Section 1 Identification.

Product name:

NOCO® Battery Cleaner and Acid Detector

Product code:

E404

Other means of identification:	Not available.
Product type:	Aerosol.
Relevant identified uses of the substance or mixture and uses advised against:	Not applicable.
Manufacturer:	The NOCO Company Glenwillow, OH 44139
Emergency telephone number of the company:	(800) 424-9300

Section 2 Hazards identification.

OSHA/HCS status:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Product code:	FLAMMABLE AEROSOLS - Category 1 GASES UNDER PRESSURE - Compressed gas SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 3.2%

GHS label elements:

Hazard pictograms:

Signal word:	Danger.
Hazard statements:	Extremely flammable aerosol. Contains gas under pressure; may explode if heated. May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

General:	Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Pressurized container: Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source. Do not breathe dust or mist.

Response: Get medical attention if you feel unwell.

Storage: Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Store in a well-ventilated place.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. FOR INDUSTRIAL USE ONLY. Please refer to the SDS for additional information. Keep upright in a cool, dry place. Do not discard empty can in trash compactor.

Hazards not otherwise classified: None known.

Section 3 Composition/information on ingredients.

Substance/mixture: Mixture

Other means of identification: Not available.

CAS number/other identifiers

Ingredient name	% by weight	CAS number
Butane	6.8	106-97-8
2-Propanol	5.9	67-63-0
Propane	3.1	74-98-6
Sodium Bicarbonate	3.0	144-55-8

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

Section 4 First aid measures.

Description of necessary first aid measures:

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eye-lids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention following exposure or if feeling unwell. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed potential acute health effects:

Eye contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Over-exposure signs/symptoms:

Eye contact: Adverse symptoms may include the following:
irritation
redness

Inhalation: Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact: No specific data.

Ingestion: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5 Firefighting measures.

Extinguishing media:

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Extremely flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products: Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6 Accidental release measures.

Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in “For nonemergency personnel”.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up:

Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7 Handling and storage.

Precautions for safe handling:

Protective measures: Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

Section 8 Exposure controls/personal protection.

Control parameters, occupational exposure limits:

Ingredient name	Exposure limits
Butane	NIOSH REL (United States, 10/2013). TWA: 800 ppm 10 hours. TWA: 1900 mg/m³ 10 hours. ACGIH TLV (United States, 6/2013). STEL: 1000 ppm 15 minutes.
2-Propanol	ACGIH TLV (United States, 6/2013). TWA: 200 ppm 8 hours. STEL: 400 ppm 15 minutes. NIOSH REL (United States, 10/2013). TWA: 400 ppm 10 hours. TWA: 980 mg/m³ 10 hours. STEL: 500 ppm 15 minutes. STEL: 1225 mg/m³ 15 minutes. OSHA PEL (United States, 2/2013). TWA: 400 ppm 8 hours. TWA: 980 mg/m³ 8 hours
Propane	NIOSH REL (United States, 10/2013). TWA: 1000 ppm 10 hours. TWA: 1800 mg/m³ 10 hours. OSHA PEL (United States, 2/2013). TWA: 1000 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.

Appropriate engineering controls: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures:

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with sideshields.

Skin protection:

Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9 Physical and chemical properties.

Appearance:

Physical state:	Liquid.
Color:	Not available.
Odor:	Not available.
Odor threshold :	Not available.
pH:	7
Melting point:	Not available.
Boiling point:	Not available.
Flash point:	Closed cup: -29°C (-20.2°F) [Pensky-Martens Closed Cup]
Evaporation rate:	1.44 (butyl acetate = 1)
Flammability (solid, gas):	Not available.

Lower and upper explosive (flammable) limits:	Lower: 1.9% Upper: 12.7%
Vapor pressure:	13.5 kPa (101.325 mm Hg) [at 20°C]
Vapor density:	1 [Air = 1]
Relative density:	0.92
Solubility:	Not available.
Partition coefficient: n- octanol/ water:	Not available.
Auto-ignition temperature:	Not available.
Decomposition temperature:	Not available.
Viscosity:	Kinematic (40°C (104°F)): <0.07 $cm^{2/s}$ (>7 cSt)

Aerosol product:

Type of aerosol:	Spray
Heat of combustion:	6.056 kJ/g

Section 10 Stability and reactivity.

