutes then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Skin:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash contaminated clothing before reuse.
Ingestion:	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
Inhalation:	In case of respiratory irritation; move person to fresh air. Get medical attention if irritation persists.

SECTION VI: REACTIVITY DATA

Stability:	Stable	Incompatible Materials:	Strong alkalis; hypochlorites (bleach) ammonia; cyanides.
Hazardous Decomposition Products:	Heating to decomposition yields toxic fumes of phosphorus pentoxide. CO, CO ₂ H	Hazardous Polymerization:	Will Not Occur

SECTION VII: SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled:	Small spills of one gallon or less may be flushed with plenty of water to sanitary sewer system (If permitted by local sewer regulations). Dike and contain large spills with inert material and transfer liquid to containers for recovery or disposal.
Waste Disposal Method:	Dispose of in compliance with all federal, state and local laws and regulations.

SECTION VIII: SPECIAL PROTECTION INFORMATION

Respiratory Protection:	Not normally required when good general ventilation is provided. However, if exposure limits (see Section II) are exceeded or respiratory irritation occurs, use of a NIOSH approved respirator suitable for the use-conditions and chemicals in Section II should be considered.
Ventilation:	Provide good general ventilation. Local exhaust ventilation may be necessary for some operations.
Protective Gloves(Specify Type):	Rubber or neoprene gloves are recommended.
Protection(Specify Type):	Splash goggles are recommended to prevent eye contact.
Other Protective Equipment:	Acid resistant aprons and boots are recommended where body or foot contact is likely. Eye wash stations and washing facilities should be readily accessible. See 29 CFR 1910.132-138.

SECTION IX: SPECIAL PRECAUTIONS

Precautions; Handling & Storing:	Keep out of reach of children. Do not contaminate water, food or feed by storage or disposal. Keep from freezing.
Other Precautions:	California Proposition 65: WARNING: This product contains trace amounts of a chemical known to the State of California to cause cancer; birth defects or other reproductive harm.

© SCC 12/03/2003
FOAMY Q&A

Name: Ronald T. Cook
Effective 12/03/2003
Date:

Title: Manager, Regulatory Affairs
Supercedes: 09/23/1999

Ref: 29 CFR 1910.1200 (OSHA) Changes: Update Sections I, II, IV, V, VII, VIII & IX

This document has been prepared using data from sources considered technically reliable. It does not constitute a warranty, express or implied, as to the accuracy of the information contained herein. Actual conditions of use and handling are beyond sellers control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, State and Local laws and regulations.

MATERIAL SAFETY DATA SHEET
 EQUILON MSDS: 52307E-07 01/04/99

2 HEATING OIL

PHONE NUMBER:

24 HOUR EMERGENCY ASSISTANCE

EQUIVA SERVICES: 877-276-7283

CHEMTREC: 800-424-9300

GENERAL MSDS ASSISTANCE

877-276-7285

NAME AND ADDRESS

EQUILON ENTERPRISES LLC

PRODUCT STEWARDSHIP

P.O. BOX 674414

HOUSTON, TX 77267-4414

SECTION I NAME

PRODUCT: NO. 2 HEATING OIL
 CHEMICAL NAME: DIESEL OIL
 CHEMICAL FAMILY: PETROLEUM HYDROCARBON
 HAZARD CODE: 30001
 HEALTH HAZARD: 2 FIRE HAZARD: 2 REACTIVITY: 0

SECTION II-A PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NO.	PERCENT
P	NO. 2 HEATING OIL	68334-30-5	100

SECTION II-B ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
P	NOT AVAILABLE		

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT: BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING LIQUID IS PRACTICALLY NONIRRITATING TO THE EYES.

SKIN CONTACT: BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING LIQUID IS PRESUMED TO BE MODERATELY IRRITATING TO THE SKIN. PROLONGED OR REPEATED LIQUID CONTACT CAN RESULT IN DEFATTING AND DRYING OF THE SKIN WHICH MAY RESULT IN SEVERE IRRITATION AND DERMATITIS. MAY CAUSE MILD SKIN SENSITIZATION. RELEASE DURING HIGH PRESSURE USAGE MAY RESULT IN INJECTION OF OIL INTO THE SKIN CAUSING LOCAL NECROSIS.

INHALATION: INHALATION OF VAPORS OR MIST MAY CAUSE MILD IRRITATION TO THE UPPER RESPIRATORY TRACT. HIGH CONCENTRATIONS MAY RESULT IN CENTRAL NERVOUS SYSTEM DEPRESSION. INHALATION OF HIGH LEVELS OF MIST MAY RESULT IN CHEMICAL PNEUMONITIS.

INGESTION: INGESTION OF PRODUCT MAY RESULT IN VOMITING; ASPIRATION (BREATHING) OF VOMITUS INTO THE LUNGS MUST BE AVOIDED AS EVEN

SMALL QUANTITIES MAY RESULT IN ASPIRATION PNEUMONITIS.

SIGNS AND SYMPTOMS: IRRITATION AS NOTED ABOVE. SKIN SENSITIZATION (ALLERGY) MAY BE EVIDENCED BY RASHES, ESPECIALLY HIVES. EARLY TO MODERATE CNS (CENTRAL NERVOUS SYSTEM) DEPRESSION MAY BE EVIDENCED BY GIDDINESS, HEADACHE, DIZZINESS AND NAUSEA; IN EXTREME CASES, UNCONSCIOUSNESS AND DEATH MAY OCCUR. LOCAL NECROSIS IS EVIDENCED BY DELAYED ONSET OF PAIN AND TISSUE DAMAGE A FEW HOURS FOLLOWING INJECTION. ASPIRATION PNEUMONITIS MAY BE EVIDENCED BY COUGHING, LABORED BREATHING AND CYANOSIS (BLUISH SKIN); IN SEVERE CASES DEATH MAY OCCUR.

AGGRAVATED MEDICAL CONDITIONS:

PREEXISTING SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT. PREEXISTING SKIN OR LUNG ALLERGIES MAY INCREASE THE CHANCE OF DEVELOPING INCREASED ALLERGY SYMPTOMS FROM EXPOSURE TO THIS PRODUCT.

OTHER HEALTH EFFECTS:

KIDNEY DAMAGE MAY RESULT FOLLOWING ASPIRATION PNEUMONITIS. THE RESULTS OF ANIMAL BIOASSAYS ON MIDDLE DISTILLATE FUELS SHOW THAT PROLONGED DERMAL CONTACT PRODUCES A WEAK TO MODERATE CARCINOGENIC ACTIVITY.

SEE SECTION VI FOR ADDITIONAL HEALTH INFORMATION.

SECTION IV

OCCUPATIONAL EXPOSURE LIMITS

COMP NO.	OSHA PEL/TWA	OSHA PEL/CEILING	ACGIH TLV/TWA	ACGIH TLV/STEL	OTHER
-------------	-----------------	---------------------	------------------	-------------------	-------

P *

* NO OSHA PEL OR ACGIH TLV HAS BEEN ESTABLISHED.

SECTION V

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: FLUSH EYES WITH WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING/SHOES AND WIPE EXCESS FROM SKIN. FLUSH SKIN WITH WATER. FOLLOW BY WASHING WITH SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. DO NOT REUSE CLOTHING UNTIL CLEANED. IF MATERIAL IS INJECTED UNDER THE SKIN, GET MEDICAL ATTENTION PROMPTLY TO PREVENT SERIOUS DAMAGE; DO NOT WAIT FOR SYMPTOMS TO DEVELOP.

INHALATION: REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.

INGESTION: DO NOT INDUCE VOMITING. IF VOMITING OCCURS SPONTANEOUSLY, KEEP HEAD BELOW HIPS TO PREVENT ASPIRATION OF LIQUID INTO THE LUNGS. GET MEDICAL ATTENTION.

NOTE TO PHYSICIAN: IF MORE THAN 2.0 ML PER KG HAS BEEN INGESTED AND VOMITING HAS NOT OCCURRED, EMESIS SHOULD BE INDUCED WITH SUPERVISION. KEEP VICTIM'S HEAD BELOW HIPS TO PREVENT ASPIRATION. IF SYMPTOMS SUCH AS LOSS OF GAG REFLEX, CONVULSIONS OR UNCONSCIOUSNESS OCCUR BEFORE EMESIS, GASTRIC LAVAGE USING A CUFFED ENDOTRACHEAL TUBE SHOULD BE CONSIDERED.

SECTION VI

SUPPLEMENTAL HEALTH INFORMATION

REPEATED DERMAL APPLICATION OF HIGH LEVELS OF MIDDLE DISTILLATE FUELS IN EXPERIMENTAL ANIMALS HAS PRODUCED EXTREMELY SEVERE IRRITATION TO CORROSIVE ACTION ON THE SKIN. VARYING DEGREES OF LIVER AND KIDNEY DAMAGE WERE NOTED IN THESE STUDIES, INCLUDING CONGESTION, ENLARGEMENT, MOTTLING, AND MULTIFOCAL NECROSIS.

MIDDLE DISTILLATE FUELS HAVE BEEN DEMONSTRATED TO CAUSE CHROMOSOME DAMAGE IN THE IN VIVO RAT BONE MARROW CYTOGENETICS ASSAY, AND MUTAGENIC IN THE L5178Y MOUSE LYMPHOMA ASSAY. BASED ON AN INCREASED INCIDENCE OF VARIOUS TUMORS IN STUDIES WITH LABORATORY ANIMALS, THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH) REGARDS WHOLE DIESEL EXHAUST AS A POTENTIAL OCCUPATIONAL CARCINOGEN.

SECTION VII

PHYSICAL DATA

BOILING POINT (DEG F):	SPECIFIC GRAVITY (H2O = 1):	VAPOR PRESSURE (MM HG):
450	0.8762	NOT AVAILABLE
MELTING POINT (DEG F):	SOLUBILITY IN WATER:	VAPOR DENSITY (AIR = 1):
NOT AVAILABLE	NEGLIGIBLE	>1
EVAPORATION RATE (NORMAL BUTYL ACETATE = 1):	NOT AVAILABLE	
APPEARANCE AND ODOR: YELLOW LIQUID; STRONG HYDROCARBON ODOR.*		
PHYS/CHEM PROPERTIES: *THE SULFUR CONCENTRATION OF THIS PRODUCT EXCEEDS THE FEDERAL LIMIT FOR ON-HIGHWAY DIESEL FUEL OF 0.05 %W. THE REQUIRED BLUE DYE HAS BEEN ADDED TO THIS PRODUCT TO INDICATE THAT IT IS FOR OFF-HIGHWAY USE ONLY.		

SECTION VIII

FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD: 130 DEG F (PMCC) MIN.

FLAMMABLE LIMITS/PERCENT VOLUME IN AIR: LOWER: N/AV HIGHER: N/AV

EXTINGUISHING MEDIA:

USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. DO NOT USE A DIRECT STREAM OF WATER. PRODUCT WILL FLOAT AND CAN BE REIGNITED ON SURFACE OF WATER.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS:

CAUTION. COMBUSTIBLE. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER. IN THE CASE OF LARGE FIRES, ALSO COOL SURROUNDING EQUIPMENT AND STRUCTURES WITH WATER.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

CONTAINERS EXPOSED TO INTENSE HEAT FROM FIRES SHOULD BE COOLED WITH WATER TO PREVENT VAPOR PRESSURE BUILDUP WHICH COULD RESULT IN CONTAINER RUPTURE. CONTAINER AREAS EXPOSED TO DIRECT FLAME CONTACT SHOULD BE COOLED WITH LARGE QUANTITIES OF WATER AS NEEDED TO PREVENT WEAKENING OF CONTAINER STRUCTURE.

SECTION IX

REACTIVITY

STABILITY: STABLE HAZARDOUS POLYMERIZATION WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:

AVOID HEAT, FLAME AND CONTACT WITH STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS:

THERMAL DECOMPOSITION PRODUCTS ARE HIGHLY DEPENDENT ON THE COMBUSTION CONDITIONS. A COMPLEX MIXTURE OF AIRBORNE SOLID, LIQUID, PARTICULATES AND GASES WILL EVOLVE WHEN THIS MATERIAL UNDERGOES PYROLYSIS OR COMBUSTION. CARBON MONOXIDE AND OTHER UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED UPON COMBUSTION.

SECTION X

EMPLOYEE PROTECTION

RESPIRATORY PROTECTION:

USE A NIOSH-APPROVED RESPIRATOR AS REQUIRED TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134, USE EITHER A FULL-FACE, ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS.

PROTECTIVE CLOTHING

NO SPECIAL EYE PROTECTION IS ROUTINELY NECESSARY. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WEAR CHEMICAL RESISTANT GLOVES AND OTHER CLOTHING AS REQUIRED TO MINIMIZE CONTACT.

ADDITIONAL PROTECTIVE MEASURES:

USE EXPLOSION-PROOF VENTILATION AS REQUIRED TO CONTROL VAPOR CONCENTRATIONS.

SECTION XI

ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES:

CAUTION. COMBUSTIBLE. *** LARGE SPILLS *** ELIMINATE POTENTIAL SOURCES OF IGNITION. WEAR APPROPRIATE RESPIRATOR AND OTHER PROTECTIVE CLOTHING. SHUT OFF SOURCE OF LEAK ONLY IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND, OR OTHER SUITABLE MATERIAL; PLACE IN NON-LEAKING CONTAINERS AND SEAL TIGHTLY FOR PROPER DISPOSAL. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE; DISPOSE OF FLUSH SOLUTION AS ABOVE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND PLACE IN NON-LEAKING CONTAINERS FOR PROPER DISPOSAL.

SECTION XII

SPECIAL PRECAUTIONS

KEEP LIQUID AND VAPOR AWAY FROM HEAT, SPARKS AND FLAME. SURFACES THAT ARE SUFFICIENTLY HOT MAY IGNITE EVEN LIQUID PRODUCT IN THE ABSENCE OF SPARKS OR FLAME. EXTINGUISH PILOT LIGHTS, CIGARETTES AND TURN OFF OTHER SOURCES OF IGNITION PRIOR TO USE AND UNTIL ALL VAPORS ARE GONE. VAPORS MAY ACCUMULATE AND TRAVEL TO IGNITION SOURCES DISTANT FROM THE HANDLING SITE; FLASH-FIRE CAN RESULT. KEEP CONTAINERS CLOSED WHEN NOT IN USE. USE (ONLY) WITH ADEQUATE VENTILATION. CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, CAN CONTAIN EXPLOSIVE VAPORS. DO NOT CUT, DRILL, GRIND, WELD OR PERFORM SIMILAR OPERATIONS ON OR NEAR CONTAINERS. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING OR USING TOILET FACILITIES. LAUNDRY CONTAMINATED CLOTHING BEFORE REUSE.

SECTION XIII

TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION:

CLASS 3 (FLAMMABLE LIQUID), III
DOT PROPER SHIPPING NAME: FUEL OIL
OTHER REQUIREMENTS: NA1993, GUIDE 128

SECTION XIV

OTHER REGULATORY CONTROLS

THIS PRODUCT IS LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES. SECTION OF STRATOSPHERIC OZONE (PURSUANT TO SECTION 611 OF THE CLEAN AIR ACT AMENDMENTS OF 1990): PER 40 CFR PART 82, THIS PRODUCT DOES NOT CONTAIN NOR IS IT DIRECTLY MANUFACTURED WITH ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCES.

IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE ATTACHED ENVIRONMENTAL DATA SHEET (EDS) SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV

STATE REGULATORY INFORMATION

THE FOLLOWING CHEMICALS ARE SPECIFICALLY LISTED BY INDIVIDUAL STATES; OTHER PRODUCT SPECIFIC HEALTH AND SAFETY DATA IN OTHER SECTIONS OF THE MSDS MAY ALSO BE APPLICABLE FOR STATE REQUIREMENTS. FOR DETAILS ON YOUR REGULATORY REQUIREMENTS YOU SHOULD CONTACT THE APPROPRIATE AGENCY IN YOUR STATE.

STATE LISTED COMPONENT	CAS NO	PERCENT	STATE CODE
DIPESEL OIL	68334-30-5	100	NJ, RI, CA65C

CA = CALIFORNIA HAZ. SUBST. LIST; CA65C, CA65R, CA65C/R = CALIFORNIA SAFE DRINKING WATER AND TOXICS ENFORCEMENT ACT OF 1986 OR PROPOSITION 65 LIST; CT = CONNECTICUT TOXIC. SUBST. LIST; FL = FLORIDA SUBST. LIST; IL = ILLINOIS TOX. SUBST. LIST; LA = LOUISIANA HAZ. SUBST. LIST; MA = MASSACHUSETTS SUBST. LIST; ME = MAINE HAZ. SUBST. LIST; MN = MINNESOTA HAZ. SUBST. LIST; NJ = NEW JERSEY HAZ. SUBST. LIST; PA = PENNSYLVANIA HAZ. SUBST. LIST; RI = RHODE ISLAND HAZ. SUBST. LIST.

CA. CALIFORNIA PROPOSITION 65 FOOTNOTE: CA65C = THE CHEMICAL IDENTIFIED WITH THIS CODE IS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. CA65R = THE CHEMICAL IDENTIFIED WITH THIS CODE IS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. CA65C/R = THE CHEMICAL IDENTIFIED WITH THIS CODE IS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BOTH CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

SECTION XVI

SPECIAL NOTES

THIS MSDS REVISION HAS CHANGES IN SECTION XIII.

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT DATA. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

TO DETERMINE THE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT TO THE PRODUCT, YOU SHOULD CONSULT WITH YOUR LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. WE WILL NOT PROVIDE ADVICE ON SUCH MATTERS, OR BE RESPONSIBLE FOR ANY INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN. THE UNDERLYING DATA, AND THE INFORMATION PROVIDED HEREIN

A RESULT OF THAT DATA, IS THE PROPERTY OF EQUIVA SERVICES, LLC AND IS NOT TO THE SUBJECT OF SALE OR EXCHANGE WITHOUT THE EXPRESS WRITTEN CONSENT OF EQUIVA SERVICES, LLC.

ENVIRONMENTAL DATA SHEET
EQUILON EDS: 52307E

NO. 2 HEATING OIL
TELEPHONE NUMBER:
24 HOUR EMERGENCY ASSISTANCE
EQUIVA SERVICES: 877-276-7283
CHEMTREC: 800-424-9300

GENERAL MSDS ASSISTANCE
877-276-7285

NAME AND ADDRESS
EQUILON ENTERPRISES
PRODUCT STEWARDSHIP
P.O. BOX 674414
HOUSTON, TX 77267-4414
PRODUCT CODE: 30001

SECTION I		PRODUCT COMPOSITION	
NO.	COMPOSITION	CAS	PERCENT
1	NO. 2 HEATING OIL	68334-30-5	100

SECTION II		SARA TITLE III INFORMATION			
NO.	EHS RQ (*1)	EHS TPQ (*2)	SEC-313 (*3)	313 CATEGORY (*4)	311/312 CATEGORY (*5)
1					H-1, H-2, P-3

- *1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SEC 302
 - *2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SEC 302
 - *3 = TOXIC CHEMICAL, SEC 313
 - *4 = CATEGORY AS REQUIRED BY SEC 313 (40 CFR 372.65 C), MUST BE USED ON TOXIC RELEASE INVENTORY FORM
 - *5 = CATEGORY (FOR AGGREGATE REPORTING REQUIREMENTS UNDER SARA 311, 312)
- HEALTH: H-1 = IMMEDIATE (ACUTE) HEALTH HAZARD
H-2 = DELAYED (CHRONIC) HEALTH HAZARD
- PHYSICAL: P-3 = FIRE HAZARD
P-4 = SUDDEN RELEASE OF PRESSURE HAZARD
P-5 = REACTIVE HAZARD

SECTION III ENVIRONMENTAL RELEASE INFORMATION

UNDER EPA-CWA, THIS PRODUCT IS CLASSIFIED AS AN OIL UNDER SECTION 311. SPILLS INTO OR LEADING TO SURFACE WATERS THAT CAUSE A SHEEN MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802.