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable.
Possibility of hazardous reactions:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid:	Avoid all possible sources of ignition (spark or flame).
Incompatible materials:	No specific data.
Hazardous decomposition products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological information.

Information on toxicological effects:

Acute toxicty:

Product/ingredient name	Result	Species	Dose	Exposure
Butane	LC50 Inhalation Vapor	Rat	658000 mg/m³	4 hours
2-Propanol	LD50 Dermal LD50 Oral	Rabbit Rat	12800 mg/kg 5000 mg/kg	- -
Sodium Bicarbonate	LD50 Oral	Rat	4220 mg/kg	-

Irritation/corrosion:

Product/ingredient name	Result	Species	Score	Exposure	Observation
2-Propanol	Eyes - Moderate irritant Eyes - Moderate irritant Eyes - Severe irritant Skin - Mild irritant	Rabbit Rabbit Rabbit Rabbit	- - - -	24 hours 100mg 10mg 100mg 500mg	
Sodium Bicarbonate	Eyes - Mild irritant Skin - Mild irritant	Rabbit Human	- -	0.5 minutes 100mg 72 hours 30mg Intermittent	- -

Sensitization:

Not available.

Mutagenicity:

Not available.

Carcinogenicity:

Not available.

Classification:

Product/ingredient name	OSHA	IARC	NTP
2-Propanol	-	3	-

Reproductive toxicity:

Not available.

Teratogenicity:

Not available.

Specific target organ toxicity (single exposure):

Name	Category	Route of exposure	Target organs
Butane	3	Not applicable.	Respiratory tract irritation and narcotic effects.
2-Propanol	3	Not applicable.	Respiratory tract irritation and narcotic effects.
Propane	3	Not applicable.	Respiratory tract irritation and narcotic effects.

Specific target organ toxicity (repeated exposure):

Name	Category	Route of exposure	Target organs
Butane	2	Not determined.	Not determined.
2-Propanol	2	Not determined.	Not determined.
Propane	2	Not determined.	Not determined.

Aspiration hazard:

Name	Result
Propane	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure: Not available.

Potential acute health effects:

Eye contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical, and toxicological characteristics:

Eye contact: Adverse symptoms may include the following:
irritation
redness

Inhalation: Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact: No specific data.

Ingestion: No specific data.

Delayed and immediate effects and also chronic effects from short term exposure:

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Delayed and immediate effects and also chronic effects from long term exposure:

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Potential chronic health effects:

Chronic health effects: Not available.

General: May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity.

Acute toxicity estimates:

Route	ATE value
Oral	52884.9 mg/kg

Section 12 Ecological information.

Toxicity:

Product/ingredient name	Result	Species	Exposure
2-Propanol	Acute LC50 1400000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 1400000 µg/l	Fish - Gambusia affinis	96 hours

Product/ingredient name	Result	Species	Exposure
Sodium Bicarbonate	Acute EC50 650000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute LC50 767.87 mg/l Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 7550 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
	Chronic NOEC 576 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	3 weeks

Persistence and degradability:

Not available.

Bioaccumulative potential:

Not available.

Mobility in soil:

Soil/water partition coefficient (K_{OC}): Not available.

Other adverse effects: No known significant effects or critical hazards.

Section 13 Disposal considerations.

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14 Transport information.

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1950	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS, flammable	AEROSOLS
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY	Special provisions (ERG#126)	Special provisions LIMITED QUANTITY	Emergency schedules (EmS) LIMITED QUANTITY, F-D, S-U

Special precautions for user: Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

Section 15 Regulatory information.

U.S. Federal regulations:

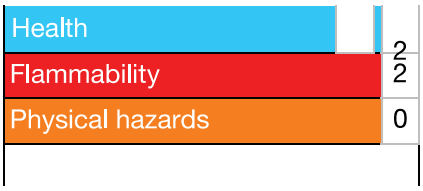
State regulations:

California Prop. 65: WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16 Other information.

Prepared on: May 20, 2015

Hazardous Material Information System (U.S.A.):



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

Notice to reader:

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

GHS
SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

MANUFACTURER/SUPPLIER
GNB Industrial Power
A division of Exide Technologies
3950 Sussex Avenue
Aurora, IL 60504-7932

FOR FURTHER INFORMATION
Primary Contact:
Exide SDS Support (770) 421-3485
Secondary Contact:
Joe Bolea (423) 989-6377
Fred Ganster (610) 921-4052

CHEMICAL/TRADE NAME (as used on label): PDX 57 Flooded Lead Acid Battery

PRODUCT ID: UN2794

CHEMICAL FAMILY/ CLASSIFICATION: Electric Storage Battery

FOR EMERGENCY
CHEMTREC (800) 424-9300
(703) 527-3887 – Collect
24-hour Emergency Response Contact
Ask for Environmental Coordinator

II. HAZARD IDENTIFICATION

Signal Word: Danger

Category:		GHS Codes	Description
		H302	Harmful if swallowed.
		H314	Causes severe skin burns and eye damage.
		H332	Harmful if inhaled.
		H360	May damage fertility or the unborn child.
		H373	May cause damage to organs through prolonged or repeated exposure.
Health:	**STOT RE 2**	H220	Extremely flammable gas (hydrogen)
	Acute Tox. 4	H410	Very toxic to aquatic life with long lasting effects.
	Repr. 1A	P260	Do not breathe dust/fume/gas/mist/vapors/spray.
	Skin Corr. 1A	P301/330/331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
	Flamm Gas 1	P303/361/353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
	Aquatic Acute 1	P304/340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	Aquatic Chronic 1	P305/351/338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P310	Immediately call a POISON CENTER or doctor/physician.
Handling:		P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking
		P260	Do not breathe dust/fume/gas/mist/vapors/spray
		P264	Wash thoroughly after handling.
		P280	Wear protective gloves/protective clothing/eye protection/face protection.
		P403	Store in well-ventilated area
		P405	Store locked up.
		P391	Collect spillage
		P273	Avoid release to the environment
		P501	Dispose of contents/container in accordance with local/regional/national/international regulation.

WARNING: Batteries subjected to abusive charging at excessively high currents for prolonged periods of time without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.

Reactivity: Organic materials, chlorates, carbides, fulminates, water, powdered metals. Reacts violently with water with evolution of heat. Corrosive to metals. Strong oxidizers, hydrogen peroxide, acids.

III. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	*CAS Number*	*% by Wt.*
Inorganic compounds of:		
Lead	7439-92-1	75-80
Copper	7440-50-8	1-3
Electrolyte (sulfuric acid)	7664-93-9	15-20
Case Material:		
Polypropylene (liner)	9003-07-0	<1
Polycarbonate (cover, jar)	25766-59-0	4-6
Polyethylene (braces)	9002-88-4	<1
Rubber Separator	N/A	1-3

Note:

Inorganic lead and electrolyte (water and sulfuric acid solution) are the primary components of every battery manufactured by Exide Technologies or its subsidiaries. Other ingredients may be present dependent upon battery type.

IV. FIRST AID MEASURES

Take proper precautions to ensure you own health and safety before attempting to rescue a victim and provide first aid.

Inhalation: Electrolyte: Remove to fresh air immediately. If breathing is difficult, give oxygen.
Lead/copper compounds: Remove from exposure, gargle, wash nose and lips; consult physician.

Skin Contact: Electrolyte: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes, and do not wear again until cleaned. If acid is splashed on shoes, remove and discard if they contain leather.
Lead/copper compounds: Wash immediately with soap and water. Lead compounds are not readily absorbed through the skin.

Eye Contact: Electrolyte and Lead/copper compounds: Flush immediately with large amounts of water for at least 15 minutes; consult physician immediately.

Ingestion: Electrolyte: Give large quantities of water; **do not** induce vomiting; consult physician.
Lead/copper compounds: Consult physician immediately.

V. FIRE FIGHTING MEASURES

Flash Point: Not Applicable

Flammable Limits: LEL = 4.1% (hydrogen gas in air) ; UEL = 74.2%

Extinguishing media: CO_2; foam; dry chemical

Fire Fighting Procedures:

Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but, note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Hazardous Combustion Products:

In operation, or when on charge, batteries generate and release flammable hydrogen and oxygen gases (hydrogen is highly flammable and oxygen supports combustion). They must always be assumed to contain this gas which, if ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery.