SECTION IV RCRA INFORMATION

UNDER EPA - RCRA (40 CFR 261.21), IF THIS PRODUCT BECOMES A WASTE MATERIAL,

IT WOULD BE IGNITABLE HAZARDOUS WASTE, HAZARDOUS WASTE NUMBER D001. REFER TO LATEST EPA OR STATE REGULATIONS REGARDING PROPER DISPOSAL.

INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT DATA. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

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KAREN G. HAYNES

EQUIVA SERVICES LLC
P.O. BOX 674414
HOUSTON, TX 77267-4414

FOR ADDITIONAL INFORMATION ON THIS ENVIRONMENTAL DATA PLEASE CALL
(877) 276-7285

FOR EMERGENCY ASSISTANCE PLEASE CALL

EQUIVA SERVICES LLC: (877) 276-7283

CHEMTREC: (800) 424-9300

}

S Document for M*95



Spartan Chemical Company, Inc.

Material Safety Data Sheet

SECTION I: PRODUCT INFORMATION

Product Name or Number (as it appears on label):

Product Division:

Janitorial

95

Product Number: 7115; 7495

Spartan Chemical Company, Inc.

Product/Technical Information: 1-(800)-537-8990

100 Spartan Drive

Medical Emergency: 1-(888)-314-6171 (24 hours)

Columbus OH 43537

Chemical Leak/Spill Emergency: CHEMTREC 1-(800) 424-9300 (24 hours)

Shipping Description:		Corrosive liquids, n.o.s., 8, UN 1760, III, (contains hydrochloric (muriatic) acid)	
NFPA Ratings:		HMIS Ratings:	
Health:	3 - Serious	Health:	3 - Serious; Chronic Hazard
Fire:	0 - Minimal	Fire:	0 - Minimal
Reactivity:	0 - Minimal	Reactivity:	0 - Minimal
		Pers. Prot. Equip.:	See Section VIII

SECTION II: HAZARDOUS INGREDIENTS

Listed when present at 1% or greater, carcinogens at 0.1% or greater) All component chemicals are listed or exempted from listing on the "HCSA Inventory" of chemical substances maintained by the U.S. Environmental Protection Agency.

Chemical Name(s)	% W	CAS Registry No.	Table Z-1 - A			Carcinogen
			TWA mg/m ³	STEL mg/m ³	CEILING mg/m ³	
*Hydrochloric acid	5-10	7647-01-0	Not Established	Not Established	7	No

Comment: *This substance is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA) and of 40 CFR 372.

SECTION III: PHYSICAL DATA

Boiling Point:	210-212 °F	Vapor Pressure:	Undetermined
Vapor Density (AIR = 1):	Unknown	Solubility in Water:	Complete
pH:	< 1	Specific Gravity (H ₂ O=1):	1.04
Evaporation Rate (but.ace.=1):	<1	Percent Solid by Weight:	< 1-2
Physical State:	Liquid		
Appearance & Odor:	Opaque green liquid, pine fragrance		

SECTION IV: FIRE & EXPLOSIVE HAZARD DATA

Flash Point:	> 212°F	Method Used:	ASTM-D56
Flammable Limits:	Not Established	Flame Extension:	N/A
Extinguishing Media:	Product does not support combustion. Use extinguishing media appropriate for surrounding fire.		
Special Fire Fighting Procedures:	Wear NIOSH approved self-contained breathing apparatus and protective clothing. Cool fire-exposed containers with water spray.		
Unusual Fire & Explosive Hazards:	Combustion products are toxic. Acid action on most metals may release hydrogen, an explosive gas.		

SECTION V: HEALTH HAZARD DATA

Threshold Limit Value:	Not Established	Primary Routes of Entry:	Inhalation, Skin Contact, Eyes & Oral
Effects of Overexposure-Conditions to Avoid:	<p>CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE AND SKIN BURNS: Symptoms may include pain, redness, swelling and tissue damage. Harmful if absorbed through the skin. MAY BE FATAL IF SWALLOWED. Symptoms may include nausea, vomiting, pain and diarrhea. INHALATION OF VAPORS OR MIST MAY CAUSE IRRITATION OR HARM TO THE RESPIRATORY TRACT. Breathing vapors or mist may cause coughing and difficulty breathing. Do not get in eyes on skin or clothing. Do not swallow. Avoid breathing product vapors or mist. Wash thoroughly with soap and water after handling.</p>		
Conditions Aggravated by Use:	Use of this product may aggravate preexisting skin; eye and respiratory disorders including asthma and dermatitis.		

Emergency & First Aid Procedures:

Eyes:	Flush eyes with water for at least 15 minutes. Remove contact lenses. Get medical attention.
Skin:	Remove contaminated clothing. Rinse skin immediately with plenty of water for at least 15 minutes. Get medical attention if irritation persists. Wash contaminated clothing before reuse.
Ingestion:	Get immediate medical attention. Do not induce vomiting. Drink one or two glasses of water to dilute product. Do not give anything by mouth to an unconscious person.
Inhalation:	Move person to fresh air. Get medical attention if irritation persists.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

SECTION VI: REACTIVITY DATA

Stability:	Stable	Incompatible Materials:	Strong alkalis; hypochlorites (bleach) ammonia; cyanides.
Hazardous Decomposition Products:	HCL, CO, CO ₂ H	Hazardous Polymerization:	Will Not Occur

SECTION VII: SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled:	Small spills of one quart or less may be flushed with plenty of water to sanitary sewer system (If permitted by local sewer regulations). Dike and contain larger spills with inert material and transfer liquid to containers for recovery or disposal.
Waste Disposal Method:	Dispose of in compliance with all federal, state and local laws and regulations.

SECTION VIII: SPECIAL PROTECTION INFORMATION

Respiratory Protection:	Not normally required when good general ventilation is provided. However, if exposure limits (see Section II) are exceeded or respiratory irritation occurs, use of a NIOSH approved respirator suitable for the use-conditions and chemicals in Section II should be considered.
Ventilation:	Provide good general ventilation. Local exhaust ventilation may be necessary for some operations.
Protective Gloves(Specify Type):	Rubber or neoprene gloves are recommended.
Eye Protection(Specify Type):	Splash goggles are recommended to prevent eye contact.
Other Protective Equipment:	Acid resistant aprons and boots are recommended where body or foot contact is likely. Eye wash stations and washing facilities should be readily accessible. See 29 CFR 1910.132-138.

SECTION IX: SPECIAL PRECAUTIONS

Precautions; Handling & Storing:	Keep out of reach of children. Do not contaminate water, food or feed by storage or disposal. Keep from freezing. Do not use with other chemicals. Mixtures of this product with other chemicals, particularly those containing chlorine bleach or ammonia may result in the production of toxic gases, fire or explosion.
Other Precautions:	California Proposition 65: WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

SCC 04/09/2004
 Name: Ronald T. Cook Title: Manager, Regulatory Affairs
 Effective 04/09/2004 Supercedes: 10/27/2000
 Date:
 CFR 1910.1200 (OSHA) Changes: Update Sections I, II, III, IV, V, VI, VII, VIII & IX
 This document has been prepared using data from sources considered technically reliable. It does not constitute a warranty, express or implied, as to the accuracy of the information contained herein. Actual conditions of use and handling are beyond sellers control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, State and Local laws and regulations.

product # 332490 (22)

1. PRODUCT IDENTIFICATION

MSDS Number: 100300.0
 Identity: Floor Absorbent
 Issued: March 19, 1999
 Chemical Name: Fullers Earth

2. COMPOSITION

Component	CAS Number	Amount	Exposure Limit
Fullers Earth	8031-18-3	80-90%	PEL - 5 mg/m ³ TWA (respirable fraction) TLV - 3 mg/m ³ TWA (respirable fraction) TLV - 10 mg/m ³ TWA (inhalable dust)
Quartz (crystalline silica) 3-6% respirable	14808-60-7	10-20% bulk	PEL - 10 mg/m ³ %SiO ₂ +2 TWA TLV - 0.1 mg/m ³ TWA

PEL- OSHA Permissible Exposure Limit. TLV- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value.
 TWA- 8 hour Weighted Average. STEL-Short Term Exposure Limit.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This product is a non-combustible, chemically inert mineral. This mineral sample contains a small amount of naturally-occurring crystalline silica as quartz. Prolonged overexposure to respirable crystalline silica may cause lung disease (silicosis). IARC, in Monograph 68, has concluded that crystalline silica inhaled in the form of quartz from occupational sources is carcinogenic to humans (Group 1); however, carcinogenicity was not detected in all industrial circumstances studied. Because applications and exposure data indicate that exposure to respirable quartz in this product with normal use is well below the OSHA Permissible Exposure Limit (PEL) and ACGIH Threshold Limit Value (TLV); and because the company is not aware of any scientific or medical data available indicating that exposure to dust from this product under conditions of normal use will cause silicosis or cancer, adverse effects would not be expected from normal use of this product.

HEALTH HAZARDS

INGESTION: No adverse effects expected with unused material.
INHALATION: Inhalation of excessive concentrations of dust may cause irritation of mucous membranes and upper respiratory tract.
EYE: Contact may cause mechanical irritation and possible injury.
SKIN: No adverse effects expected.
SENSITIZATION: No adverse effects expected.

CHRONIC/CARCINOGENICITY:

Inhalation of excessive concentrations of any dust, including this material, may lead to lung injury. This product contains crystalline silica. Excessive inhalation of respirable crystalline silica may cause silicosis, a progressive, disabling and fatal disease of the lung. Symptoms may include cough, shortness of breath, wheezing and reduced pulmonary function. The International Agency for Research on Cancer (IARC), in Monograph 68 has concluded that crystalline silica inhaled in the form of quartz or cristobalite, from occupational sources is carcinogenic to humans (Group 1). However, in making the overall evaluation, the Working Group noted that carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs. The National Toxicology Program (NTP) classifies crystalline silica as reasonably anticipated to be a carcinogen. Because applications and exposure data indicate that exposure to respirable quartz in this product with normal use is well below the OSHA Permissible Exposure Limit (PEL) and ACGIH Threshold Limit Value (TLV); and because the company is not aware of any scientific or medical data available indicating that exposure to dust from this product under conditions of normal use will cause silicosis or cancer, adverse effects would not be expected from normal use of this product.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

None currently known.

4. FIRST AID MEASURES

- EYE:** Immediately flush eyes with cool running water, lifting upper and lower lids. If irritation persists or for foreign body in the eye, get immediate medical attention.
- SKIN:** None needed for normal use.
- INGESTION:** If used material is ingested, get medical attention due to possibility of chemical contamination. If large amount of unused material is swallowed, get immediate medical attention.
- INHALATION:** Remove to fresh air.

5. FIREFIGHTING MEASURES

- FLASH POINT:** This product is not combustible.
- FLAMMABLE LIMITS** Not applicable
- EXTINGUISHING MEDIA:**
Use media that is appropriate for surrounding fire.
- UNUSUAL FIRE OR EXPLOSION HAZARDS:**
None
- SPECIAL FIREFIGHTING INSTRUCTIONS**
None required.

HAZARDOUS COMBUSTION PRODUCTS:

None

6. ACCIDENTAL RELEASE MEASURES

Sweep up and collect for re-use or disposal

7. HANDLING AND STORAGE

HANDLING: Avoid breathing dust. If clothing becomes dusty, launder before re-use.

STORAGE: Store in a dry area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Refer to Section 2.

ENGINEERING CONTROLS:

For operations where the exposure limit may be exceeded, local exhaust ventilation is recommended.

RESPIRATORY PROTECTION:

For operations where the exposure limit may be exceeded, a NIOSH/MSHA approved high efficiency particulate respirator is recommended.

SKIN PROTECTION: None required for normal use.

EYE PROTECTION: Safety glasses or goggles recommended.

OTHER: None required for normal use.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR:

Gray to tan granules, no odor

PHYSICAL STATE: Solid

BOILING POINT: Not applicable

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

SOLUBILITY IN WATER:

Insoluble

SPECIFIC GRAVITY: 2.2

pH: Not applicable

MELTING POINT: Not applicable

OCTANOL/WATER COEFFICIENT:

Not available

10. STABILITY AND REACTIVITY

STABILITY: Stable

INCOMPATIBILITY: Contact of dry clay with turpentine, vegetable oil or other unsaturated organic compounds, or with hydrofluoric acid may generate heat and/or fire. Do not use with these compounds.

HAZARDOUS DECOMPOSITION PRODUCTS
None

HAZARDOUS POLYMERIZATION:
Will not occur.

11. TOXICOLOGICAL INFORMATION

No data available.

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state and federal environmental regulations. Unused material is suitable for disposal in sanitary landfill. Used material may be subject to regulation, depending on the nature of the material absorbed. Check with appropriate regulatory authority for used material containing hazardous waste.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME:
Not regulated

UN NUMBER: Not applicable

HAZARD CLASS/PACKING GROUP:
Not applicable

LABELS REQUIRED: None

15. REGULATORY INFORMATION

CERCLA/SUPERFUND None

SARA HAZARD CATEGORY (311/312):
Chronic Health

SARA 313: None

TSCA: All of the components of this product are listed on the EPA TSCA Inventory or exempt from notification requirements.

EINECS: All of the components of this product are listed on the EINECS Inventory or exempt from notification requirements

EEC R&S Phrases: Not Classified as Dangerous under EEC Labeling Regulations



CORPORATION OF AMERICA
410 North Michigan Avenue
Chicago, IL 60611

Material Safety Data Sheet

Floor Absorbent (#100300.0)

(312)321-1515 information (800)424-9300 emergency

- JAPAN MITI:** All of the components of this product are existing chemical substances as defined in the Chemical Substances Control Law.
- AICS:** All of the components of this product are listed on the AICS Inventory or exempt from notification requirements
- CANADIAN DSL:** All of the components of this product are listed on the Canadian Domestic Substance List or exempt from notification requirements.
- CA PROPOSITION 65:** This product contains respirable crystalline silica which is known to the State of California to cause cancer.

16. OTHER INFORMATION

NFPA RATING: Health=1 Fire=0 Reactivity=0

HMIS RATING: Health=1* Fire=0 Reactivity=0

The information in this data sheet is believed to be accurate. However, each purchaser should make its own test to determine the suitability of the product for its purposes. OIL-DRI CORPORATION OF AMERICA MAKES NO WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCT and assumes no responsibility for any risk or liability arising from the use of the information or the product. Statements about the product should not be construed as recommendations to use the product in infringement of any patent.



MATERIAL SAFETY DATA SHEET

PRODUCT NAME: OXYGEN

1. Chemical Product and Company Identification

BOC Gases,
Division of,
The BOC Group, Inc.
575 Mountain Avenue
Murray Hill, NJ 07974

BOC Gases
Division of
BOC Canada Limited
5975 Falbourne Street, Unit 2
Mississauga, Ontario L5R 3W6

TELEPHONE NUMBER: (908) 464-8100
24-HOUR EMERGENCY TELEPHONE
NUMBER: CHEMTREC (800) 424-9300

TELEPHONE NUMBER: (905) 501-1700
24-HOUR EMERGENCY TELEPHONE
NUMBER: (905) 501-0802
EMERGENCY RESPONSE PLAN NO: 2-0101

PRODUCT NAME: OXYGEN
CHEMICAL NAME: Oxygen
COMMON NAMES/SYNONYMS: None
TDG (Canada) CLASSIFICATION: 2.2 (5.1)
WHMIS CLASSIFICATION: A, C

PREPARED BY: Loss Control (908)464-8100/(905)501-1700
PREPARATION DATE: 6/1/95
REVIEW DATES: 3/22/00

2. Composition, Information on Ingredients

EXPOSURE LIMITS¹:

INGREDIENT	% VOLUME	PEL-OSHA ²	TLV-ACGIH ³	LD ₅₀ or LC ₅₀ Route/Species
Oxygen FORMULA: O ₂ CAS: 7782-44-7 RTECS #: RS2060000	99.6 to 100.0	Not Applicable	Not Applicable	Not Available

¹ Refer to individual state of provincial regulations, as applicable, for limits which may be more stringent than those listed here.

² As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

³ As stated in the ACGIH 1999-2000 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

3. Hazards Identification

EMERGENCY OVERVIEW

Odorless, colorless, non-flammable gas. Oxidizer. Will accelerate combustion and increase the risk of fire and explosion in combustible or flammable materials. Non-toxic. Prolonged inhalation of high concentrations may cause coughing and lung affects. Contents under pressure. Use and store below 125 °F.

PRODUCT NAME: OXYGEN

ROUTE OF ENTRY:

Skin Contact No	Skin Absorption No	Eye Contact No	Inhalation Yes	Ingestion No
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HEALTH EFFECTS:

Exposure Limits No	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None known		

Carcinogenicity: -- NTP: No IARC: No OSHA: No

EYE EFFECTS:

Adverse effects not anticipated.

SKIN EFFECTS:

Adverse effects not anticipated.

INGESTION EFFECTS:

Adverse effects not anticipated.

INHALATION EFFECTS:

Oxygen is non-toxic. Prolonged inhalation of high oxygen concentrations (> 75%) may affect coordination, attention, and cause tiredness or respiratory irritation.

Oxygen is more toxic when inhaled at elevated pressures. Depending upon pressure and duration of exposure, pure oxygen at elevated pressures (i.e.: divers) may cause cramps, dizziness, difficulty breathing, convulsions, edema, and death.

Elevated oxygen concentrations in incubators has caused visual impairment and blindness in premature infants. High oxygen concentrations primarily affect eyes which are not fully developed (see Section 11).

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

NFPA HAZARD CODES

Health: 0
Flammability: 0
Instability: 0

HMIS HAZARD CODES

Health: 0
Flammability: 0
Reactivity: 0

RATINGS SYSTEM

0 = No Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

OXIDIZER

4. First Aid Measures

EYES:

None required.

SKIN:

None required.

PRODUCT NAME: OXYGEN

INGESTION:
None required.

INHALATION:
Overexposure to oxygen is not anticipated under normal working conditions. High oxygen concentrations in the air may present a fire and explosion hazard. PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES WHEN OXYGEN IS INHALED UNDER PRESSURE (i.e.: as in scuba diving). Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Further treatment should be symptomatic and supportive. Inform the treating physician that the patient could be experiencing hyperoxia.

5. Fire Fighting Measures

Conditions of Flammability: Not flammable, Oxidizer		
Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEL(%): None	UEL(%): None	
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

FIRE AND EXPLOSION HAZARDS:
High oxygen concentrations vigorously accelerate combustion. Will support or initiate combustion/ explosion of organic matter and other oxidizable material. Cylinder may rupture violently from pressure when involved in a fire situation.

EXTINGUISHING MEDIA:
Water spray to keep cylinders cool. Extinguishing agent appropriate for the combustible material.

FIRE FIGHTING INSTRUCTIONS:
If possible, stop the flow of oxygen which is supporting the fire. Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed containers until well after flames are extinguished.

6. Accidental Release Measures

Evacuate all personnel from affected area. A leak near combustible or flammable materials may represent a severe fire or explosion hazard. Eliminate all ignition sources. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

7. Handling and Storage

Electrical classification:
Nonhazardous

PRODUCT NAME: OXYGEN

Dry product is noncorrosive and may be used with all materials of construction. Moisture causes metal oxides which are formed with air to be hydrated so that they include volume and lose their protective role (rust formation). Concentrations of SO₂, Cl₂, salt, etc. in the moisture enhances the rusting of metals in air. Carbon steels and low alloy steels are acceptable for use at lower pressures.