VI. ACCIDENTAL RELEASE MEASURES

Remove combustible materials and all sources of ignition. Stop flow of material and contain spill by diking with soda ash, etc. Carefully neutralize spill with soda ash, etc. Make certain mixture is neutral then collect residue and place in a drum or other suitable container with a label specifying "contains hazardous waste" or (if uncertain call distributor regarding proper labeling procedures). Dispose of as hazardous waste. If battery is leaking, place battery in a heavy duty plastic bag. Wear acid resistant boots, face shield, chemical splash goggles and acid resistant gloves. ***Do not allow discharge of acid to sewer.*** Acid must be managed in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

VII. HANDLING AND STORAGE

Handling:

Single batteries pose no risk of electric shock but there may be increasing risk of electric shock from strings of connected batteries exceeding three 12-volt units. Batteries are non-spillable - potential for exposure to contents only during recycling or if outer casing is cracked or damaged.

Storage:

Store batteries under roof in cool, dry, well-ventilated areas that are separated from incompatible materials and from activities which may create flames, sparks, or heat. Keep away from metallic objects that could bridge the terminals on a battery and create a dangerous short-circuit.

Charging:

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

VIII. EXPOSURE CONTROLS AND PERSONAL PROTECTION

	Occupational Exposure Limits (mg/m^3)					
Ingredient:	US OSHA	US ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Inorganic forms of:						
Lead	0.05	0.05	0.05	0.05	0.05	0.15(b)
Copper	1	1	1	1	1(a)	0.1(d)
Electrolyte (sulfuric acid/water solution)	1	0.2	1	1	0.2	0.05(c)

NOTES:

(a) as dusts/mists

(b) as inhalable aerosol

(c) thoracic fraction

(d) based on OEL for Netherlands

Engineering Controls (Ventilation):

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.
Handle batteries cautiously. Make certain vent caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when charging or handling batteries. Follow all manufacturers' recommendations when stacking or palletizing. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Use a battery carrier to lift a battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of the batteries.

Hygiene Practices:

Wash hands thoroughly before eating, drinking or smoking after handling batteries.

Respiratory Protection (NIOSH/MSHA approved):

None required under normal conditions. If an overcharging or overheating condition exists and concentrations of sulfuric acid mist are known or suspected to exceed PEL, use NIOSH or MSHA-approved respiratory protection.

Skin Protection:

None required under normal conditions. If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing, and boots.

Eye Protection:

None required under normal conditions. If battery case is damaged, chemical goggles or face shield.

Other Protection:

In areas where water and sulfuric acid solutions are handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

IX. PHYSICAL AND CHEMICAL PROPERTIES - ELECTROLYTE

Boiling Point@760 mm Hg	219 to 237° F	Specific Gravity @ 77°F (H_2O=1)	1.1394 to 1.3028
Melting Point	Not Applicable	Vapor Pressure (mm Hg)	13.5 to 20.8
% Solubility in Water	100	pH	Greater than 1
Evaporation Rate (Butyl acetate=1)	Less Than 1	Vapor Density (AIR=1)	Greater than 1
		Viscosity	Not applicable
Appearance and Odor Threshold	Sulfuric Acid: A clear liquid with a sharp, penetrating, pungent odor. A battery is a manufactured article; no apparent odor.	% Volatiles by Volume @70°F	Not Applicable
Octanol Water Partition Coefficient (K_{ow})	Not Applicable		

Note: The properties above reflect 20-40% Sulfuric acid

X. STABILITY & REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Prolonged overcharging and overheating current; sparks and other sources of ignition.

Incompatibilities: (materials to avoid)

Electrolyte: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, most metals, carbides, chlorates, nitrates, picrate, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas. No further concern for mechanical impact.

Lead compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, potassium, carbides, sulfides phosphorus, sulfur and reducing agents.

Copper compounds: Avoid contact with oxidizers, alkalis, sodium azide, and acetylene. No further concern for mechanical impact.

Hazardous Decomposition Products:

Electrolyte: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide, hydrogen.

Lead compounds: Temperatures above the melting point are likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous Polymerization: Will Not Occur

XI. TOXICOLOGICAL DATA

Routes of Entry:

Electrolyte: Harmful by all routes of entry. Under normal conditions of use, sulfuric acid vapors and mist are not generated. Sulfuric acid vapors and mist may be generated when product is overheated, oxidized, or otherwise processed or damaged.

Lead compounds: Under normal conditions of use, lead dust, vapors, and fumes are not generated. Hazardous exposure can occur only when product is heated above the melting point, oxidized or otherwise processed or damaged to create dust, vapor, or fume.

Copper compounds: Under normal conditions of use, copper dust/fumes/vapors are not generated. Hazardous exposure can occur only when product is heated above melting point, oxidized or otherwise processed or damaged to create dust, vapor, or fume.

Acute Toxicity:

Inhalation LD_{50}:
Electrolyte: LC_{50} rat: 375 mg/m^3; LC_{50}: guinea pig: 510 mg/m^3
Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
Copper: LC_{50} rat: 2.77-2.83 mg/L

Oral LD_{50}:
Electrolyte: rat: 2140 mg/kg
Elemental lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)
Copper: LD_{50}: >2500 mg/kg

Inhalation:

Electrolyte: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.
Lead compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.
Copper compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Electrolyte: May cause severe irritation of mouth, throat, esophagus, and stomach.
Lead compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea, and severe cramping. This may lead rapidly to systemic toxicity. Acute ingestion should be treated by physician.
Copper compounds: Acute symptoms include a metallic taste

Skin Contact:

Electrolyte: Severe irritation, burns, and ulceration. Sulfuric acid is not readily absorbed through the skin and is not a dermal sensitizer.
Lead compounds: Not readily absorbed through the skin and is not a dermal sensitizer.
Copper compounds: May cause irritation to skin.

Eye Contact:

Electrolyte: Severe irritation, burns, cornea damage, blindness.
Lead compounds: May cause eye irritation.
Copper compounds: May cause irritation to eyes.

Synergistic Products:

Electrolyte: No known synergistic products

Lead compounds: Synergistic effects have been noted with heavy metals (arsenic, cadmium, mercury), N-nitroso-N-(hydroxyethyl)ethylamine, N-(4-fluoro-4-biphenyl)acetamide, 2-(nitrosoethylamine)ethanol, and benzo[a]pyrene.
Copper: Exposure to dietary cadmium, ferrous iron, and stannous tin can result in decreased copper absorption

Additional Information:
Medical Conditions Generally Aggravated by Exposure:
Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of electrolyte (water and sulfuric acid solution) with skin may aggravate skin diseases such as eczema and contact dermatitis. Contact of electrolyte (water and sulfuric acid solution) with eyes may damage cornea and/or cause blindness. Lead and its compounds can aggravate some forms of kidney, liver, and neurologic diseases.

Additional Health Data:
All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section VIII. Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the work site. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home nor laundered with personal non-contaminated clothing.

This product is intended for industrial use only and should be isolated from children and their environment.

XII. ECOLOGICAL INFORMATION

Environmental Fate: lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid:	24-hr LC_{50}, freshwater fish (*Brachydanio rerio*): 82 mg/L
	96 hr- LOEC, freshwater fish (*Cyprinus carpio*): 22 mg/L
Lead:	48 hr LC_{50} (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion
Copper:	96 hr LC_{50}, freshwater fish (*Cyprinus carpio*): 0.81 mg/L

XIII. DISPOSAL INFORMATION

US

Sulfuric Acid:	Neutralize as described above for a spill, collect residue and place in a container labeled as containing hazardous waste. Dispose of as a hazardous waste. If uncertain about labeling procedures, call your local battery distributor or listed contact. DO NOT FLUSH LEAD CONTAMINATED ACID TO SEWER.
Spent batteries	Send to secondary lead smelter for recycling following applicable federal, state, and local regulations.

XIV. TRANSPORT INFORMATION

GROUND – US-DOT/CAN-TDG/EU-ADR/APEC-ADR:
Batteries, Wet, Filled with Acid
UN 2794, 8, PG III
Label: "Corrosive"

AIRCRAFT – ICAO-IATA:
Batteries, Wet, Filled with Acid
UN 2794, 8
Label: "Corrosive"
Reference IATA packing instructions 870

VESSEL – IMO-IMDG:
Batteries, Wet, Filled with Acid
UN 2794, 8
Label: "Corrosive"
Reference IMDG packing instructions P801

Additional Information:
- Batteries must be kept upright at all times and packaged as required to prevent short circuits.
- Transport may require packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as-shipped.