For high pressure applications stainless steels are acceptable as are copper and its alloys, nickel and its alloys, brass bronze, silicon alloys, Monel ®, Inconel ® and beryllium. Lead and silver or lead tin alloys are good gasket materials. Teflon ®, Teflon ® composites, or Kel-F ® are preferred non-metallic gasket materials.

Oxygen should not be used as a substitute for compressed air in pneumatic equipment since this type generally contains flammable lubricants. Equipment to contain oxygen must be "cleaned for oxygen service". Check with the supplier to verify oxygen compatibility for the service conditions.

Stationary customer site vessels should operate in accordance with the manufacturer's and BOC's instruction. Do not attempt to repair, adjust or in any other way modify the operation of these vessels. If there is a malfunction or other type of operations problem with the vessel, contact the closest BOC location immediately.

Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the system.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas, emergency exits, flammables and combustibles. Do not allow the temperature where cylinders are stored to exceed 125°F (52°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in the storage area or use area. There should be no sources of ignition in the storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-14, AV-10, G-4, G-4.1, G-4.3, G-4.5, G4.9, O2-DIR, P-8.1 and SB-9.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, or a toxic exposure.

8. Exposure Controls, Personal Protection

ENGINEERING CONTROLS:

Use local exhaust to prevent accumulation of high concentrations that increase the oxygen level in air to more than 23.5%.

EYE/FACE PROTECTION:

Safety goggles or glasses as appropriate for the job.

SKIN PROTECTION:

Protective gloves made of any suitable material appropriate for the job.

OTHER/GENERAL PROTECTION:

Safety shoes.

PRODUCT NAME: OXYGEN

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Above critical temp.	
Vapor density (Air = 1)	: 1.11	
Evaporation point	: Not Available	
Boiling point	: -297.3	°F
	: -182.9	°C
Freezing point	: -361.8	°F
	: -218.8	°C
pH	: Not Applicable	
Specific gravity at STP	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Slightly soluble	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas	

10. Stability and Reactivity

STABILITY:

Stable.

INCOMPATIBLE MATERIALS:

All flammable, organic, and combustible materials.

HAZARDOUS DECOMPOSITION PRODUCTS:

None.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. Toxicological Information

SKIN AND EYE:

The incompletely developed retinal circulation is more susceptible to toxic levels of oxygen. In premature infants, arterial oxygen tension above 150 mm Hg may cause retrolental fibroplasia. Permanent blindness may occur several months later. One case of severe retinal damage in an adult was reported. An individual suffering from myasthenia gravis developed irreversible retinal atrophy after breathing 80% oxygen for 150 days.

INHALATION:

Human volunteers which inhaled 90-95% oxygen through a face mask for 6 hours showed signs of tracheal irritation and fatigue. Other symptoms (which might have been caused by placing a tube into the trachea during the experiment) included: sinusitis, conjunctivitis, fever, and symptoms of acute bronchitis.

Poisoning began in dogs 36 hours after inhalation of pure oxygen at atmospheric pressure. Distress was seen within 48 hours and death within 60 hours.

PRODUCT NAME: OXYGEN

12. Ecological Information

No data given.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Oxygen, compressed	Oxygen, compressed
HAZARD CLASS:	2.2	2.2 (5.1)
IDENTIFICATION NUMBER:	UN 1072	UN 1072
SHIPPING LABEL:	NONFLAMMABLE GAS, OXIDIZER	NONFLAMMABLE GAS, OXIDIZER

15. Regulatory Information

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA 313: This product does not contain ingredients subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 49 CFR Part 372.

SARA TITLE III - HAZARD CLASSES:

Fire Hazard
Sudden Release of Pressure Hazard

16. Other Information

ACGIH	American Conference of Governmental Industrial Hygienists
DOT	Department of Transportation
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
WHMIS	Workplace Hazardous Materials Information System

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Page 1 of 5

Product: **POLLU-TREAT® CL-888**

Supplier: **POLLU-TECH, INC.**
853 Second Street Pike,
Brownstone II, Suite B-200
Richboro, PA 18954

Telephone Number: (215) 357-1821
FAX : (215) 357-0368

Emergency Phone Number: Call Chemtrec 24-hours/day, 7-days/week at
1-800-424-9300

Current Revision Date: 02/05/2004

Section 1: Product Identification

Chemical Family: Copolymer of a quaternary acrylate salt and acrylamide dispersed in mineral oil.

Intended Use: Flocculent Trademark Text: POLLU-TREAT® is trademarked

Section 2: Composition/Information on Ingredients

<u>CAS#</u>	<u>Component</u>	<u>Percent</u>
69418-26-4	Ethanaminium, N,N,N-trimethyl-20((1-oxo-2-propenyl)oxy))-, chloride, polymer with 2-propenamide	20-45
64742-47-8	Petroleum distillates, hydrotreated light	20-30
68213-23-0	Alcohols, C12-18, ethoxylated	1 - 3

Component Information/Information on Non-Hazardous Components
None

Section 3: Hazards Identification

Emergency Overview

This Product is irritating to the eyes, respiratory system and skin

Potential Health Effect: Eyes
Irritant

Potential Health Effects: Skin
Irritant

Potential Health Effects: Ingestion
May be harmful if swallowed. Seek Medical Attention

Potential Health Effects: Inhalation
Avoid prolonged inhalation of heated vapors.

HMIS ratings:

Health: 1 Fire: 1 Reactivity: 0 Personal Protection: B
Hazard Scale: 0=minimum 1-slight 2-moderated 3=serious 4-severe *Chronic Hazard

Section 4 - First Aid Measures

First Aid: Eyes

Immediately flush eyes with copious amounts of water for at least 15-minutes, while holding eyelids open. Seek medical attention.

First Aid: Skin

Flush thoroughly with water

First Aid: Ingestion

If ingestion of large amount does occur, seek medical attention

First Aid: Inhalation

Inhalation of mists into lungs may cause pulmonary disorder. Move victim to fresh air. Consult physician regarding any continued discomfort.

Section 5 - Fire Fighting Measures

Flash Point: >212 F

Method Used: COC

Upper Flamable Limit (UFL): Not determined

Lower Flamable Limit (LFL): Not determined

Auto Ignition: Not determined

Flammability Classification:**General Fire Hazards**

Petroleum hydrocarbon component, if separated from product, is combustible

Hazardous Combustion Products

On thermal decomposition oxides of carbon and nitrogen

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog

Fire Fighting Equipment/Instruction

Firefighters should wear full protective clothing including self-contained breathing apparatus

NFPA Ratings:

Health: 1 Fire: 1 Reactivity: 0

Hazard Scale: 0=Minimum 1=Slight 2=Moderate 3=Serious 4=Severe

Section 6 -Accidental Release Measures

Containment Procedures

Absorb spills with inert material. Shovel material into appropriate container for disposal. Do not flush to receiving waters can suffocate fish

Clean-up Procedures

None Specified

Evacuation Procedures

None

Special Procedures

Remove spills promptly as they may make floors slippery. Several washes and/or the use of detergents may be necessary to completely clean any spill.

Section 7 - Handling and Storage**Handling Procedures**

Handle as an irritant

Storage Procedures

Store at room temperatures, avoid continued exposure to direct sunlight
Minimize temperature fluctuations

Section 8 - Exposure Controls/ personal Protection

A: Exposure Limits for Chemicals which may be generated during processing
This material has no components listed

Engineering Controls

Provide adequate ventilation to minimize worker exposure

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face
Safety glasses or goggles.

Personal Protective Equipment: Skin
Skin contact should be minimized. Impervious gloves (rubber or neoprene) are recommended. Good housekeeping should be maintained, clean clothes daily.

Personal Protective Equipment: Respirator
Not required under normal conditions.

Personal Protective Equipment: General
Avoid prolonged inhalation of heated vapors. Avoid exposure in areas with poor ventilation

SECTION 9- PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE: White viscous liquid	Odor: Mild hydrocarbon odor
Physical State: Liquid	pH: N/E
Vapor Pressure: N/E	Vapor Density: N/E
Boiling Point: N/E	Melting Point: 5 F
Solubility (H2O): Water Soluble	Specific Gravity: 1 (water =1)
Evaporation Rate: 1 (butyl acetate=1)	

SECTION 10- CHEMICAL STABILITY & REACTIVITY INFORMATION**Chemical Stability**

Stable under usual application conditions.

Chemical Stability: Conditions to Avoid

Poorly ventilated storage areas with excessive heat due to vapors

Incompatibility

Strong oxidizing agents will affect product efficacy

Hazardous Decomposition

None identified

Hazard Polymerization

Hazardous polymerization will not occur

Section 11 - Toxicological Information**Acute and Chronic Toxicity**

Eye and skin irritant. May aggravate existing medical conditions such as rashes, allergies or other sensitive areas. Symptoms may include reddening, swelling of affected areas with possible itching, burning or other discomfort.

Carcinogenicity

NTP: No
LARC: No
OSHA: No

SECTION 12 - ECOLOGICAL INFORMATION**Ecotoxicity****Aquatic LC50:**

(Ceriodaphnia Dubia: 48 hours): 1.75 ppm
(Pimephales Promelas: 48 hours): 11.0 ppm

A: Component Analysis - Ecotoxicity - Aquatic Toxicity**Environmental Fate**

Biological Oxygen Demand (BOD): 383,000 mg/l
Chemical Oxygen Demand (COD): 1,930,000 mg/l

SECTION 13 - DISPOSAL CONSIDERATIONS**US EPA WASTE NUMBER & DESCRIPTION**

Incinerate or dispose of unadulterated product as a non-hazardous waste. Solidify and landfill according to local, state and federal regulations.

A: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components

Disposal Instruction

Contain and collect using absorbent material if needed. Flush residuals to drain for normal biological treatment. Place collected material into suitable containers for proper disposal.

SECTION 14 - TRANSPORTATION INFORMATION**US DOT information**

Shipping Name: class 55, Resin Compound - NMFC 46030
Addition Information: Protect from Freezing

International Transportation Regulations

This product is not regulated as a hazardous material by United States (DOT) or Canadian (TDG) transportation regulations.

SECTION 15 - REGULATORY INFORMATION

US Federal Regulation

A: Clean Air Act

No information is available

State Regulations

A: Component Analysis - State

None of this product's components are listed on the state lists from CA, FL, MA, MN, NJ, OR PA

A: Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL

Additional Regulatory Information

A: Component Analysis - Inventory

<u>Component</u>	<u>CAS #</u>	<u>TSCA</u>	<u>DSL</u>
Ethanaminium, N,N,N-trimethyl-2-((1-oxo-2-propenyl)oxy)-, chloride, polymer with 2-propenamido	69148-26-4	Yes	Yes
Petroleum distillates, hydrotreated light	64742-47-8	Yes	Yes
Alcohols, C12-18, ethoxylated	68213-23-0	Yes	Yes

SECTION 16 - OTHER INFORMATION

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with the respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its uses.

Disclaimer: The following supercedes Buyer's documents. SELLER MAKES NO REPRESENTATION OR WARRANTY EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements, herein, are to be construed as inducements to infringe any relevant patent. Under no circumstance shall SELLER be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and SELLER's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled or lab work and must be confirmed by buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for uses for which prolonged contact with mucous membranes, abraded skin or blood is intended: or for uses for which implantation within the human body is intended. All information provided in this MSDS is correct to the best of our knowledge, information and belief at the date of this publication. The information given is designed only as guidance for safe handling, use processing, Storage, transportation, disposal and release. It is not to be considered a warranty or quality specification. The information relates to the specific material designated and may not be valid for such material in combination with any other materials or in any process unless specified in text.

Ciba Specialty Chemicals Corporation
 USA
 2301 Wilroy Rd.
 P. O. Box 820
 Suffolk, VA 23434

8am to 5pm Phone: (757) 538-3700
 24-Hour Health/Environmental Emergency Phone: (800) 873-1138



Value beyond chemistry

Effective Date: 5/19/03

Material Safety Data Sheet

MSDS No: 15543

SECTION 1. PRODUCT IDENTIFICATION

Trade Name: MAGNAFLOC 1011

Chemical Family: Copolymer of sodium acrylate and acrylamide.

Health	0
Flammability	1
Reactivity	0
Protective Equipment	X

HMS RATING

Former Tradename:
 PERCOL 727

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

O S H A	CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS			
			ACGIH		OSHA		MPR	IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
	25085-02-3	COPOLYMER OF ACRYLAMIDE.SODIUM ACRYLATE	NE	NE	NE	NE	NE	NR	NR	NR

NE = Not Established NR = Not Reviewed

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview:

Description: White, free flowing powder with little or no odor.

Statement of Hazards: NA (not a health hazard as defined by OSHA)

Precautionary Measures: Do not get in eyes, on skin, on clothing. Wash thoroughly after handling. Avoid prolonged or repeated inhalation of dust or skin contact. Slip hazard when wet.

Effective Date: 5/19/03

Primary Route(s) of Entry: Inhalation.

Signs and Symptoms of Exposure: Eye contact may produce slight irritation and/or redness. Inhaled dust may cause some respiratory irritation.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA or ACGIH

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

Target Organ(s): NA

SECTION 4. FIRST AID MEASURES

Ingestion: Do not give an emetic unless directed by a physician. Never give anything by mouth to an unconscious person.

Skin: Remove contaminated clothing and laundry before reuse. Wash effected area with soap and water.

Inhalation: Remove to fresh air.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point: Not Applicable
Autoignition: Not Evaluated

Sensitivity to Mechanical Impact: None

Sensitivity to Static Discharge: Dust in sufficient concentration may result in an explosive mixture in air.

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: No special procedures. However, wetted product presents a slip hazard. Pedestrian and vehicular traffic must proceed with caution where wet product may exist.

Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.

Extinguishing Media to Avoid: Water may create a slip hazard with product.

Hazardous Combustion Products: Oxides of carbon and nitrogen.

Dust Explosivity: Dust in sufficient concentration may result in an explosive mixture in air.

Emergency Response Guidebook Information: No ERG # indicated. Handle as combustible material.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Effective Date: 5/19/03

Accidental Release Measures: Product becomes slippery and difficult to handle when wet; spills are best handled while still dry. Sweep up and collect dry product. Absorb wet product with vermiculite or other inert material. Then water wash area to waste treatment to eliminate slip hazard.

SECTION 7. HANDLING AND STORAGE

Precautions: Good personal hygiene practices can reduce potential exposure. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in cool dry location.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Skin Protection: Not normally required.

Respiratory Protection: Use NIOSH approved dust respirator as required to control exposure. Follow ANSI Z88.2.

Eye Protection: Goggles (ANSI Z87.1 std; safety glasses alone do not protect from dust).

Engineering Controls: Provide mechanical ventilation to prevent dust concentrations, and to reduce potential exposure.

Additional Information: Provide eyewash station(s). Select additional protective equipment (eg apron, face shield, etc.), depending on conditions of use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Granular Powder
Color:	White
Odor:	Little or No
Odor Threshold:	Not applicable
Physical State:	Solid
Solubility in Water:	Soluble, solubility limited by viscosity
Vapor Pressure:	Not Applicable
Specific Gravity:	~ 0.75
Boiling Point:	Not Applicable
Melting Point:	Not Applicable
Freezing Point:	Not Applicable
Decomposition Temperature:	Not Evaluated
Evaporation Rate:	Not Applicable
Vapor Density:	Not Applicable
VOC:	Not Evaluated
pH:	- 6 For 1 % solution.
Coefficient of water/oil:	Not Evaluated

Percent Volatile:
None expected above trace levels.

SECTION 10. STABILITY AND REACTIVITY

Effective Date: 5/19/03

Conditions to Avoid: Avoid wet and humid conditions.

Stability: Stable.

Hazardous Polymerization: Will not occur..

Hazardous Decomposition Products: Thermal decomposition or combustion may produce oxides of carbon and nitrogen, various hydrocarbons, and/or ammonia which may be irritating or harmful.

Incompatibility: Strong oxidants such as liquid chlorine, enriched gaseous or liquid oxygen, and sodium or calcium hypochlorite.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity:

Low oral toxicity. By analogy to similar materials, the acute LD50 (rat) is expected to be > 2000 mg/kg.

Carcinogenicity:

Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity:

No data for product. No effects anticipated.

Teratogenicity:

No data for product. No effects anticipated.

Mutagenicity:

No data for product. No effects anticipated.

Skin Irritation:

57-13-6 UREA

Mild irritant (human).

Intravenous LD 50:

57-13-6 UREA

LD50(Rat): 5300 mg/kg.

LD50(Mice): 4600 mg/kg.

LD50(Rabbit): 4800 mg/kg.

Toxicologically Synergistic Products:

None known.

Additional Information:

57-13-6 UREA

LD50(Rat): 8200 mg/kg (Subcutaneous).

LD50(Mice): 3200 mg/kg (Subcutaneous).

SECTION 12. ECOLOGICAL INFORMATION

Fish Toxicity:

Rainbow trout (*Oncorhynchus mykiss*) 96 Hr. LC50 = 18 mg/L under Static Conditions in the presence of Humic acid (10 mg/L).

Effective Date: 5/19/03

Invertebrate Toxicity:
48-Hour EC50 (Daphnia magna): > 50 mg/L (tested in well water with 20 mg humic acid/L).

SECTION 13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class: This product, when unadulterated, is not a RCRA regulated hazardous waste.

Waste Disposal Method: Disposal must be arranged in accordance with local, state and federal regulations. Care must be taken to prevent environmental contamination from the disposal of material, residues and containers.

SECTION 14. TRANSPORT INFORMATION**DOT:**

Proper Shipping Name:

NOT A DOT/IMO HAZARDOUS MATERIAL

Harmonized Tarrif 3906.90.5000

SECTION 15. REGULATORY INFORMATIONUS Federal Regulations:

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

Clean Air Act - Hazardous Air Pollutants (HAP): The following chemical(s) are listed as hazardous air pollutants (HAP) under the U.S. Clean Air Act Section 12 (40 CFR 61):

Chemical Name: ACRYLIC ACID (Impurity)
CASRN: 79-10-7
Percent in Composition: < 0.5 % by wt

Chemical Name: 2-Propenamide (Impurity)
Common Name: Acrylamide
CASRN: 79-06-1
Percent in Composition: < 0.1 % by wt

Clean Air Act - Ozone Depleting Substances (ODS): This product neither contains, nor was manufactured with, a Class I or Class II ozone depleting substance (ODS), as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A+B).

Clean Water Act - Priority Pollutants (PP): This product does not contain any priority pollutants listed under the U.S. Clean Water Act Section 307 (2)(1) Priority Pollutant List (40 CFR 401.15).

Occupational Safety and Health Act (OSHA): This product is not considered to be a hazardous chemical under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Resource Conservation and Recovery Act (RCRA): This product is not considered to be a P or U listed hazardous waste under RCRA (40 CFR 261).

Effective Date: 5/19/03

SARA Title III: Section 302 - Extremely Hazardous Substances (EHS): This product contains the following chemicals regulated under Section 302 (40 CFR 355) as extremely hazardous substances:

Chemical Name: ACRYLAMIDE
CASRN: 79-06-1
Percent in Composition: <0.1% by wt

SARA Title III: Section 304 - CERCLA: This product contains the following chemicals regulated under Section 304 (40 CFR 302) as hazardous substance(s) for emergency release notification ("CERCLA" List):

Chemical Name: ACRYLIC ACID (Impurity)
CASRN: 79-10-7
Percent in Composition: < 0.5 % by wt
Component RQ: 5000

Chemical Name: 2-Propenamide (Impurity)
Common Name: Acrylamide
CASRN: 79-06-1
Percent in Composition: < 0.1 % by wt
Component RQ: 5000

SARA Title III: Section 311/312 - Hazard Communication Standard (HCS): This product is not regulated under Section 311-312 (40 CFR 370).