XV. REGULATORY INFORMATION

United States:
EPA SARA Title III
Section 302 EPCRA Extremely Hazardous Substances (EHS):
Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of

1,000 lbs.

EPCRA Section 302 notification is required if **500 lbs** or more of sulfuric acid is present at one site (40 CFR 370.10). An average automotive/commercial battery contains approximately 5 lbs of sulfuric acid. Contact your Exide representative for additional information.

Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is **1,000 lbs**. State and local reportable quantities for spilled sulfuric acid may vary.

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of **500 lbs** or more and/or if lead is present in quantities of **10,000 lbs** or more.

Section 313 EPCRA Toxic Substances:

Supplier Notification: This product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of (Title) III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical	CAS	Percent by Weight
Lead (Pb)	7439-92-1	75-80
Electrolyte: Sulfuric Acid (H_2SO_4)	7664-93-9	15-20
Copper (Cu)	7740-50-8	1-3

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year. **Note:** The Section 313 supplier notification requirement does not apply to batteries that are "consumer products".

TSCA: Each ingredient chemical listed in Section III of this SDS is also listed on the TSCA Registry.

OSHA: Considered hazardous under Hazard Communication Act (29CFR1910.1200)

RCRA: Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity).

CAA: Exide Technologies supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, Exide established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

NFPA Hazard Rating for sulfuric acid:

Flammability (Red)	=	0
Health (Blue)	=	3
Reactivity (Yellow)	=	2

US State Notifications & Warnings:	**Identification**	**Notifications/Warning**
California	California Proposition 65	"WARNING: This product contains lead, a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm."
		Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.
		The following chemicals identified to exist in the finished product as distributed into commerce are known to the State of California to cause cancer, birth defects or to cause reproductive harm: 1. Strong inorganic acid mists including sulfuric acid; CAS #: NA; 15-20% wt 2. Lead – CAS No. 7439-92-1; 75-80% wt.
	Consumer Product Volatile Organic Compound Emissions	This product is not regulated as a consumer product for purposes of CARB/OTC VOC Regulations, as sold for the intended purpose and into the industrial/commercial supply chain.

Country/Organization	**Identification**	**Notifications/Warning**
Canada	All chemical substances in this product are listed on the CEPA DSL/NDSL or are exempt from list requirements.	"This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

		Refer to the Controlled Products Regulation for product labeling requirements
	NPRI and Ontario Regulation 127/01	This product contains the following chemicals subject to the reporting requirements of Canada NPRI and/or Ont. Reg. 127/01: Chemical — CAS # — %wt Lead — 7439-92-1 — 75-80 Sulfuric acid — 7664-93-9 — 15-20 Copper — 7440-50-8 — 1-3
	Toxic Substances List	Lead
EU	European Inventory of Existing Commercial Chemical Substances (EINECS):	All ingredients remaining in the finished product as distributed into commerce are exempt from, or included on, the European Inventory of Existing Commercial Chemical Substances.

XVI. OTHER INFORMATION

DATE ISSUED: September 11, 2013

OTHER INFORMATION:	Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2). Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.
SOURCES OF INFORMATION:	International Agency for Research on Cancer (1987), IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Overall Evaluations of Carcinogenicity: An updating of IARC Monographs Volumes 1-42, Supplement 7, Lyon, France. Ontario Ministry of Labor Regulation 654/86. Regulations Respecting Exposure to Chemical or Biological Agents.

PREPARED BY: GNB INDUSTRIAL POWER
A DIVISION OF EXIDE TECHNOLOGIES
3950 SUSSEX AVENUE
AURORA, IL 60504-7932

PRODUCT SAFETY DATA SHEET
PSDS No. 1.1
FLUORESCENT LAMPS

SYLVANIA brand Fluorescent Lamps, manufactured by OSRAM / OSRAM SYLVANIA, are exempted from the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) because they are "articles." The following information is provided by OSRAM SYLVANIA as a courtesy to its customers.

I. PRODUCT IDENTIFICATION

Trade Name: **SYLVANIA Fluorescent Lamps**

- This data sheet covers Sylvania linear "White" (Cool White, Warm White, Daylight, etc; 700, 800, 900 series triphosphor) standard, " Sylvania ECO" brand, and Safeline®① linear, T12 & Octron Curvalume® (6" spacing), and T9 Circline fluorescent lamps for general lighting.
- This data sheet does **not** cover compact fluorescent②, Pentron③ (T5), plant, aquarium/vivarium, photocopy, germicidal, blacklight, or any colored or other special application fluorescent lamps.