SARA Title III: Section 313 Toxic Chemical List (TCL): This product does not contain any chemicals for routine annual toxic chemical release reporting under Section 313 (40 CFR 372).

TSCA Section 5(e) - Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) - Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA inventory.

TSCA Section 12(b) - Export Notification: This product contains the following chemical(s) that are subject to a Section 12(b) export notification:

Chemical Name: ACRYLIC ACID (Impurity)
CASRN: 79-10-7

International Regulations:

Canadian Inventory Status: This product contains only chemicals that are currently listed on the Canadian Domestic Substance List.

Canadian WHMIS: This product does not contain any chemicals listed on the Canadian WHMIS Ingredient Disclosure List.

Japanese Inventory Status: This product contains only chemicals currently listed on the Japanese Existing and New Substance List or notified by Ciba under the Chemical Substance Control Law.

State Regulations:

Effective Date: 5/19/03

California Proposition 65: The following is required composition information. This product contains the following chemical(s) which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

Chemical Name: ACRYLAMIDE
CASRN: 79-06-1
Percent in Composition: <0.1 % by wt

Massachusetts Right-to-Know: The following is required composition information:

Chemical Name: 2-Propenamide (Impurity)
Common Name: Acrylamide
CASRN: 79-06-1
Percent in Composition: < 0.1 % by wt

Chemical Name: ACRYLIC ACID (Impurity)
CASRN: 79-10-7
Percent in Composition: < 0.5 % by wt

New Jersey Right-to-Know: The following is required composition information:

Chemical Name: COPOLYMER OF ACRYLAMIDE:SODIUM ACRYLATE
CASRN: 25085-02-3

Chemical Name: WATER
CASRN: 7732-18-5

Chemical Name: UREA
CASRN: 57-13-6

Pennsylvania Right-to-Know: The following is required composition information:

Chemical Name: COPOLYMER OF ACRYLAMIDE:SODIUM ACRYLATE
CASRN: 25085-02-3
Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: WATER
CASRN: 7732-18-5
Comment: Not on Pennsylvania Hazardous Substance List

SECTION 16. OTHER INFORMATION

MSDS No:	15543
Reason Issued:	New format
Prepared By:	Leon Knight
Approved By:	
Supersedes Date:	10/14/02

Sections Modified: Database entry. Msds sections not effected.

Disclaimer: The following supercedes Buyer's documents. SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable

Effective Date: 5/19/03

for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled or lab work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

FDA Status Has been cleared for use as Acrylamide-acrylic acid resins complying with 21 CFR 176.110 and 176.170(a)(4) as an adjuvant in the manufacture of paper and paperboard at a use level not to exceed 2% by weight of the paper or paperboard and also complies with 21 CFR 176.180(b)(2). Also has been cleared for use as Adjuvants for pesticide chemicals complying with 21 CFR 182.99 added to pesticide use dilutions prior to application to the raw agricultural commodity, exempt from tolerances requirement.



Carmeuse North America
 11 Stanwix Street, 11th Floor
 Pittsburgh, PA 15222
 Phone: 412-995-5500
 Fax: 412-995-5594

Date of Origin:	06 / 05 / 02
Date of Revision:	00 / 00 / 00
Revision No.	00

Material Safety Data Sheet

Product Name:	QUICKLIME
---------------	------------------

INFOTRAC: 800-535-5053 [In case of an emergency call this number 24 HOURS a day 7 DAYS a week.]

1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY			
1.1. Identification of the substance:			
• Chemical name:	Calcium oxide		
• Product name:	High Calcium Quicklime, High Calcium Granular Lime, Lime, Burnt Lime, Pebble Lime, Pulverized Lime, Fluidized Pulverized Lime		
• Formula:	CaO		
• C.A.S N°:	1305-78-8		
• Molecular Weight:	56.08		
1.2. Company:			
Carmeuse North America 11 Stanwix Street, 11 th Floor Pittsburgh, PA 15222	Telephone: 412-995-5500 Fax: 412-995-5594		
2. COMPOSITION / INFORMATION ON INGREDIENTS			
Ingredient	% by Weight	C.A.S N°:	Exposure Limits
Calcium oxide	>84	1305-78-8	2 mg/m ³
Aluminum oxide	<1.5	1344-28-1	10 mg/m ³
Magnesium oxide	<15	1309-48-4	10 mg/m ³
Silica (Total)	<5	7631-86-9	0.1 mg/m ³ (respirable)
(This product may contain above >0.1% respirable silica dust)			
3. HAZARD CLASSIFICATIONS			
Irritant:	To the eyes, mucous membranes and to the skin (in case of sweating).		
Flammability:	The product is not flammable or combustible.		
Explosive:	None		
Reactivity:	Reacts violently with strong acids produce heat and possible explosion in confined spaces.		
Symbols:	WHMIS Symbol: "E" Corrosive Material; "D2A" Materials causing other toxic effects.		
4. FIRST AID SYMPTOMS AND TREATMENTS . . . (Continued on page 2)			
Effects:			
• Inhalation:	Irritations, burning sensation, sore throat, cough, sneezing, acute pulmonary edema.		
• Eyes:	Severe irritation, intense tearing, burns and possible blindness when exposure is prolonged.		
• Skin:	Removes natural skin oils, blotches, itching and severe burns in case of sweating,		
• Ingestion:	Sore throat, burning sensation, stomach aches, cramps, diarrhea, vomiting, digestive tract perforation, shock, circulatory failure.		

Product Name:

QUICKLIME (continued)

4. FIRST AID SYMPTOMS AND TREATMENTS . . . (Continued from page 1)

Treatments:

- Inhalation: Breathe fresh air deeply. If necessary, give artificial respiration and seek medical attention.
- Eyes: Turn up eyelid and wash immediately and abundantly with lukewarm running water for at least 15 minutes. Do not try to neutralize. Obtain medical attention immediately.
- Skin: Remove contaminated clothes and rinse area with plenty of water. Seek medical attention for burns.
- Ingestion: Drink water followed by diluted vinegar (1 part vinegar in 2 parts water) or fruit juice to neutralize. Do not induce vomiting. Obtain medical attention immediately.

5. FIRE FIGHTING MEASURES

- Classified as a non-flammable product.
- Safety measures in case of fire: avoid wetting lime, use appropriate extinguishing media to put out a surrounding fire.

6. ACCIDENT PREVENTIVE MEASURES

Individual and collective precautions: Avoid contact with skin and eyes; wear waterproof shoes, gloves and safety goggles. Cover body with long sleeved shirt & long pants.

Avoid inhalation of dust: Wear anti-dust mask.

Cleaning methods(Leaks & Spills): Mechanical dry vacuuming; for small quantities, wash abundantly with water.

Precautions for the protection of the environment: The substance may not be spilled without control into surface waters (increases pH).

Waste Disposal: Dispose in secure landfill or according to federal, provincial/state and local environmental regulations.

7. HANDLING AND STORAGE

Handling: In open air or in ventilated places. Avoid skin and eye contact. Avoid creating airborne dust. Store in dry places, sheltered from humidity. Fluidized pulverized lime has flow characteristics that enable it to flow like a fluid.

Storage: In waterproof bags or tanks. Keep away from acids and incompatible substances. Keep out of reach of children.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Technical Values: Occupational exposure standard – 2 mg/m³

Respiratory Protection: Use a mask in unventilated dusty places.

Eye Protection: Use safety goggles.

Hand Protection: Use clean dry gloves.

Skin Protection: Cover body with suitable clothes (long sleeves shirts and trousers covering the waterproof caustic resistant shoes).

Product Name:

QUICKLIME (continued)

9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical State: Solid
- Odor & Appearance: Odorless, White lumps or powder
- pH: 12.45 (saturated solution @ 25°C)
- Melting point: 2580
- Boiling point: 2850
- Flash point: Non flammable
- Autoignition t°: Non flammable
- Inflammability limits: None
- Explosion risk: None
- Vapor pressure (+t°): Non volatile
- Vapor density (air=ml): Non volatile
- Relative density: 720-1130 kg/m³
- Solubility: 0.125g/100g Saturated Solution

10. STABILITY AND REACTIVITY

- Stability: Absorbs moisture from the air to form calcium hydroxide
- Decomposition temperature°: None
- Reactivity: Reacts violently with strong acids. Reacts with water to expand and produce heat; could burst containers or ignite combustible substances in contact.
- Conditions to avoid: Wet places, vicinity to incompatible materials
- Incompatible materials: Water; acids; reactive fluoridated, brominated or phosphorous compounds; reactive powdered metals; organic acid anydrides; nitro-organic compounds; interhalogenated compounds
- Hazardous decomposition products: None

11. TOXICOLOGICAL INFORMATION

- Toxicity:** Non-toxic substance.
- Exposure Limits:** TWAEV – 2 mg/cu.m
- Other:** Respirable SiO₂, may be a component of this product and is classified by IARC as a group 1 human carcinogen. No reported Carcinogenicity, Reproductive Effects, Teratogenicity or Mutagenicity.

12. ECOLOGICAL INFORMATION

- Alkaline substance that increases pH to 12.45 (saturated solution).
- Calcium oxide will absorb moisture over time to form Calcium hydroxide which shall progressively be rendered soluble and shall recarbonate to form calcium carbonate (CaCO₃).
- Calcium carbonate is ecologically neutral.
- Uncontrolled spillage in surface waters should be avoided since the increase pH could be detrimental to fish.

Product Name:

QUICKLIME (continued)

13. DISPOSAL CONSIDERATIONS

- Dispose in secure landfill or according to federal, provincial/state and local environmental regulations.

14. TRANSPORTATION INFORMATION

Classification:	TDG	Not listed for ground transportation
	HMR	Not listed for ground transportation

TDG: Transportation of Dangerous Goods Regulation (CAN)
HMR: Hazardous Materials Regulation (USA)

15. REGULATORY INFORMATION

Symbol:	E	Corrosive Material
	D2A	Materials causing other toxic effects

Risk Phases: Risk of serious damage to the eyes.

Safety Phases: Keep out of reach of children.
Keep storage container away from humidity.
Avoid contact with skin.
Avoid contact with eyes.
In case of contact with eyes, rinse immediately with water for at least 15 minutes.

16. MISCELLANEOUS OTHER INFORMATION

The information contained herein is believed to be accurate and reliable as of the date hereof. However, Carmeuse makes no representation, warranty or guarantee as to results or as to the information's accuracy, reliability or completeness. Carmeuse has no liability for any loss or damage that may result from use of the information. Each user is responsible to review this information, satisfy itself as to the information's suitability and completeness, and circulate the information to its employees, customers and other appropriate third parties.

MATERIAL SAFETY DATA SHEET

Page 1 of 8
Revised 7/19/02
Replaces 8/28/00
AS of 7/19/02

SODIUM BISULFITE SOLUTION 40%

MSDS ID: S00033

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : SODIUM BISULFITE SOLUTION 40%
MSDS ID : S00033
CHEMICAL NAME SYNONYMS : Sodium Acid Sulfite; Sodium hydrogen Sulfite
CAS NUMBER : 7631-90-5
CHEMICAL FAMILY : Sulfite Reducing Agent
FORMULA : 40% NaHSO3

DISTRIBUTED BY:
Hydrite Chemical Co.
300 N. Patrick Blvd.
Brookfield, WI 53008-0948
(262) 792-1450

EMERGENCY RESPONSE NUMBERS:
24 Hour Emergency # - (414) 277-1311
CHEMTREC Emergency # - (800) 424-9300

MANUFACTURED BY: HYDRITE CHEMICAL CO.

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	OSHA HAZARD	% BY WT.
Water	7732-18-5	NO	60 %
Sodium Bisulfite	7631-90-5	YES	40 %

3. HAZARDS IDENTIFICATION

PHYSICAL STATE: Liquid.
COLOR : Clear. Yellow.
ODOR : Sulfur dioxide odor.

EMERGENCY OVERVIEW: DANGER! CORROSIVE. Causes severe burns to eyes, skin, and respiratory tract. Harmful if swallowed. Harmful if inhaled. May cause an allergic reaction to skin, respiratory tract or if swallowed.

POTENTIAL HEALTH EFFECTS

ROUTES OF EXPOSURE:
Eyes. Skin. Inhalation. Ingestion.

TARGET ORGANS:
Eyes. Skin. Respiratory System. Kidneys. Bones. Cardiovascular System.
Gastrointestinal Tract.

EYE CONTACT:
CORROSIVE-Causes severe irritation and burns.
May cause: tissue destruction. permanent eye damage. blindness.

SKIN CONTACT:
CORROSIVE-Causes severe irritation and burns.
Contact may cause: redness. itching. dermatitis (inflammation of the skin). blistering. pain. tissue destruction.

SODIUM BISULFITE SOLUTION 40%

MSDS ID: S00033

3. HAZARDS IDENTIFICATION (Cont.)

SKIN ABSORPTION:

May be harmful if absorbed through skin.

INHALATION:

CORROSIVE-Causes severe irritation and burns.
May irritate: nose, throat, mucous membranes. May cause: coughing, chest pain, bronchospasms, difficulty breathing, pulmonary edema, death. May cause damage to the: upper respiratory tract, lungs. Effects will depend on concentration and length of time of exposure.

INGESTION:

CORROSIVE-Causes severe irritation and burns.
Ingestion can cause very serious damage to the mouth, esophagus, stomach, and other tissues with which contact is made, and may be fatal. May cause: headache, abdominal pain, nausea, vomiting, diarrhea, perforation of the intestinal tract. Effects may be delayed.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE TO PRODUCT:

Asthma.

OTHER:

SULFUR DIOXIDE GIVEN OFF BY THIS PRODUCT HAS BEEN SHOWN TO CAUSE BREATHING DIFFICULTIES IN ASTHMATICS. May cause severe allergic reaction in some asthmatics and sulfite sensitive individuals.

CANCER INFORMATION:

This product does not contain greater than 0.1% of the known or potential carcinogens listed in NTP, IARC, or OSHA.

POTENTIAL ENVIRONMENTAL EFFECTS:

See Section 12.

4. FIRST AID MEASURES

EYE CONTACT:

Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention.
Remove contact lens if worn.

SKIN CONTACT:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Do not apply oils or ointments unless ordered by the physician. Discard footwear which cannot be decontaminated.

INHALATION:

Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET

MATERIAL SAFETY DATA SHEET

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SODIUM BISULFITE SOLUTION 40%

MSDS ID: S00033

4. FIRST AID MEASURES (CONT.)

MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

If fully conscious, drink a quart of water. DO NOT induce vomiting. CALL A PHYSICIAN IMMEDIATELY. If unconscious or in convulsions, take immediately to a hospital or a physician. NEVER induce vomiting or give anything by mouth to an unconscious victim. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

5. FIRE FIGHTING MEASURES

FLASH POINT: N.A.

FLAMMABILITY LIMITS: LEL: N.A.
AUTOIGNITION TEMPERATURE: No Data

UEL: N.A.

EXTINGUISHING MEDIA:

For fires in area use appropriate media. For example: Water spray. Dry chemical. Carbon dioxide. Foam.

FIRE FIGHTING METHODS:

Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers.
Run-off from fire control may cause pollution.

FIRE AND EXPLOSION HAZARDS:

None known.

HAZARDOUS COMBUSTION PRODUCTS:

Toxic vapors. Sulfur oxides. Sulfur Dioxide gas will be released at a rate increasing with temperature.

6. ACCIDENTAL RELEASE MEASURES

SPILL CLEAN-UP PROCEDURES:

CORROSIVE MATERIAL. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Contain spill, place into drums for proper disposal. Flush remaining area with water and neutralize with Soda Ash or Lime and dispose of properly. Sulfur dioxide and carbon dioxide may be released during neutralization. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

SODIUM BISULFITE SOLUTION 40%

MSDS ID: 900033

7. HANDLING AND STORAGE

STORAGE:

CORROSIVE MATERIAL. Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers.
Do not freeze. Relieve pressure in drums weekly.

HANDLING:

Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCE OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Local exhaust ventilation, process enclosures, or other engineering controls are imperative when handling or using this product to avoid overexposure. Avoid creating dust or mist. Maintain adequate ventilation. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

RESPIRATORY PROTECTION:

Respiratory protection must be worn when handling this product. If exposure limits are exceeded, wear NIOSH-Approved respirator for dusts, mists, and/or SO₂ vapors as conditions indicate. NIOSH-Approved air-purifying respirator with Acid gas cartridge. NIOSH-Approved self-contained breathing apparatus. NIOSH-Approved positive pressure supplied air respirator. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

EYE/FACE PROTECTION:

Wear chemical safety goggles and a full face shield while handling this product.
Do not wear contact lenses.

SKIN PROTECTION:

Prevent contact with this product. Wear gloves and protective clothing depending on condition of use.
Protective gloves: Impervious. Neoprene. Rubber (latex). Polyvinyl chloride.

OTHER PROTECTIVE EQUIPMENT:

Eye-wash station. Safety shower. Rubber apron. Chemical safety shoes.
Rubber boots. Protective clothing.

SODIUM BISULFITE SOLUTION 40%

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION. (Cont.)

GENERAL HYGIENE CONSIDERATIONS:

Wash with soap and water before meal times and at the end of each work shift. Good manufacturing practices require gross amounts of any chemical be removed from skin as soon as practical, especially before eating or smoking.

EXPOSURE GUIDELINES:

COMPONENT	-----OSHA-----			-----ACGIH-----
	PEL	STEL/C	TWA	STEL/C
Water	Not Estab.	Not Estab.	Not Estab.	Not Estab.
Sodium Bisulfite	5 mg/m ³ +	Not Estab.	5 mg/m ³	Not Estab.

NOTE: + Vacated 1989 OSHA PEL(s). Sulfur Dioxide gas may be released. The Exposure Limits for Sulfur Dioxide are: 5 ppm-TWA (OSHA); 2 ppm-TWA, 5 ppm-STEL (ACGIH) (Vacated 1989 OSHA PELs).

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (DEG. F) :	~219	SPECIFIC GRAVITY: 1.33 @ 25C
FREEZING POINT (DEG. F) :	45	* VOLATILE (WT%): N.D.
MELTING POINT (DEG. F) :	N.D.	EVAPORATION RATE: N.D.
VAPOR PRESSURE (MM HG) :	79@20C (SO ₂)	(nBuAc=1)
VAPOR DENSITY (AIR=1) :	N.D.	VOC (WT%) : N.A.
SOLUBILITY IN WATER :	Complete	VOC (LBS/GAL) : N.A.
PH :	4	

10. STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions.

CONDITIONS TO AVOID:

Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames.

INCOMPATIBILITY:

Acids. Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:

Sulfur dioxide gas. Sodium sulfide. Toxic vapors.

HAZARDOUS POLYMERIZATION:

Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

LD50 ORAL : Rat: 2000 mg/kg (Anhydrous)
 LD50 SKIN : No Data
 LC50 INHALATION: No Data

This product has been shown to be positive in mutagenicity assays.

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11. TOXICOLOGICAL INFORMATION (Cont.)

Pregnant women and the fetus may be at an increased risk from exposure to this product.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:
No data available.

CHEMICAL FATE INFORMATION:
No data available.

13. DISPOSAL CONSIDERATIONS

HAZARDOUS WASTE NUMBER: N.A.

DISPOSAL METHOD:

Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations.
If approved, neutralize material and flush to sewer. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

14. TRANSPORT INFORMATION (Not meant to be all inclusive)

DOT (Department of Transportation):

Proper Shipping Name : BISULFITES, AQUEOUS SOLUTIONS, N.O.S (CONTAINS SODIUM BISULFITE)
Hazard Class : 8
Identification Number : UN2693
Packing Group : III
Label Required : CORROSIVE
Reportable Quantity (RQ): 5000# (Sodium Bisulfite)

15. REGULATORY INFORMATION

FEDERAL REGULATIONS:

TSCA INVENTORY STATUS:

This product or all components of this product are listed on the EPA/TSCA Inventory of Chemical Substances.

SARA TITLE III SECTION 311/312 CATEGORY:

IMMEDIATE (ACUTE) HEALTH HAZARD : YES
DELAYED (CHRONIC) HEALTH HAZARD : NO
FIRE HAZARD : NO
SUDDEN RELEASE OF PRESSURE HAZARD: NO
REACTIVE HAZARD : YES

SARA SECTION 302/304/313/HAP:
COMPONENT

RQ (LBS) (*1) RQ (LBS) (*2) TPQ (LBS) (*3) SEC 313 (*4) HAP (*5)

SODIUM BISULFITE SOLUTION 40%

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15. REGULATORY INFORMATION (Cont.)

Water	N.A.	N.A.	N.A.	NO	NO
Sodium Bisulfite	5000	N.A.	N.A.	NO	NO

FOOTNOTES

- *1 = CERCLA Reportable Quantity
- *2 = SARA Reportable Quantity
- *3 = SARA EHS Threshold Planning Quantity
- *4 = SARA 313 Toxic Chemical/Category
- *5 = U.S. EPA Hazardous Air Pollutant

This product contains one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.15). Any unpermitted introduction of this product into a facility stormwater or wastewater discharge may constitute a violation of the Clean Water Act. Facilities must notify the appropriate permitting agency prior to introducing this product into the aforementioned discharges.

ANSI/NSF Standard 60 Maximum Use Level = 46 mg/L.

STATE REGULATIONS:

CALIFORNIA--The following components are listed under Prop 65:
 None Known.

WISCONSIN--The following components are listed as a Wisconsin HAP:
 Sodium Bisulfite.

16. OTHER INFORMATION

HMIS RATING SYSTEM

Health : 3
 Flammability: 0
 Reactivity : 1
 * = Chronic Health Hazard

NFPA RATING SYSTEM

Health : 3
 Flammability : 0
 Reactivity : 1
 Special Hazard: None

MSDS ABBREVIATIONS:

- N.A. = Not Applicable
- N.D. = Not Determined
- HAP = Hazardous Air Pollutant
- VOC = Volatile Organic Compound
- C = Ceiling Limit
- N.E./Not Estab. = Not Established

MSDS PREPARED BY: NAO

REASON FOR REVISION: Change made in Section 15.

 The data in this Material Safety Data Sheet relates only to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct.

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16. OTHER INFORMATION (Cont.)

However, since conditions of use are outside our control it should not be taken as a warranty or representation for which HYDRITE CHEMICAL CO. assumes legal responsibility. This information is provided solely for your consideration, investigation, and verification.

*** ** ** ** **

MATERIAL SAFETY DATA SHEET

Jones Chemicals, Inc.

Sunny Sol® 150

SECTION I - IDENTIFICATION

TRADE NAME: Sunny Sol® 150
 CHEMICAL NAME: Sodium Hypochlorite
 FORMULA: NaOCl
 DOT SHIPPING NAME: Hypochlorite Solution
 DOT HAZARD CLASS: 8
 UN/NA NUMBER: UN 1791
 DOT LABEL: Corrosive
 DOT PLACARD: Corrosive
 PACKING GROUP: III
 REPORTABLE QUANTITY: Sodium Hypochlorite: 100 Pounds/45.4 Kilograms
 CAS NUMBER: 7681-52-9
 NFPA DESIGNATION: The NFPA has not rated sodium hypochlorite.

DISTRIBUTED BY:
 MAIN POOL & CHEMICAL CO., INC.
 501 MAIN STREET
 AVOCA, PA 18641
 (570) 457-0639

SECTION II - HAZARDOUS INGREDIENTS

MATERIAL	% BY WEIGHT	CAS NO.	OSHA PEL	ACGIH TLV
Sodium Hypochlorite	12.5-15.6	7681-52-9	Not Applicable	Not Applicable
Sodium Hydroxide	0.1-2.0	1310-73-2	2mg/m ³ ceiling	STEL/CEIL(c) 2mg/m ³ ceiling
Inert Ingredients	Balance	Not Applicable	Not Applicable	Not Applicable

CARCINOGENICITY STATUS: NTP - No, IARC - No, OSHA - No.

SECTION III - PHYSICAL DATA

APPEARANCE: Yellow-green liquid
 BOILING POINT: 219°F (104°C) for 12.5% NaOCl by wt.
 FREEZING POINT: -11°F (-24°C) for 12.5% NaOCl by wt.
 ODOR: Chlorine
 pH: 12.5 - 13.5 s.u. @ 25°C
 VISCOSITY (Cs): 2.15 @ 23°C for 12.5% NaOCl by wt.
 % VOLATILE BY VOLUME: Variable water plus products of decomposition
 SOLUBILITY IN WATER: Complete
 SPECIFIC GRAVITY (Water=1): 1.218 @ 20°C for 13.79% NaOCl by wt.
 VAPOR DENSITY (AIR=1): Not available
 VAPOR PRESSURE (mm Hg): Variable water plus products of decomposition.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT (Test method): Not applicable

AUTO IGNITION TEMPERATURE: Not applicable

FLAMMABLE LIMITS IN AIR (Volume %): Not applicable

EXTINGUISHING MEDIA: Flood with water or carbon dioxide (CO₂)

SPECIAL FIRE FIGHTING PROCEDURES: Use National Institute of Occupational Safety & Health (NIOSH) approved respirator with acid type canister or use self-contained breathing apparatus.

Unusual fire and explosion hazards: material is a strong oxidizer. Contact with combustibles may initiate or promote combustion. Acid and heat accelerate decomposition. Decomposition products may include chlorine.

SECTION V - HEALTH HAZARD INFORMATION

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

No medical conditions are known to be aggravated by exposure.

ROUTES OF EXPOSURE

- **INHALATION:** Fumes from spills can cause severe irritation and chemical burns to the nose, throat, and lungs. Very little hazard from properly stored solution.
- **SKIN CONTACT:** Severe irritant, reddening of skin, can cause chemical burns to skin.
- **SKIN ABSORPTION:** Same as skin contact.
- **EYE CONTACT:** Severe irritant, corrosive, can severely burn eyes.
- **INGESTION:** Causes irritation of membranes of the mouth, throat, and stomach pain and possible ulceration. LD₅₀ (oral, rat) for 12.5% NaOCl is approximately 5 g/kg body weight.

EFFECTS OF OVEREXPOSURE

ACUTE OVEREXPOSURE (see Routes of Exposure above)

- **SWALLOWING:** See "ingestion" under routes of exposure.
- **SKIN CONTACT:** severe irritant, reddening of skin, skin damage, chemical burns.
- **INHALATION:** Fumes from spills are very irritating to mucous membranes.
- **EYE CONTACT:** Extreme irritant, corrosive.

CHRONIC OVEREXPOSURE (see Routes of Exposure above)

- **EYE:** Can cause damage.
- **SKIN:** Can cause damage, chemical burns.

EMERGENCY AND FIRST AID PROCEDURES

IF CONTACT WITH EYES OCCURS: flush with water for at least fifteen (15) minutes. Get medical attention. IF CONTACT WITH SKIN OCCURS: wash with plenty of soap and water. INHALATION: Remove to fresh air. Call a physician if exposure is severe. IF SWALLOWED: drink large amounts of water. Do NOT induce vomiting. Call a physician or poison control center immediately.

SECTION VI - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY

Solutions are fairly stable in concentrations below 10%. Stability decreases with concentration, heat, light, exposure, decrease in pH, and contamination with heavy metals, such as nickel, cobalt, copper, and iron.

INCOMPATIBILITY

Acids, alcohols, amines, ammonia, chlorinated isocyanurates, combustibles, cyanides, detergents, ethers, hydrocarbons, oxidizable materials, reducing agents. Corrosive to most metals.

DECOMPOSITION PRODUCTS

Hypochlorous Acid (HOCl), chlorine, hydrochloric acid. Composition depends upon temperature and decrease in pH. Additional decomposition products, which depend upon pH, temperature and time, are sodium chloride, sodium chlorate and oxygen.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION

Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

IN THE EVENT OF A TRANSPORTATION EMERGENCY, CALL CHEMTREC: (800) 424-9300

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Cleanup personnel must wear proper protective equipment (See Section VIII). Contain in diked area. Neutralize with sodium bisulfite or ferrous salt solutions. Place neutralized material in DOT specification approved container(s). Flush area with large amounts of water. Comply with all Federal, State and Local reporting requirements.

WASTE DISPOSAL

Contact Federal, State, County, and Local environmental regulators for guidance regarding proper disposal.

SECTION VIII - SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: Local exhaust is recommended.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

- RESPIRATORY: Use National Institute of Occupational Safety and Health (NIOSH) or Mine Safety and Health Administration (MSHA) approved respirator appropriate for this product when permissible exposure limits are exceeded.
- EYES: Use chemical goggles and face shield.
- GLOVES: Use chemical resistant rubber, plastic, or neoprene gloves.
- OTHER: Use chemical resistant splash apron and boots. Safety shower and eye wash fountain should be located nearby.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING

DANGER: This product is corrosive and may cause severe skin irritation or chemical burns to broken skin. Causes eye damage. Do not get in eyes, on skin or on clothing. Wear goggles and face shield and chemical resistant gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until odors have dissipated.

PROPER STORAGE AND DISPOSAL REQUIREMENTS

Store this product in a cool, dry area away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water.

Disposal for domestic use: Do not reuse container. Rinse thoroughly before discarding in trash. Disposal for all other uses: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Do not contaminate water, food, or feed by storage, disposal or cleaning of equipment.

STORE IN AN UPRIGHT POSITION

OTHER PRECAUTIONS

STRONG OXIDIZING AGENT: Mix only with water according to label directions. Mixing this product with gross filth such as feces, urine, etc., or with ammonia, acids, detergents or other chemicals may release hazardous gases irritating to eyes, lungs and mucous membranes.

ADDITIONAL REGULATORY CONCERNS

- **EPA:** May not be used for disinfection or sanitization without prior approval by EPA. Repackagers must obtain EPA registration and establishment numbers.
- **FIFRA:** This product is regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) if used as a disinfectant or sanitizer.
- **TSCA:** Included in the Toxic Substances Control Act (TSCA) Inventory Of Chemical Substances.

MSDS PREPARED BY: Jones Chemicals, Inc.
100 Sunny Sol Blvd.
Caledonia, NY 14423
Phone: 716-538-2314

ISSUE DATE: 12/09/98
SUPERSEDES ISSUE DATED: 12/03/94

The information herein is given in good faith but no warranty, expressed or implied is made.

V FIRE AND EXPLOSION HAZARD DATA

<u>FLASH POINT (Method used)</u>	<u>FLAMMABLE LIMITS IN AIR</u>	<u>LEL</u>	<u>UEL</u>
None T.C.C.		NA	NA

EXTINGUISHING AGENTS

NA

UNUSUAL FIRE AND EXPLOSION HAZARDS

Treat as cylinders of compressed gas.

VI TOXICITY AND FIRST AID

EXPOSURE LIMITS:

See Section II for exposure limit of each individual component.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Persons with cardiac arrhythmia may be at increased risk in severe exposures. Avoid Epinephrine or similar drugs.

ACUTE TOXICITY:

INHALATION: May induce narcosis in high concentrations.

INGESTION: Not likely - low toxicity.

EYE CONTACT: Mild to moderate irritation. May cause frostbite if exposed to direct spray.

SKIN CONTACT: Prolonged and repeated contact can cause irritation and dermatitis.

SKIN ABSORPTION: Not readily absorbed through the skin, but may cause frostbite if exposed to direct spray.

FIRST AID CALL A PHYSICIAN.

EYES: Flush with water for 15 minutes or until irritation subsides.

SKIN: Remove all contaminated clothing and wash skin with soap and water.

INHALATION: Remove from exposure immediately. If breathing is irregular or stopped, begin artificial respiration and administer oxygen.

#8076,8077

ACUTE TOXICITY

MUTAGENICITY: None.

TERATOGENICITY: Not established.

MUTAGENICITY: Not established.

TARGET ORGAN AFFECTED: Prolonged exposure above OSHA permissible exposure limits may result in kidney and liver damage.

VII PERSONAL PROTECTION AND CONTROLS

RESPIRATORY PROTECTION

Respiratory program should be in accordance with 29 CFR 1910.134.

VENTILATION

Local exhaust is adequate.

SKIN PROTECTION

Gloves: Polyethylene or Neoprene.

EYE PROTECTION

Safety glasses are recommended.

HYGIENE

VIII STORAGE AND HANDLING PRECAUTIONS

AEROSOL CONTAINER: Do not store in direct sunlight, near open flames or at temperatures exceeding 120°F.
Use only as directed. Intentional misuse by deliberately concentrating vapors and inhaling contents can be harmful or fatal.

IX SPILL LEAK AND DISPOSAL PRACTICES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Ventilate area. This product will evaporate in normal atmospheric conditions.

WASTE DISPOSAL METHOD

AEROSOL CONTAINER: Do NOT puncture or incinerate. Empty containers may be disposed of through normal channels. Full or partially filled containers are considered HAZARDOUS WASTE.

X TRANSPORTATION

DOT HAZARD CLASSIFICATION

Consumer Commodity ORM-D

PLACARD REQUIRED

None

LABEL REQUIRED

Consumer Commodity ORM-D

NAME(print) Robert E. Bayton

SIGNATURE



TITLE

Laboratory Supervisor

DATE OF LAST REVISION November 12, 1985

This formulation is subject to change without notice. In case of accident, please use the phone number provided.

A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:

1. It is listed in the annual registry of toxic effects of chemical substances, or is known to be toxic within the parameters of that registry, and is present at a level of 1% or greater of the composition, except that chemicals identified as carcinogens under 29 CFR 1910.1200 (d) (4) shall be listed if the concentrations are 0.1% or greater.
2. It has an OSHA established Threshold Limit Value (TLV) or Ceiling Concentration (C) or an American Conference of Governmental Industrial Hygienist's (ACGIH) TLV or, C, and by the nature of the product or its known use, is likely to become airborne.



ZEP MANUFACTURING COMPANY
Acuity Specialty Products Group, Inc.
P.O. BOX 2015
ATLANTA, GA 30301
1-877-1-BUY-ZEP

Material Safety Data Sheet and Safe Handling and Disposal Information

Issue Date 03/06/98
Supersedes
Product Name ZEP
Product No. 0771

SECTION I - EMERGENCY CONTACTS

For MSDS Information:
Acuity Specialty Products Group, Inc.
Compliance Services 1-877-1-BUY-ZEP

For Medical Emergency:
INFOTRAC
(877) 541-2016 Toll Free - All Calls Recorded

For a Transportation Emergency:
CHEMTREC
(800) 424-9300 - All Calls Recorded
In the District of Columbia (202) 483-7616

Printing date: 09/10/03

SECTION II - HAZARDOUS INGREDIENTS

** SODIUM HYDROXIDE ** caustic soda; soda lye; CAS# 1310-73-2; RTECS# WB4900000; OSHA/ACGIH CEILING LIMIT-2 MG/M3; TLV - N/D; EFFECTS - TOX COR; % IN PROD - < 10
 ** SODIUM METASILICATE ** silicic acid (H2-Si-O3) di sodium salt; water glass; CAS# 6834-92-0; RTECS# VV9275000; OSHA Dust Limit-2mg/m3 (for powders only). ; TLV - N/D; EFFECTS - COR; % IN PROD - < 10
 ** DIPROPYLENE GLYCOL METHYL ETHER ** dipropylene glycol monomethyl ether; CAS# 34590-94-8; RTECS# JB1575000; OSHA PEL-100 PPM; OSHA/ACGIH STEL- 150 PPM; TLV - 100; EFFECTS - CBL EIR; % IN PROD - < 10
 ** D-LIMONENE ** orange distillate; citrus terpene; cyclohexene, 1-methyl-4-(1-methylethenyl)-, (R)-; CAS# 5989-27-5; RTECS# GW6360000; OSHA PEL N/D; TLV - N/D; EFFECTS - CBL SEN; % IN PROD - < 10
 @ -Reportable under the SARA 313 Toxic Release Inventory

SECTION III - HEALTH HAZARD DATA

SPECIAL NOTE: MSDS data pertains to the product as dispensed from the container. Adverse health effects would not be expected under recommended conditions of use (diluted) so long as prescribed safety precautions are practiced.

ACUTE EFFECTS OF OVEREXPOSURE:
Corrosive on contact. Overexposure will produce tissue destruction particularly on mucous membranes of eyes, mouth, and respiratory tract. Eye contact may produce severe irritation and blindness unless immediately flushed. Concentrated solutions may produce immediate skin damage. Skin contact with dilute solutions may produce severe irritation which intensifies as contact continues. Inhalation of mists may produce severe nasal and respiratory irritation or permanent damage. Ingestion will produce tissue damage of the gastrointestinal tract. Ingredients in this product may aggravate existing skin, eye, or respiratory disorders.

CHRONIC EFFECTS OF OVEREXPOSURE:
Repeated or prolonged exposure of skin can produce chronic dermatitis characterized by redness, scaling, and blistering. Repeated exposure to spray mists may lead to chronic eye inflammation, chronic respiratory tract irritation or lung damage. One of the ingredients in this product has caused sensitization reactions in a small percentage of the general population. None of the ingredients are listed as carcinogens by IARC, NTP, or OSHA.
EST'D PEL/TLV: Not established
PRIMARY ROUTES OF ENTRY: Inh, Skin.
HMIS CODES: HEALTH 3; FLAM 2; REACT 0; PERS. PROTECT D; CHRONIC HAZ YES
FIRST AID PROCEDURES:
SKIN: Immediately flush contaminated skin with plenty of water for at least 15 minutes. Get medical attention immediately.
EYES: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting upper and lower lids. Get medical attention at once.
INHALE: If symptoms occur, move affected person to fresh air. If symptoms persist, get medical attention promptly.
INGEST: If this product is swallowed, do not induce vomiting. If individual is alert, give plenty of water to drink. Get medical attention at once.

SECTION IV - SPECIAL PRECAUTION INFORMATION

PROTECTIVE CLOTHING: Wear a face shield, rubber or neoprene gloves, a rubber apron, and impervious footwear.
 EYE PROTECTION: Wear splash-proof safety goggles especially if contact lenses are worn.
 RESPIRATORY PROTECTION: If ventilation is inadequate, wear a properly fitting MSHA or OSHA-approved respirator.
 VENTILATION: Ventilation should be equivalent to outdoors. Use exhaust fans and open windows in enclosed spaces.

SECTION V - PHYSICAL DATA

BOILING POINT (F) - ~210
 VAPOR PRESSURE(mmHg) - N/D
 VAPOR DENSITY(AIR-1) - N/D
 SOLUBILITY IN WATER - COMPLETE
 pH(USE DILUTION OF) - 1:10 12.2-13.0
 VOC CONTENT (CONCENTRATE) - 13.3% 1.19 lb/gl
 APPEARANCE AND ODOR - A SLIGHTLY HAZY, AMBER LIQUID WITH AN ORANGE FRAGRANCE.

SPECIFIC GRAVITY - 1.07
 EVAPORATION RATE (WATER=1) - 1.0
 pH(CONCENTRATE) - 13.0-14.0

SECTION VI - FIRE AND EXPLOSION DATA

FLASH POINT(F) (METHOD USED): 117 TCC
 FLAMMABLE LIMITS:LEL: N/A UEL: N/A
 EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, water, and foam
 SPECIAL FIRE FIGHTING: Wear self-contained positive pres. breathing apparatus.
 UNUSUAL FIRE HAZARDS: May decompose to form toxic/corrosive gases.

SECTION VII - REACTIVITY DATA

STABILITY: Stable
 INCOMPATIBILITY(AVOID): Strong oxidizers, acids, and active metals.
 POLYMERIZATION: Will not occur.
 HAZARDOUS DECOMPOSITION: Carbon dioxide, carbon monoxide, and other unidentified organic compounds.

SECTION VIII - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIALS IS RELEASED OR SPILLED:
 Observe safety precautions in sections 4 & 9 during clean-up. Absorb spill on an inert absorbent material; pick up and place in a clean D.O.T. specification container for disposal. Wash area thoroughly with a detergent solution and then rinse well with water.
 WASTE DISPOSAL METHOD:
 Liquids cannot be sent to landfills unless solidified. Unusable product and some collected, spent use-dilutions may require disposal as a hazardous waste at a permitted treatment/storage/disposal facility. In most states hazardous wastes in total amounts of 220 lbs. or less per month may be disposed of in a chemical or industrial waste landfill. If company effluent is ultimately treated by a publicly owned treatment works, neutralization of spent tank-solutions with subsequent discharge to the sewer may be possible. Consult local, state and federal agencies for proper disposal method in your area.
 RCRA HAZ WASTE NOS: Unused product D002; Solutions may or may not be corrosive

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN WHEN HANDLING AND STORING
 Combustible! Store and use away from heat, sparks, open flame, or any source of ignition. Store away from strong acids and oxidizing compounds. Keep product away from skin and eyes. Do not breathe spray mists or vapors. Clothing or shoes which become contaminated with substance should be removed promptly and not reworn until thoroughly cleaned. Keep out of the reach of children. Store tightly closed container in a dry area at temps. between 40-120 degrees F.

SECTION X - REGULATORY INFORMATION

DOT PROPER SHIPPING NAME: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE)
 NOTE: DOT information applies to larger package sizes of affected products. For some products, DOT may require alternate names and labeling in accordance with packaging group requirements.
 DOT HAZARD CLASS: 8 DOT PACKING GROUP: II
 DOT I.D. NUMBER: UN3266 DOT LABEL/PLACARD: CORROSIVE
 EPA TSCA CHEMICAL INVENTORY - ALL INGREDIENTS ARE LISTED
 EPA CWA 40CFR PART 117 SUBSTANCE(RQ IN A SINGLE CONTAINER): SODIUM HYDROXIDE -1000#
 EPA CAA: N/A

MATERIAL SAFETY DATA SHEET

NOTICE

Thank you for your interest in, and use of, this product. Acuity Specialty Products Group is pleased to be of service to you by supplying this Material Safety Data Sheet for your files. Acuity Specialty Products Group is concerned for your health and safety. This product and all others supplied by Acuity Specialty Products Group companies can be used safely with proper protective equipment and proper handling practices consistent with label instructions and the MSDS. Before using any this product, be sure to read the complete label and the Material Safety Data Sheet.

As a further word of caution, Acuity Specialty Products Group wishes to advise that serious accidents have resulted from the misuse of "emptied" containers. "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, or other sources of ignition; they may explode or develop harmful vapors and possibly cause injury or death. Clean empty containers by triple rinsing with water or an appropriate solvent. Empty containers must be sent to a drum reconditioner before reuse.

TERMS AND ABBREVIATIONS

Listed Alphabetically by Section

SECTION II: HAZARDOUS INGREDIENTS

CAR: Carcinogen - A chemical listed by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) or OSHA as a definite or possible human cancer causing agent.

CAS#: Chemical Abstract Services Registry Number - A universally accepted numbering system for chemical substances.

CBL: Combustible - At temperatures between 100°F and 200°F chemical gives off enough vapor to ignite if a source of ignition is present as tested with a closed cup tester.

CNS: Central Nervous System depressant that reduces the activity of the brain and spinal cord.

COR: Corrosive - Causes irreversible injury to living tissue (e.g. burns).

DESIGNATIONS: Chemical and common names of hazardous ingredients.

EIR: Eye Irritant Only - Causes reversible reddening and/or inflammation of eye tissues.

EXPOSURE LIMITS: The time weighted average (TWA) airborne concentration at which most workers can be exposed without any expected adverse effects. Primary sources include ACGIH TLVs, and OSHA PELs.

ACGIH: American Conference of Governmental Industrial Hygienists

CEILING: "The concentration that should not be exceeded in the workplace during any part of the working exposure." Source, ACGIH

OSHA: Occupational Safety and Health Administration.

PEL: Permissible Exposure Limit - A set of time weighted average exposure values, established by OSHA, for a normal 8-hour day and a 40-hour work-week.

PPM: Parts per million - unit of measure for exposure limits.

(S) SKIN: Skin contact with substance can contribute to overall exposure.

STEL: Short Term Exposure Limit - Maximum concentration for a continuous 15-minute exposure period.

TLV: Threshold Limit Value - A set of time weighted average exposure limits, established by the ACGIH, for a normal 8-hour day and a 40-hour work-week.

FBL: Flammable - At temperatures under 100°F, chemical gives off enough vapors to ignite if a source of ignition is present as tested with a closed cup tester.

HAZARDOUS INGREDIENTS: Chemical substances that are determined to be potential health or physical hazards based on the criteria established in the OSHA Hazard Communication Standard - 29 CFR 1910.1200

HTX: Highly toxic - the probable lethal dose for a 70 kg (150 lb.) man, which may be approximated as less than 6 teaspoons (2 tablespoons)

IRR: Irritant - Causes reversible effects in living tissues (e.g. inflammation) - primarily skin and eyes.

N/A: Not Applicable - Category is not appropriate for this product.

N/D: Not Determined - Insufficient information to make a determination for this item.

RTECS#: Registry of Toxic Effects of Chemical Substances - an unreviewed listing of published toxicology data on chemical substances.

SARA: Superfund Amendment and Reauthorization Act - Section 313 designates certain chemicals for possible reporting for the Toxic Chemical Release Inventory.

SEN: Sensitizer - Causes allergic reaction after repeated exposure.

TOX: Toxic - The probable lethal dose for a 70 kg (150 kg) man is one ounce (2 tablespoons) or more.

SECTION III: HEALTH HAZARD DATA

ACUTE EFFECT: An adverse effect on the human body from a single exposure with symptoms developing almost immediately after exposure or within a relatively short time.

CHRONIC EFFECT: Adverse effects that are most likely to occur from repeated exposure over a long period of time.

EST'D PEL/TLV: This estimated, time-weighted-average, exposure limit, developed by using a formula provided by the ACGIH, pertains to airborne concentrations from the product as a whole. This value should serve as guide for providing safe workplace conditions to nearly all workers.

HMIS CODES: Hazardous Material Identification System - a rating system developed, by the National Paint and Coating Association for estimating the hazard potential of a chemical under normal workplace conditions. These risk estimates are indicated by a numerical rating given in each of three hazard areas (Health/Flammability/Reactivity) ranging from a low of zero to a high of 4. The presence of a chronic hazard is indicated by a "YES". Consult HMIS training guides for Personal Protection letter codes, which indicate necessary protective equipment.

PRIMARY ROUTE OF ENTRY: The way one or more hazardous ingredients may enter the body and cause a generalized systemic or specific-organ toxic effect.

ING: Ingestion - A primary route of exposure through swallowing of material.

INH: Inhalation - A primary route of exposure through breathing of vapors.

SKIN: A primary route of exposure through contact with the skin.

SECTION IV: SPECIAL PROTECTION INFORMATION

Where respiratory protection is recommended, use only MSHA and NIOSH approved respirators and dust masks.

MSHA: Mine Safety and Health Administration

NIOSH: National Institute for Occupational Safety and Health.

SECTION V: PHYSICAL DATA

EVAPORATION RATE: Refers to the rate of change from the liquid state to the vapor state at ambient temperature and pressure in comparison to a given substance (e.g. water).

pH: A value representing the acidity or alkalinity of an aqueous solution (Highly Acidic pH = 1; Neutral pH = 7; Highly Alkaline pH = 14)

VOC CONTENT: The percentage or amount in pounds per gallon of the product that is regulated as a Volatile Organic Compound under the Clean Air Act of 1990 and various state jurisdictions.

SOLUBILITY IN WATER: A description of the ability of the product to dissolve in water.

SECTION VII: REACTIVITY DATA

HAZARDOUS DECOMPOSITION: Breakdown products expected to be produced upon product decomposition by extreme heat or fire.

INCOMPATIBILITY: Keep product away from listed substances or conditions to prevent hazardous reactions.

POLYMERIZATION: Indicates the tendency of the product's molecules to combine with themselves in a chemical reaction releasing excess pressure and heat.

STABILITY: Indicates the susceptibility of the product to decompose spontaneously and dangerously.

SECTION VIII: SPILL AND DISPOSAL PROCEDURES

RCRA WASTE NOS: RCRA (Resource Conservation and Recovery Act) waste codes (40 CFR 261) applicable to the disposal of spilled or unusable product from the original container.

SECTION X: TRANSPORTATION DATA

CWA: Clean Water Act - Federal law that regulates chemical releases to bodies of water.

RQ: Reportable Quantity - The amount of the specific ingredient that, when spilled to the ground and, can enter a storm sewer or natural watershed, must be reported to the National Response Center, and other regulatory agencies.

TSCA: Toxic Substances Control Act - A federal law requiring all commercial chemical substances to appear on an inventory maintained by the EPA.

DISCLAIMER

All statements, technical information, and recommendations contained herein are based on available scientific tests or data that we believe to be reliable. The accuracy and completeness of such data are not warranted or guaranteed. We cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. Acuity Specialty Products Group assumes no liability or responsibility for loss or damage resulting from the improper use or handling of our products, from incompatible product combinations, or from the failure to follow instructions, warnings, and advisories in the product label and Material Safety Data Sheet.

(rev 06/02)



CLEAN ACROSS AMERICA AND
THROUGHOUT THE WORLD™

ZEP MANUFACTURING COMPANY
P.O. BOX 2015
ATLANTA, GEORGIA 30301
SOLD TO:

UPPER GWYNEDD TOWAMINCIN (368)
2225 KRIBEL ROAD
LANSDALE PA 19446

AND SAFE HANDLING AND DISPOSAL INFORMATION

ISSUE DATE: 03/06/98
SUPERSEDES:
ZEP "OJ"
Prod No: 0771

Date printed: 10/30/98

44-50

SECTION I - EMERGENCY CONTACTS

TELEPHONE: (404) 352-1680 BETWEEN 8:00 AM - 5:00 PM (EST)
MEDICAL EMERGENCY: (770) 439-4200 NON OFFICE HOURS, WEEKENDS
(770) 432-2873 AND HOLIDAYS, PLEASE CALL
(770) 424-4789 LOCAL POISON CONTROL
(770) 424-2048
(770) 455-8160
(770) 552-8836
TRANSPORTATION EMERGENCY: (770) 922-0923
CHEMTREC: (800) 424-9300 TOLL FREE-CALLS RECORDED
DISTRICT OF COLUMBIA: (202) 483-7616 ALL CALLS RECORDED

0505

SECTION II - HAZARDOUS INGREDIENTS

SIGNATURES	(PPM)	EFFECTS (SEE NOTICE)	% IN PROD.
SODIUM HYDROXIDE ** caustic soda; soda lye; CAS# 1310-73-2; ECS# WB4900000; OSHA/ACGIH CEILING LIMIT-2 MG/M3	N/D	TOX COR	< 10
SODIUM METASILICATE ** silicic acid (H2-Si-O3) disodium salt; water glass; CAS# 6834-92-0; RTECS# VV9275000; OSHA Dust limit-2mg/m3 (for powders only).	N/D	COR	< 10
DIPROPYLENE GLYCOL METHYL ETHER ** dipropylene glycol monomethyl ether; CAS# 34590-94-8; RTECS# JB1575000; OSHA L-100 PPM; OSHA/ACGIH STEL- 150 PPM	100	CBL EIR	< 10
L-LIMONENE ** orange distillate; citrus terpene; alpha-hexene, 1-methyl-4-(1-methylethenyl)-, (R)-; CAS# 39-27-5; RTECS# GW6360000; OSHA PEL N/D	N/D	CBL SEN	< 10

SECTION III - HEALTH HAZARD DATA

SPECIAL NOTE: MSDS data pertains to the product as dispensed from the container. Adverse health effects should not be expected under recommended conditions of use (diluted) so long as prescribed safety precautions are practiced.

HEALTH EFFECTS OF OVEREXPOSURE:

Irritation on contact. Overexposure will produce tissue destruction particularly on mucous membranes of eyes, mouth, and respiratory tract. Eye contact will produce severe irritation and blindness unless immediately flushed. Concentrated solutions may produce immediate skin damage. Dilute solutions may produce severe irritation which intensifies as contact continues. Inhalation of mists may produce severe nasal and respiratory irritation or permanent nasal obstruction will produce tissue damage of the gastrointestinal tract. Repeated use of this product may aggravate existing skin, eye, or respiratory disorders.

SKIN EFFECTS OF OVEREXPOSURE:

Repeated or prolonged exposure of skin can produce chronic dermatitis characterized by redness, scaling, and blistering. Repeated exposure to spray products may lead to chronic eye inflammation, chronic respiratory tract irritation or lung damage.

Some of the ingredients in this product has caused sensitization reactions in a small percentage of the general population.

None of the ingredients are listed as carcinogens by IARC, NTP, or OSHA.

OSHA PEL/TLV: Not established PRIMARY ROUTES OF ENTRY: Inh, Skin.

HAZARD CODES: HEALTH 3; FLAM. 2; REACT. 0; PERS. PROTECT. D ; CHRONIC HAZ. YES

FIRST AID PROCEDURES:

IN: Immediately flush contaminated skin with plenty of water for at least 15 minutes. Get medical attention immediately.
EYES: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting upper and lower lids. Get medical attention at once.
HALE: Move exposed person to fresh air. If irritation persists, get medical attention promptly.
BEST: If this product is swallowed, do not induce vomiting. If victim is conscious give plenty of water to drink. Get medical attention at once.

SECTION IV - SPECIAL PROTECTION INFORMATION

PROTECTIVE CLOTHING: Wear a face shield, rubber or neoprene gloves, a rubber apron, and impervious footwear.
EYE PROTECTION: Wear splash-proof safety goggles especially if contact lenses are worn.
RESPIRATORY PROTECTION: If ventilation is inadequate, wear a properly fitting MSHA or OSHA-approved respirator.
VENTILATION: Ventilation should be equivalent to outdoors. Use exhaust fans and open windows in enclosed spaces.

SECTION V - PHYSICAL DATA

MELTING POINT (F):	-210	SPECIFIC GRAVITY:	1.07
VAPOR PRESSURE (mmHg):	N/D	EVAPORATION RATE (WATER=1):	1.0
VAPOR DENSITY (AIR=1):	N/D	pH (CONCENTRATE):	13.0-14.0
SOLUBILITY IN WATER:	COMPLETE	pH (USE DILUTION OF 1:10):	12.2-13.0
CONCENTRATION (CONCENTRATE):	13.3% 1.19 lb/gal		
APPEARANCE AND ODOR:	A SLIGHTLY HAZY, AMBER LIQUID WITH AN ORANGE FRAGRANCE.		

SECTION VI - FIRE AND EXPLOSION DATA

FLASH POINT (C) (METHOD USED): 117 (TCC)
FLAMMABLE LIMITS: LEL: N/A UEL: N/A
EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, water, and foam
SPECIAL FIRE FIGHTING: Wear self-contained positive pres. breathing apparatus.
UNUSUAL FIRE HAZARDS: May decompose to form toxic/corrosive gases.

SECTION VII - REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY (AVOID): Strong oxidizers, acids, and active metals.
POLYMERIZATION: Will not occur.
HAZARDOUS DECOMPOSITION: Carbon dioxide, carbon monoxide, and other unidentified organic compounds.

SECTION VIII - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Use appropriate safety precautions in sections 4 & 9 during clean-up. Absorb spill on an inert absorbent material (e.g. Zep-O-Zorb); pick up and place in a clean, sealed, specification container for disposal. Wash area thoroughly with a detergent solution and then rinse well with water.
BEST DISPOSAL METHOD:
Residuals cannot be sent to landfills unless solidified. Unusable product and some collected, spent use-dilutions may require disposal as a hazardous waste at a permitted treatment/storage/disposal facility. In most states hazardous wastes in total amounts of 220 lbs. or less per month may be disposed of in a chemical or industrial waste landfill. If company effluent is ultimately treated by a publicly owned treatment works, neutralization of spent tank-solutions with subsequent discharge to the sewer may be possible. Consult local, state and federal agencies for proper disposal method in your area.
GHS HAZ. WASTE NOS.: Unused product D002; Solutions may or may not be corrosive
(Continued on Page: 2)

PRECAUTIONS TO BE TAKEN WHEN HANDLING AND STORING:

- Flammable! Store and use away from heat, sparks, open flame, or any source of ignition.
- Keep away from strong acids and oxidizing compounds.
- Keep product away from skin and eyes.
- Do not breathe spray mists or vapors.
- Wash shoes which become contaminated with substance should be removed promptly and not worn until thoroughly cleaned.
- Keep away from the reach of children.
- Keep in a tightly closed container in a dry area at temps. between 40-120 degrees F.

SECTION X - REGULATORY INFORMATION

THE PROPER SHIPPING NAME: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE)
 NOTE: DOT information applies to larger package sizes of affected products. For some products, DOT may require alternate names and labeling in accordance with packaging group requirements.
 DOT HAZARD CLASS: 8 DOT PACKING GROUP: II
 T.I.D. NUMBER: UN3266 DOT LABEL/PLACARD: CORROSIVE
 TSCA CHEMICAL INVENTORY - ALL INGREDIENTS ARE LISTED
 CWA 40CFR PART 117 SUBSTANCE(RQ IN A SINGLE CONTAINER): SODIUM HYDROXIDE - 10#

NOTICE

Thank you for your interest in, and use of, Zep products. Zep Manufacturing Co. is pleased to be of service to you by providing you with a Material Safety Data Sheet for your files. Zep Manufacturing Co. is concerned for your health and safety. Zep products can be used safely with proper protective equipment and proper handling practices consistent with label instructions and the MSDS. Before using any Zep product, be sure to read the complete label and the Material Safety Data Sheet.

As a further word of caution, Zep wishes to advise that serious accidents have resulted from the misuse of "emptied" containers. "Empty" containers retain residue (liquid and/or solid) and can be dangerous. DO NOT pressurize, cut, weld, flame, or other sources of ignition; they may explode or develop harmful vapors and possibly cause injury or death. Clean empty containers by triple rinsing with water or an appropriate solvent. Empty containers must be sent to a drum conditioner before reuse.

TERMS AND ABBREVIATIONS LISTED ALPHABETICALLY BY SECTION

SECTION II: HAZARDOUS INGREDIENTS

AH: Carcinogen - A chemical listed by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) or OSHA as a definite or possible human cancer causing agent.
 CAS #: Chemical Abstract Services Registry Number - A universally accepted numbering system for chemical substances.
 CL: Combustible - At temperatures between 100F and 200F, chemical gives off enough vapor to ignite if a source of ignition is present as tested with a closed cup tester.
 CNS: Central Nervous System depressant which reduces the activity of the brain and spinal cord.
 COR: Corrosive - Causes irreversible injury to living tissue (e.g. burns).
 DESIGNATIONS: Chemical and common names of hazardous ingredients.
 IRR: Eye Irritant Only - Causes reversible reddening and/or inflammation of eye tissues.
 EXPOSURE LIMITS: The time weighted average (TWA) airborne concentration at which most workers can be exposed without any expected adverse effects. Primary sources include ACGIH TLVs, and OSHA PELs (TWA, STEL and ceiling limits).
 ACGIH: American Conference of Governmental Industrial Hygienists.
 CEILING: The concentration that should not be exceeded in the workplace during any part of the working exposure.
 OSHA: Occupational Safety and Health Administration
 PEL: Permissible Exposure Limit - A set of time weighted average exposure values, established by OSHA, for a normal 8-hour day and a 40-hour work week.
 PF: Parts per million - unit of measure for exposure limits.
 (S) SKIN: Skin contact with substance can contribute to overall exposure.
 STEL: Short Term Exposure Limit - Maximum concentration for a continuous 15-minute exposure period.
 TLV: Threshold Limit Value - A set of time weighted average exposure limits, established by the ACGIH, for a normal 8-hour day and a 40-hour work week.
 FL: Flammable - At temperatures under 100F, chemical gives off

enough vapor to ignite if a source of ignition is present as tested with a closed cup tester.
 HAZARDOUS INGREDIENTS: Chemical substances determined to be potential health or physical hazards based on the criteria established in the OSHA Hazard Communication Standard - 29 CFR 1910.1200
 HTX: Highly toxic - the probable lethal dose for a 70kg (150 lb.) man and may be approximated as less than 6 teaspoons (2 tablespoons).
 IRR: Irritant - Causes reversible effects in living tissues (e.g. inflammation) - primarily skin and eyes.
 N/A: Not Applicable - Category is not appropriate for this product.
 N/D: Not Determined - Insufficient information to make a determination for this item.
 RTECS#: Registry of Toxic Effects of Chemical Substances - an unreviewed listing of published toxicology data on chemical substances.
 SARA: Superfund Amendment and Reauthorization Act - Section 313 designates chemicals for possible reporting for the Toxics Release Inventory.
 SEN: Sensitizer - Causes allergic reaction after repeated exposure.
 TOX: Toxic - The probable lethal dose for a 70 kg (150 lb.) man is one ounce (2 tablespoons) or more.

(rev. 1/98)

SECTION III: HEALTH HAZARD DATA

ACUTE EFFECT: An adverse effect on the human body from a single exposure with symptoms developing almost immediately after exposure or within a relatively short time.
 CHRONIC EFFECT: Adverse effects that are most likely to occur from repeated exposure over a long period of time.
 EST D PEL/TLV: This estimated, time-weighted average, exposure limit, developed by using a formula provided by the ACGIH, pertains to airborne concentrations from the product as a whole. This value should serve as a guide for providing safe workplace conditions to nearly all workers.
 HMIS CODES: Hazardous Material Identification System - a rating system developed by the National Paint and Coating Association for estimating the hazard potential of a chemical under normal workplace conditions. These risk estimates are indicated by a numerical rating given in each of three hazard areas (Health/Flammability/Reactivity) ranging from a low of zero to a high of 4. The presence of a chronic hazard is indicated with a yes. Consult HMIS training guides for Personal Protection letter codes which indicate necessary protective equipment.
 PRIMARY ROUTE OF ENTRY: The way one or more hazardous ingredients may enter the body and cause a generalized-systemic or specific-organ toxic effect.
 ING: Ingestion - A primary route of exposure through swallowing of material.
 INH: Inhalation - A primary route of exposure through breathing of vapors.
 SKIN: A primary route of exposure through contact with the skin.

SECTION IV: SPECIAL PROTECTION INFORMATION

Where respiratory protection is recommended, use only MSHA and NIOSH approved respirators and dust masks.
 MSHA: Mine Safety and Health Administration
 NIOSH: National Institute for Occupational Safety and Health

SECTION V: PHYSICAL DATA

EVAPORATION RATE: Refers to the rate of change from the liquid state to the vapor state at ambient temperature and pressure in comparison to a given substance (e.g. water).
 pH: A value representing the acidity or alkalinity of an aqueous solution (Acidic pH = 1; Neutral pH = 7; Alkaline pH = 14)
 VOC CONTENT: The percentage or amount in pounds per gallon of the product that is regulated as a Volatile Organic Compound under the Clean Air Act of 1990 and various state jurisdictions.
 SOLUBILITY IN WATER: A description of the ability of the product to dissolve in water.

SECTION VII: REACTIVITY DATA

HAZARDOUS DECOMPOSITION: Breakdown products expected to be produced upon product decomposition by extreme heat or fire.
 INCOMPATIBILITY: Material contact by extreme heat and the conditions to avoid to prevent hazardous reactions.
 POLYMERIZATION: Indicates the tendency of the product's molecules to combine with themselves in a chemical reaction, releasing excess pressure and heat.
 STABILITY: Indicates the susceptibility of the product to spontaneously and dangerously decompose.

SECTION VIII: SPELL AND DISPOSAL PROCEDURES

RCRA WASTE NOS: RCRA (Resource Conservation and Recovery Act) waste codes (40 CFR 261) applicable to the disposal of spilled or unusable product from the original container.

SECTION X: TRANSPORTATION DATA

CWA: Clean Water Act- Federal Law which regulates chemical releases to bodies of water.
 RC: Reportable Quantity - The amount of the specific ingredient that, when spilled to the ground and can enter a storm sewer or natural watershed, must be reported to the National Response Center, and other regulatory agencies.
 TSCA: Toxic Substances Control Act - a federal law requiring all commercial chemical substances to appear on an inventory maintained by the EPA.

DISCLAIMER

All statements, technical information and recommendations contained herein are based on available scientific tests or data which we believe to be reliable. The accuracy and completeness of such data are not warranted or guaranteed. We cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. Zep assumes no liability or responsibility for loss or damage resulting from the improper use or handling of our products, from incompatible product combinations, or from the failure to follow instructions, warnings, and advisories in the products label and Material Safety Data Sheet.

(rev. 1/98)



ZEP MANUFACTURING COMPANY
 Acuity Specialty Products Group, Inc.
 P.O. BOX 2015
 ATLANTA, GA 30301
 1- 877- 1 - BUY- ZEP

Material Safety Data Sheet and Safe Handling and Disposal Information

Issue Date 10/02/00
 Supersedes 06/16/92
 Product Name ZEPYNAMIC A COUNTRY GARDEN
 Product No. 0110
 Aerosol Disinfectant - Deodorant

SECTION I - EMERGENCY CONTACTS

For MSDS Information:
 Acuity Specialty Products Group, Inc.
 Compliance Services 1-877-1-BUY-ZEP

For Medical Emergency:
 INFOTRAC
 (877) 541-2016 Toll Free - All Calls Recorded

For a Transportation Emergency:
 CHEMTREC
 (800) 424-9300 - All Calls Recorded
 In the District of Columbia (202) 483-7616

Printing date: 09/10/03

SECTION II - HAZARDOUS INGREDIENTS

** ETHANOL ** ethyl alcohol; grain alcohol; CAS# 64-17-5; RTECS# KQ6300000; OSHA PEL-1000 ppm; TLV - 1000; EFFECTS - IRR
 FBL; % IN PROD - 50-60
 ** BLEND OF [ISOBUTANE; CAS# 75-28-5; RTECS# TZ4300000] & [PROPANE; CAS# 74-98-6; RTECS# TX2775000] & [n-BUTANE;
 CAS# 106-97-8; RTECS# EJ4200000] ** OSHA PEL-1000 ppm; TLV - 800; EFFECTS - FBL; % IN PROD - 10-20
 @ -Reportable under the SARA 313 Toxic Release Inventory

SECTION III - HEALTH HAZARD DATA

SPECIAL NOTE: MSDS data pertains to the product as dispensed from the container. Adverse health effects would not be expected under recommended conditions of use (diluted) so long as prescribed safety precautions are practiced.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye irritant. Eye contact may produce stinging, burning, inflammation, and in extreme cases injury to eye tissue may occur. Prolonged exposure to mists or vapors may be irritating to skin and upper respiratory tract. Overexposure can result in mild narcotic effects, including flushing, headache, dizziness and nausea. Inhalation of aerosol mist may produce chemical pneumonia.

CHRONIC EFFECTS OF OVEREXPOSURE:

Repeated or prolonged, skin contact may produce some dryness of skin. Chronic effects from alcohol vapors are rare and would result from severe, prolonged, and repeated contact, which is usually precluded by irritation. In most extreme cases, weakness, drowsiness or loss of consciousness could result. None of the ingredients are listed as carcinogens by IARC, NTP, or OSHA.

EST'D PEL/TLV: Not established

PRIMARY ROUTES OF ENTRY: Inh, Skin.

HMIS CODES: HEALTH 1; FLAM 3; REACT 0; PERS. PROTECT B; CHRONIC HAZ NO

FIRST AID PROCEDURES:

SKIN: Immediately flush contaminated skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops.

EYES: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting upper and lower lids. Get medical attention at once.

INHALE: Move exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Get medical attention immediately.

INGEST: If this product is swallowed, do not induce vomiting. If individual is alert, give plenty of water to drink. Get medical attention at once.

SECTION IV - SPECIAL PRECAUTION INFORMATION

PROTECTIVE CLOTHING: The use of neoprene, nitrile or natural rubber gloves is strongly recommended, especially for prolonged contact.

EYE PROTECTION: Use of tight-fitting safety glasses or goggles is strongly recommended, especially when wearing contact lenses.

RESPIRATORY PROTECTION: Keep face away from spray mist and do not breathe vapors.

VENTILATION: Provide local exhaust/ventilation as needed to keep concentration of vapors below exposure limits (PEL/TLV).

SECTION V - PHYSICAL DATA

BOILING POINT (F) - 180

VAPOR PRESSURE(mmHg) - 30

VAPOR DENSITY(AIR-1) - >1

SOLUBILITY IN WATER - COMPLETE

pH(USE DILUTION OF) - N/A N/A

VOC CONTENT (CONCENTRATE) - 73.4%

APPEARANCE AND ODOR - A CLEAR, COLORLESS LIQUID WITH A FLORAL SCENT

SPECIFIC GRAVITY - 0.87

EVAPORATION RATE (BU. ACETATE=1) - >1

pH(CONCENTRATE) - N/A

SECTION VI - FIRE AND EXPLOSION DATA

FLASH POINT(F) (METHOD USED): Flammable CSMA
FLAMMABLE LIMITS:LEL: N/A UEL: N/A
EXTINGUISHING MEDIA: Water
SPECIAL FIRE FIGHTING: Direct water onto intact containers to prevent bursting.
UNUSUAL FIRE HAZARDS: Container may burst if heated above 120F.

SECTION VII - REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY(AVOID): Strong oxidizing agents.
POLYMERIZATION: Will not occur.
HAZARDOUS DECOMPOSITION: Carbon dioxide, carbon monoxide, and other unidentified organic compounds.

SECTION VIII - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIALS IS RELEASED OR SPILLED:

Observe safety precautions in sections 4 & 9 during spill clean-up. Large spills are unlikely due to packaging. Spill may be absorbed on an inert absorbent material, and placed in a suitable container for disposal. Wash area thoroughly with a detergent solution and rinse well with water.

WASTE DISPOSAL METHOD:

Product is consumed in use. Do not crush, puncture or incinerate spent containers. Large numbers of aerosol containers may require handling as a hazardous waste, but in most states total hazardous waste quantities less than 220 lbs per month may allow disposal in a chemical or industrial waste landfill. Consult local, state and federal agencies for the proper disposal method in your area.

RCRA HAZ WASTE NOS: D001

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN WHEN HANDLING AND STORING

Flammable! Store and use away from heat, sparks, open flame, and any source of ignition. Do not breathe spray mists or vapors. Keep product out of eyes. Avoid prolonged contact with skin. Do not store at temperatures above 120F (39C) or in direct sunlight. Do not puncture or incinerate container. Keep out of the reach of children.

SECTION X - REGULATORY INFORMATION

DOT PROPER SHIPPING NAME: CONSUMER COMMODITY,

NOTE: DOT information applies to larger package sizes of affected products. For some products, DOT may require alternate names and labeling in accordance with packaging group requirements.

DOT HAZARD CLASS: ORM-D DOT PACKING GROUP: N/A

DOT I.D. NUMBER: N/A DOT LABEL/PLACARD: ORM-D

EPA TSCA CHEMICAL INVENTORY - ALL INGREDIENTS ARE LISTED

EPA CWA 40CFR PART 117 SUBSTANCE(RQ IN A SINGLE CONTAINER): NONE

EPA CAA: N/A

MATERIAL SAFETY DATA SHEET

NOTICE

Thank you for your interest in, and use of, this product. Acuity Specialty Products Group is pleased to be of service to you by supplying this Material Safety Data Sheet for your files. Acuity Specialty Products Group is concerned for your health and safety. This product and all others supplied by Acuity Specialty Products Group companies can be used safely with proper protective equipment and proper handling practices consistent with label instructions and the MSDS. Before using any this product, be sure to read the complete label and the Material Safety Data Sheet.

As a further word of caution, Acuity Specialty Products Group wishes to advise that serious accidents have resulted from the misuse of "emptied" containers. "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, or other sources of ignition; they may explode or develop harmful vapors and possibly cause injury or death. Clean empty containers by triple rinsing with water or an appropriate solvent. Empty containers must be sent to a drum reconditioner before reuse.

TERMS AND ABBREVIATIONS Listed Alphabetically by Section

SECTION II: HAZARDOUS INGREDIENTS

CAR: Carcinogen - A chemical listed by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) or OSHA as a definite or possible human cancer causing agent.

CAS#: Chemical Abstract Services Registry Number - A universally accepted numbering system for chemical substances.

CBL: Combustible - At temperatures between 100°F and 200°F chemical gives off enough vapor to ignite if a source of ignition is present as tested with a closed cup tester.

CNS: Central Nervous System depressant that reduces the activity of the brain and spinal cord.

COR: Corrosive - Causes irreversible injury to living tissue (e.g. burns).

DESIGNATIONS: Chemical and common names of hazardous ingredients.

EIR: Eye Irritant Only - Causes reversible reddening and/or inflammation of eye tissues.

EXPOSURE LIMITS: The time weighted average (TWA) airborne concentration at which most workers can be exposed without any expected adverse effects. Primary sources include ACGIH TLVs, and OSHA PELs.

ACGIH: American Conference of Governmental Industrial Hygienists

CEILING: "The concentration that should not be exceeded in the workplace during any part of the working exposure." Source, ACGIH

OSHA: Occupational Safety and Health Administration.

PEL: Permissible Exposure Limit - A set of time weighted average exposure values, established by OSHA, for a normal 8-hour day and a 40-hour work-week.

PPM: Parts per million - unit of measure for exposure limits.

(S) SKIN: Skin contact with substance can contribute to overall exposure.

STEL: Short Term Exposure Limit - Maximum concentration for a continuous 15-minute exposure period.

TLV: Threshold Limit Value - A set of time weighted average exposure limits, established by the ACGIH, for a normal 8-hour day and a 40-hour work-week.

FBL: Flammable - At temperatures under 100°F, chemical gives off enough vapors to ignite if a source of ignition is present as tested with a closed cup tester.

HAZARDOUS INGREDIENTS: Chemical substances that are determined to be potential health or physical hazards based on the criteria established in the OSHA Hazard Communication Standard - 29 CFR 1910.1200

HTX: Highly toxic - the probable lethal dose for a 70 kg (150 lb.) man, which may be approximated as less than 6 teaspoons (2 tablespoons)

IRR: Irritant - Causes reversible effects in living tissues (e.g. inflammation) - primarily skin and eyes.

N/A: Not Applicable - Category is not appropriate for this product.

N/D: Not Determined - Insufficient information to make a determination for this item.

RTECS#: Registry of Toxic Effects of Chemical Substances - an unreviewed listing of published toxicology data on chemical substances.

SARA: Superfund Amendment and Reauthorization Act - Section 313 designates certain chemicals for possible reporting for the Toxic Chemical Release Inventory.

SEN: Sensitizer - Causes allergic reaction after repeated exposure.

TOX: Toxic - The probable lethal dose for a 70 kg (150 kg) man is one ounce (2 tablespoons) or more.

SECTION III: HEALTH HAZARD DATA

CUTE EFFECT: An adverse effect on the human body from a single exposure with symptoms developing almost immediately after exposure or within a relatively short time.

CHRONIC EFFECT: Adverse effects that are most likely to occur from repeated exposure over a long period of time.

EST'D PEL/TLV: This estimated, time-weighted-average, exposure limit, developed by using a formula provided by the ACGIH, pertains to airborne concentrations from the product as a whole. This value should serve as guide for providing safe workplace conditions to nearly all workers.

HMIS CODES: Hazardous Material Identification System - a rating system developed, by the National Paint and Coating Association for estimating the hazard potential of a chemical under normal workplace conditions. These risk estimates are indicated by a numerical rating given in each of three hazard areas (Health/ Flammability/Reactivity) ranging from a low of zero to a high of 4. The presence of a chronic hazard is indicated by a "YES". Consult HMIS training guides for Personal Protection letter codes, which indicate necessary protective equipment.

PRIMARY ROUTE OF ENTRY: The way one or more hazardous ingredients may enter the body and cause a generalized systemic or specific-organ toxic effect.

ING: Ingestion - A primary route of exposure through swallowing of material.

INH: Inhalation - A primary route of exposure through breathing of vapors.

SKIN: A primary route of exposure through contact with the skin.

SECTION IV: SPECIAL PROTECTION INFORMATION

Where respiratory protection is recommended, use only MSHA and NIOSH approved respirators and dust masks.

MSHA: Mine Safety and Health Administration

NIOSH: National Institute for Occupational Safety and Health.

SECTION V: PHYSICAL DATA

EVAPORATION RATE: Refers to the rate of change from the liquid state to the vapor state at ambient temperature and pressure in comparison to a given substance (e.g. water).

pH: A value representing the acidity or alkalinity of an aqueous solution (Highly Acidic pH = 1; Neutral pH = 7; Highly Alkaline pH = 14)

VOC CONTENT: The percentage or amount in pounds per gallon of the product that is regulated as a Volatile Organic Compound under the Clean Air Act of 1990 and various state jurisdictions.

SOLUBILITY IN WATER: A description of the ability of the product to dissolve in water.

SECTION VII: REACTIVITY DATA

HAZARDOUS DECOMPOSITION: Breakdown products expected to be produced upon product decomposition by extreme heat or fire.

INCOMPATIBILITY: Keep product away from listed substances or conditions to prevent hazardous reactions.

POLYMERIZATION: Indicates the tendency of the product's molecules to combine with themselves in a chemical reaction releasing excess pressure and heat.

STABILITY: Indicates the susceptibility of the product to decompose spontaneously and dangerously.

SECTION VIII: SPILL AND DISPOSAL PROCEDURES

RCRA WASTE NOS: RCRA (Resource Conservation and Recovery Act) waste codes (40 CFR 261) applicable to the disposal of spilled or unusable product from the original container.

SECTION X: TRANSPORTATION DATA

CWA: Clean Water Act - Federal law that regulates chemical releases to bodies of water.

RQ: Reportable Quantity - The amount of the specific ingredient that, when spilled to the ground and, can enter a storm sewer or natural watershed, must be reported to the National Response Center, and other regulatory agencies.

TSCA: Toxic Substances Control Act - A federal law requiring all commercial chemical substances to appear on an inventory maintained by the EPA.

DISCLAIMER

All statements, technical information, and recommendations contained herein are based on available scientific tests or data that we believe to be reliable. The accuracy and completeness of such data are not warranted or guaranteed. We cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. Acuity Specialty Products Group assumes no liability or responsibility for loss or damage resulting from the improper use or handling of our products, from incompatible product combinations, or from the failure to follow instructions, warnings, and advisories in the product label and Material Safety Data Sheet

(rev 06/02)



Holland Company

PACL 300

Safety Data Sheet

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product/Chemical Name: PACL 300
Chemical Family: Inorganic aluminum salt
General use: Water treatment and manufacturing applications

Company Information:
Holland Company, Inc.
153 Howland Avenue
Adams, MA 01220 U.S.A.
Phone: 413-743-1292 FAX: 413-743-1298

Emergency Phone:
1-800-424-9300 Chemtrac (USA)
1-613-996-6666 or Cell *666 CANTUTEC (Canada)

SECTION 2. HAZARDS IDENTIFICATION



WARNING - IRRITANT
AVOID CONTACT



WARNING - METAL CORROSION
May cause corrosion to metal

Hazard Statements

Harmful if ingested.
Irritating to eyes.
May be irritating to skin
Mist is irritating to respiratory system.
Contact may result in corrosion to some metals.

Precautionary Statements

Avoid direct contact.
Use protective equipment if direct contact is possible. Wash hands thoroughly after contact.
Use appropriate materials of construction for storage and handling.



PACL 300

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance:

Aluminum soluble salts (liquid)
PACL 300 / Polyaluminum Chloride
CAS# 14215-15-7

Impurities: NA. No impurities or additives which are themselves classified and which would contribute to the classification of the substance.

SECTION 4. FIRST AID MEASURES

Inhalation of mist or liquid:

Remove from continued exposure.
Get medical attention if difficulty with breathing or uncontrolled coughing occurs.

Skin contact:

Remove contaminated clothing - footwear and wash skin with water.
If irritation develops get medical attention.

Eye contact:

Irritating to eyes.
Immediately rinse eyes with water for an extended period.
Get medical attention.
Persistent irritation left untreated may result in damage to the eyes.

Ingestion:

Spontaneous vomiting may occur.
Do not actively induce vomiting.
Rinse mouth and drink water.
Get medical attention.

SECTION 5. FIRE FIGHTING MEASURES

Flammability:

Product is not flammable and will not burn.

Controls:

To maintain the integrity use water to keep containers cool.
If possible remove portable containers from areas under fire threat.

Hazards:

In a fire dried product can decompose at elevated temperatures resulting in the formation of hydrogen chloride fumes. Exposure to products of decomposition during a fire may be hazardous to health. Stay up wind and avoid low areas.

Special equipment:

In case of possible exposure to products of decomposition use appropriate self-contained or other approved respiratory protection. Consult engineers if necessary.

Mechanical impact:

Not sensitive.

Static discharge:

Not sensitive.



SECTION 6. ACCIDENTAL RELEASE MEASURES

General:

Site specific procedures to address accidental spills are necessary as dictated by facility design, location, staffing, containment structures, and regulatory requirements. Consult engineers if necessary.

Personal protection:

In the event of a spill clear unnecessary staff from spill area.

If direct contact with spilled material is likely use protective equipment.

Small spills:

Manage spill using containment structures or inert materials and collect for reuse.

Product not reused can be neutralized and converted to aluminum hydroxide using a mild alkali such as soda ash or calcium carbonate (agricultural lime). Neutralized residue can be swept up or rinsed down with water and captured using absorbent materials for disposal in accordance with local, state, province, and federal regulations. Consult engineers if necessary.

Large spills:

Manage spill using containment structures or inert materials and collect for reuse.

Product not reused can be neutralized and converted to aluminum hydroxide using a mild alkali such as soda ash or calcium carbonate (agricultural lime). Neutralized residue can be swept up or rinsed down with water and captured using absorbent materials for disposal in accordance with local, state, province, and federal regulations. Caution: When neutralizing large spills CO₂ will be created and can be a breathing hazard. Take steps to provide adequate ventilation. Consult engineers if necessary.

SECTION 7. HANDLING AND STORAGE

Incompatible Chemicals:

Avoid contact with sodium hypochlorite (bleach), chlorites, sulfites, strong bases, aqua ammonia and other similar materials. Consult engineers if necessary.

Containment:

To minimize the possibility of a release into the environment and contact with other incompatible chemicals, storage tanks and containers should have a dedicated liquid tight secondary containment system. Consult engineers if necessary.

General hygiene:

Do not eat, drink, take medication or smoke when direct contact is possible.

Always thoroughly wash hands after leaving a work area where contact is possible or has occurred.

Storage: Use tanks, transfer lines, pumps, valves and process instrumentation designed for this material using appropriate materials of construction. Some materials commonly used are FRP, plastic, PVC, CPVC, Teflon, and special metal alloys. To prevent possible corrosion damage avoid the use of common metals such as low grades of stainless steel, iron, steel, copper, and aluminum. Consult engineers if necessary. Clean chemical storage tanks on a regular basis based on inspection and experience. Have storage tanks, containers, and transfer systems properly labeled for contents. Have procedures for determining product quantity in storage tank(s), for confirming and accepting deliveries.

Temperature for storage: Preferred storage temperature range is 7C-35C (45F-95F).

Outside of these temperature ranges optimal product performance and shelf life may be affected.

Ventilation: No special requirements.

Personal protection:

If direct contact with material is likely use protective equipment.



PACL 300

SECTION 8. EXPOSURE CONTROL / PERSONNAL PROTECTION

Exposure Limits

Ingredient: aluminum soluble salts

OSHA PEL		ACGIH TLV		NIOSH
TWA	ST	TWA	STEL	IDLH
2mg/m ³ as Al	none est.	2mg/m ³ as Al	none est.	none est.

Respiratory - Ventilation: Local passive ventilation is typically used. Under normal conditions respiratory protective equipment is not needed. If work requires direct exposure to product mist use appropriate, approved respiratory protection. Consult engineers if necessary.

Eye wash: Have an appropriate eye wash bottle, fountain, or safety shower available in the work area.

Eyes: Use protective eye glasses-goggles and face shield protection to prevent direct contact.

Skin: Use impervious gloves and foot covering. Wear long sleeve shirts and full length trousers.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid clear to slight haze, amber to colorless.

Flammability: Not flammable.

Upper/lower flammability limits: NA

Auto ignition: NA

Flash point: NA

Odor: Not significant. Free from organic or solvent odors.

Vapor density: NA

pH: <2.0 @ 25C (77F)

Density: 1.30-1.40 S.G. @ 21C (70F)

Melting/Freeze point: -5C (22F) + -

Boiling point-range: 105C-115C (221F-239F)

Water Solubility: Complete.

Evaporation rate: NA

Partial coefficient: n-octanol/water; NA, inorganic compound column 2 of REACH Annex VII.

Decomposition temperature: >200C (392F)

Viscosity: 30-40 centipoise/mPa.s @ 23C (73F)

VOC: 0.0

SECTION 10. STABILITY AND REACTIVITY

Chemical stability:

Product is chemically stable under normal ambient temperature and conditions while stored or used.

Conditions to avoid:

Do not exceed 200C (392F)

Materials to avoid:

Chlorite, hypochlorite, sulfites, strong bases, common metals.

Decomposition products:

Thermal decomposition of dried product can release irritating fumes.

**SECTION 11. TOXICOLOGY INFORMATION****Toxicity:**

Low order of acute toxicity

Oral (ingestion) estimate:

LD50/Oral Rat >2,000mg/kg (as aluminum)

Inhalation estimate:

LC50/Inhalation rat >5.6mg/l (as aluminum)

Dermal estimate:

LD50/dermal: >550mg/kg (as aluminum)

Effects of exposure:

Skin: Repeated contact may dry and irritate skin.

Eyes: Causes irritation, if irritation continues and is untreated exposure may result in damage to the eye.

Respiratory: Inhalation of liquid or mist may cause bronchial irritation and coughing.

Mucous membranes: May cause irritation.

Ingestion: Can cause vomiting, pain and discomfort to mouth, throat, and stomach.

Sensitization: Not sensitizing

Carcinogenicity: NTP Not listed. IARC Not listed. OSHA Not listed.

Reproductive Toxicity, Mutagenic or teratogenic effects:

No known reproductive toxicity, mutagenic or teratogenic effects in animal experiments are known.

SECTION 12. ECOLOGICAL INFORMATION**Aquatic toxicity:**

With preapproval; Federal, State, Provincial, and EU regulators allow the direct application of aluminum salts into surface waters such as lakes, ponds, and streams for beneficial uses such as:

Phosphorus inactivation.

Cyanobacteria (Blue-Green Algae) control.

Turbidity reduction for improved water clarity.

At the environmentally relevant pH range of 5.5-8.5 the solubility of aluminum is low. Aluminum salts dissociate with water resulting in rapid formation and precipitation of aluminum hydroxides. Aluminum salts must not be introduced into surface waters in an uncontrolled way. In aquatic environments at a pH <5.5 and >8.5 the direct addition of aluminum salts may result in soluble aluminum, and until a pH range of 5.5-8.8 is reached could demonstrate toxicity and be harmful to aquatic organisms.

For Polyaluminum chloride:

LC50/96h/Danio rerio/OCED test guideline 203: >1,000mg/l

NOEC/Danio rerio/OECD test guideline 203: >1,000mg/l

LC50: >0.156 mg/l as Al*. Maximum *soluble aluminum concentration under the test conditions

EC50/Daphnia magna (water flea) semi-static/OECD test guideline 202: 98mg/l

EC50: 24 mg/l as Al (aluminum)

Toxicity to other organisms: No data available.

Bioaccumulation potential: This product is not expected to bioaccumulate.

Octanol-water coefficient: NA, inorganic compound.

Biodegradability: Not applicable to inorganic substances.

Chemical degradability: In water at pH range of 5.5-8.5 precipitates of aluminum hydroxide are formed.

Mobility in Soil: No data available.



PACL 300

SECTION 13. DISPOSAL CONSIDERATIONS

RCRA Hazardous waste: Not listed.

Unused product that has not been neutralized may be a Characteristic waste (D002).

Consult engineers if necessary.

Neutralization:

Product can be neutralized and converted to aluminum hydroxide using a mild alkali such as soda ash or calcium carbonate (agricultural lime). Neutralized residue can be swept up or rinsed down with water and captured using absorbent materials for reuse or disposal in accordance with local, state, province, and federal regulations. Consult engineers if necessary.

Special precautions:

None known

Container reuse:

Packaging and storage containers that cannot be thoroughly cleaned must be disposed of in accordance with local, state, province, and federal regulations. Consult engineers if necessary.

SECTION 14. TRANSPORTATION INFORMATION

Land (DOT), Sea (IMDG), Air (ICAO/IATA)

UN number: UN3264

Shipping name: Corrosive liquid, acidic, inorganic N.O.S. (Polyaluminum Chloride)

Hazard class: 8

Packing group: III

Environmental hazards: Not a marine pollutant

Special precautions: None known

SECTION 15. REGULATORY INFORMATION

RCRA Hazardous waste: Not Listed. Unused, un-neutralized product may be a Characteristic Waste (D002). Consult engineers if necessary.

CERCLA Hazardous substance: Not listed CWA, Sec.311 (b) (4)

CERCLA Reportable Quantity (RQ): NA

SARA 311/312 Categories:

Acute (immediate) health effects: Yes

Chronic (delayed) health effects: No

Sudden release of pressure hazard: No

Reactivity hazard: No

SARA 313 Toxic Chemical listing: Not listed

SARA Extremely hazardous substance (EHS): Not listed

OSHA Air (29CFR 1910.10000, table Z-1, Z-1A): Not listed

OSHA Special Regulated Substance (29CFR 1910): Not listed

California prop 65 chemical: No

WHMIS: E corrosive

United States TSCA Section Inventory Status: Product exempt or listed on the TSCA Inventory.

Canada CEPA / Canadian Domestic Substances List (DSL):

All components of this product are included on the Domestic Substance List (DSL) or are not required to be listed (Canada CAS# 1327-41-9).

State-Province: Specific regulations have not been determined by the Holland Company. Consult engineers if necessary.

Inventories: Chinese (ECL), Philippines (PICCS), Japanese (ENCS), European (EINECS), NZ.



PACL 300

SECTION 16. OTHER INFORMATION

NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals:

Maximum use 250mg/L

Preparatory statement:

The information in this Safety Data Sheet (SDS) is correct to the best of our knowledge, information we have available, and belief as of the publication date. The information is designed solely as guidance for handling, storage, transportation, release, and disposal and is not to be considered a warranty or quality specification.

Date Sources for the SDS:

Literature, databases, practice, manufacturing experience, publications, own tests, regulations

Revision:

May 2016 replaces all earlier

SDS ID: PACL30000520016



Holland Company, Inc.
153 Howland Avenue
Adams, Massachusetts 01220
U.S.A.
800-639-9602

PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN (PPC)

APPENDIX B

TABLE B1

SUMMARY OF SUBSTANCES & LOCATIONS

PA DOL HAZARDOUS SUBSTANCE SURVEY FORM

TABLE I

Upper Gwynedd Towamencin Municipal Authority
Preparedness, Prevention & Contingency Plan

Summary of Substances & Locations

Material	Storage Location	H M I S HAZARD RATING Health Flammability Physical	Personal Protection Equipment (PPE)	First Aid Procedures
Aluminum Sulfate	Chemical Building	2 0 0	Gloves, Apron, Face Shield	Eye: Water irrigation
Acetylene	Shop & Garage	1 4 2	Leather gloves, Apron, Arc Face shield	Oxygen, Burn Treatment
Liquid/Gas Chlorine (Ton)	Stage 1 & 2 Chlorine Rooms	3 0 0	Local Ventilation, Gloves, Goggles, Face shield	Eye: Water irrigation, Fresh Air/Oxygen
Chloralert Electrolyte	Stage 1 & 2 Chlorination Bldg.	N/A N/A N/A	Local Ventilation, Gloves, Goggles	Eye: Water irrigation, Fresh Air/Oxygen Ingest 1-2 glasses of water
Coal Tar Epoxy (Part A)	Shop & Garage	2* 3 0	Local Ventilation, Gloves, Goggles, Overalls	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water
Coal Tar Epoxy (Part B)	Shop & Garage	1* 1 0	Local Ventilation, Gloves, Goggles, Overalls	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water
Dryden Paradene R&O Hydraulic Oil	Shop & Garage	1 1 0	Gloves, Goggles	Eye: Water irrigation, Skin:soap/water
Dryden Diesel/All SAE 15W-40 Oil	Shop & Garage	1 1 0	Gloves, Goggles	Eye: Water irrigation, Skin:soap/water
Dryden Non-Detergent Motor Oil	Shop & Garage	1 1 0	Gloves, Goggles	Eye: Water irrigation, Skin:soap/water
Dryden Supreme XHD Motor Oil (SAE 10,20,30 W)	Shop & Garage	1 1 0	Gloves, Goggles	Eye: Water irrigation, Skin:soap/water
Dryden TEC IT Motor Oil (5W/10W-30-40)	Shop & Garage	1 1 0	Gloves, Goggles	Eye: Water irrigation, Skin:soap/water
Dryden EP Gear Lubricant No. 2-8 EP	Shop & Garage	1 1 0	Gloves, Goggles	Eye: Water irrigation, Skin:soap/water
Dryden Pyroplex EP 1.2 Petroleum Lubricating Grease	Shop & Garage	1 1 0	Gloves, Goggles	Eye: Water irrigation, Skin:soap/water
Ferric Chloride Solution	Chemical Building	3 0 0	Local Ventilation, Gloves, Goggles, Overalls	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water NO Vomit: 1-2 glasses of water/milk
Foamy Q & A	Cleaning Supplies	3 0 0	Gloves, Apron, Face Shield	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water NO Vomit: 1-2 glasses of water/milk
High Sulfur Heating Oil 2	Generator Fuel Supply	2 2 0	Gloves, Apron, Face Shield	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water

TABLE I

Upper Gwynedd Towamencin Municipal Authority
 Preparedness, Prevention & Contingency Plan
 Summary of Substances & Locations

Material	Storage Location	H M I S HAZARD RATING Health Flammability Physical	Personal Protection Equipment (PPE)	First Aid Procedures
M-95 Cleaning Compound	Cleaning Supplies	3 0 0	Gloves, Apron, Face Shield	NO Vomit: 1-2 glasses of water/milk Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water NO Vomit: Teaspoon Magnesia/Baking Soda
Oil-Dry (Mg Aluminum Silicate)	Shop & Garage	N/A N/A N/A	Dust Respirator, Gloves, Goggles	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water
Oxygen	Shop & Garage	0 0 0	Insulated Gloves, Goggles, Face Shield	N/A
Pollu-Treat CL-888	Chemical Storage Area	1 1 0	Dust Respirator, Gloves, Goggles	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water
Quik Lime	Sludge Dewatering Area	N/A N/A N/A	Dust Respirator, Gloves, Goggles, Footware	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water Ingest: 1 part vinegar to 2 parts water
Magna-Floc 1011	Chemical Storage Area	0 1 0	Dust Respirator, Gloves, Goggles	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water
Sodium Bisulfate Solution	Stage 1 & 2 Chlorine Bldg.'s	N/A N/A N/A	Respirator, Gloves, Goggles, Footware	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water
Sodium Hypochlorite Solution	Stage 2 Chlorine Bldg.'s	N/A N/A N/A	Respirator, Gloves, Goggles, Footware	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water NO Vomit: Large amount of water
Switch & Contact Cleaner (Electrical)	Shop & Garage	N/A N/A N/A	Gloves, Goggles	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water
ZEP OJ Cleaner	Cleaning Supplies	3 2 0	Gloves, Apron, Face Shield, Goggles, Footware	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water NO Vomit: 1-2 glasses of water
ZEP 0110 Aerosol Disinfectant	Cleaning Supplies	1 3 1	Gloves, Goggles, Local Ventilation	Eye: Water irrigation, Fresh Air/Oxygen Skin: wash soap/water NO Vomit: 1-2 glasses of water

LEGEND

Hazard Material Identification System (HMIS): 0= Minimal 1=Slight 2=Moderate 3=Serious 4=Severe



HAZARDOUS SUBSTANCE SURVEY FORM

23-1701100's Survey Listing

Survey ID	Division/Plant	Workplace Covered	Reporting Year	Saved On		
778	WWTP	WWTP	2008	7/20/2017	Print	Delete
788	WWTP	Sludge Pump Room	2008	8/18/2009	Print	Delete
789	WWTP	Generator Building	2008	3/31/2009	Print	Delete
790	WWTP	Office Building	2008	10/20/2009	Print	Delete
791	WWTP	Ferric Building	2008	1/25/2011	Print	Delete
792	WWTP	Stg. 1 Chlorine Room	2008	9/21/2010	Print	Delete
793	WWTP	Stg. 2 Chlorine Room	2008	9/21/2010	Print	Delete
794	RRPS	Rittenhouse Road Pump Station	2008	3/6/2009	Print	Delete
795	WWTP	Paint Closet	2008	1/31/2012	Print	Delete
796	WWTP	Shop Garage/Cleaning Closet	2008	7/20/2017	Print	Delete
797	WWTP	Main Laboratory	2008	12/4/2012	Print	Delete
798	WWTP	Sample Storage Area (Old Ops. Lab)	2008	9/1/2011	Print	Delete
813	HHPS	Hollis Hills Pump Station	2008	3/31/2009	Print	Delete
814	MSPS	Milestone Pump Station	2008	3/31/2009	Print	Delete
1823	WWTP	Sludge Handling Bldg. MCC Room	2012	9/26/2013	Print	Delete
2727	WWTP	WWTP	2008	10/13/2016	Print	Delete
2282	Tertiary 1	Tertiary 1	2016	7/20/2017	Print	Delete

- [New Survey](#)
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- [User's Guide](#)
- [Log Out](#)

ADMIN. OFFICE /
MASTER SDS + HSSF
Locations