①Safeline lamps are encased in a Polyethylene Terephthalate (PET) heat shrinkable tubing manufactured by EncapSulite International Inc., Stafford, TX.
②See PSDS No. 1.1.5 for Compact Fluorescent Lamps.
③See PSDS No. 1.1.8 for Pentron Fluorescent Lamps.

Manufacturer: OSRAM SYLVANIA 100 Endicott Street Danvers, MA 01923 Phone: (978) 777-1900

II. HAZARDOUS INGREDIENTS:

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT.
If the lamp is broken, the following materials may be released:

Chemical Name	CAS Number	% by Wt.	Exposure Limits in Air (mg/M^3) ACGIH (TLV)	OSHA (PEL)
Glass (soda-lime)	----	75-95	10(2)	15(2)
Mercury(1,4)	7439-97-6	0.002-0.02	0.025	0.1 Ceiling
Aluminum Oxide	001-344-281	0-2.0	10(2)	15(2)
Fluorescent Phosphor and cathodes may contain:	----	0.5-3.0	10(2)	15(2)
Fluoride (as F)	----	0-0.1	2.5	2.5
Manganese(3) (as dust)	7439-96-5	0-0.1	0.2	5.0 Ceiling
Tin(3) (as dust)	7440-31-5	0-0.1	2.0	2.0
Yttrium(3) (as dust)	7440-65-5	0-0.5	1.0	1.0
Barium(3) (as dust)	7440-39-3	<0.1	0.5	0.5
Tungsten(3) (as dust)	7440-33-7	<0.1	1	15(2)
Strontium(3) (as dust)	7440-24-6	0-0.1	10(2)	15(2)
Magnesium(3) (as dust)	7439-95-4	0-0.1	10(2)	15(2)
Calcium(3) (as dust)	----	0-0.1	10(2)	15(2)
Antimony(3) (as dust)	7440-36-0	0-0.1	0.5	0.5
Zinc(3) (as dust)	7440-66-6	0-0.1	10(2)	15(2)
Europium(3) (as dust)	7440-53-1	0-0.1	10(2)	15(2)
Cerium(3) (as dust)	7440-45-1	0-0.1	10(2)	15(2)
Lanthanum(3) (as dust)	7439-91-0	0-0.1	10(2)	15(2)
Terbium(3) (as dust)	7440-27-9	0-0.1	10(2)	15(2)
Aluminum(3) (as dust)	7429-90-5	0-0.1	10(2)	15(2)
6" Curvalume® U-shaped Lamps contain a center support strap consisting of all, or a portion of the following:	----	~02.9	Within permissible exposure limits	
Carbonic Acid, Polymer with 4,4'-(1-methylethylidene) bis (2,6-dibromophenol) and 4,4'-(1-methylethylidene) bis [phenol]	32844-27-2			
Fiber Glass	1333-86-4			
Titanium Dioxide	13463-67-7			

(1) These chemicals are subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
(2) Limits as nuisance particulate.
(3) These elements are contained in the material as part of its chemical structure; the material is not a mixture.
(4) The mercury in this product ia a substance known to the state of California to cause reproductive toxicity if ingested. [California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).]

III. PHYSICAL PROPERTIES : Not applicable to intact lamp.

IV. FIRE & EXPLOSION HAZARDS

Flammability: Non-combustible.
Fire Extinguishing Materials: Use extinguishing agents suitable for surrounding fire.
Special Firefighting Procedure: Use a self-contained breathing apparatus to prevent inhalation of dust and/or fumes that may be generated from broken lamps during firefighting activities.
Unusual Fire and Explosion Hazards: When exposed to high temperature, toxic fumes may be released from broken lamps.

V. HEALTH HAZARDS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT. No adverse effects are expected from occasional exposure to broken lamps. As a matter of good practice, avoid prolonged or frequent exposure to broken lamps unless there is adequate ventilation. The major hazard from broken lamps is the possibility of sustaining glass cuts.

***NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards* and/or *NIOSH Pocket Guide to Chemical Hazards* lists the following effects of overexposure to the chemicals/materials tabulated below when they are inhaled, ingested, or contacted with skin or eye:**

Mercury - Contact, inhalation, or ingestion may cause one or more of the following symptoms: eye irritation, skin irritation, cough, chest pain, dyspnea, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, GI tract disturbance, anorexia, weight loss, and proteinuria.

Glass - Glass dust is considered to physiologically inert and as such has an OSHA exposure limit of 15 mg/M^3 for total dust and 5 mg/M^3 for respirable dust. The ACGIH TLVs for particulates not otherwise classified are 10 mg/M^3 for total dust and 3 mg/M^3 for respirable dust.

Tin - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, and respiratory system irritation.

Manganese - Contact, ingestion, or inhalation may cause one or more of the following symptoms: Parkinson's, asthenia, insomnia, mental confusion, metal fume fever, dry throat, cough, chest tightness, dyspnea, rales, flu-like fever, low-back pain, vomiting, malaise, fatigue, and kidney damage.

Fluoride - Fluoride-containing dust may cause irritation of the eyes and respiratory tract. Swallowing fluoride may cause a salty or soapy taste, vomiting, abdominal pain, diarrhea, shortness of breath, difficulty in speaking, thirst, weakness of the pulse, disturbed color vision, muscular weakness, convulsions, loss of consciousness, and death. Kidney injury and bleeding from the stomach may occur. Repeated exposure to fluoride may cause excessive calcification of the bone and calcification of ligaments of the ribs, pelvis, and spinal column. Stiffness and limitation of motion may result. Repeated or prolonged exposure of the skin to fluoride-containing dust may cause a skin rash.

Aluminum Oxide (Alumina) - Alumina is a non-toxic material. Sharp-edged particles can irritate the eyes, skin, and respiratory system.

Phosphor - Phosphor dust is considered to be physiologically inert and as such has an OSHA exposure limit of 15 mg/cubic meter for total dust and 5 mg/cubic meter for respirable dust.

Yttrium - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, pulmonary irritation, and possible liver damage.

Barium (soluble compounds) - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, upper respiratory system irritation, skin burns, gastroenteritis, muscle spasm, slow pulse, extrasystole, and hypokalemia.

Tungsten - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, respiratory system irritation, diffuse pulmonary fibrosis, loss of appetite, nausea, cough, and blood changes.

Antimony - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, nose irritation, throat irritation, mouth irritation, cough, dizziness, headache, nausea, vomiting, diarrhea, stomach cramps, insomnia, anorexia, and unable to smell properly.

V. HEALTH HAZARDS (Continued)

EMERGENCY AND FIRST AID PROCEDURES

Glass Cuts: Perform normal first aid procedures. Seek medical attention as required.
Inhalation: If discomfort, irritation or symptoms of pulmonary involvement develop, remove from exposure and seek medical attention.
Ingestion: In the unlikely event of ingestion of a large quantity of material, seek medical attention.
Contact, Skin: Thoroughly wash affected area with mild soap or detergent and water and prevent further contact. Seek medical attention if irritation occurs.
Contact, Eye: Wash eyes, including under eyelids, immediately with copious amounts of water for 15 minutes. Seek medical attention.

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER): None

VI. REACTIVITY DATA

Stability: Stable
Conditions to avoid: None for intact lamps.
Incompatibility (materials to avoid): None for intact lamps.
Hazardous Decomposition Products (including combustion products): None for intact lamps.
Hazardous Polymerization Products: Will not occur.

VII. PROCEDURES FOR DISPOSAL OF LAMPS

OSRAM SYLVANIA recommends that all mercury-containing lamps be recycled. For a list of lamp recyclers and to obtain state regulatory disposal information, log onto www.lamprecycle.org.

If lamps are broken, ventilate area where breakage occurred. Clean-up with a special mercury vacuum cleaner (not a standard vacuum cleaner) or other suitable means that avoids dust and mercury vapor generation. Take usual precautions for collection of broken glass. Clean-up requires special care due to mercury droplet proliferation. Place materials in closed containers to avoid generating dust.

It is the responsibility of the waste generator to ensure proper classification and disposal of waste products. To that end, TCLP tests should be conducted on all waste products, including this one, to determine the ultimate disposition in accordance with applicable federal, state and local regulations. Some states have specific disposal requirements for lamps containing mercury.

Lamps which pass the EPA's TCLP test are considered non-hazardous waste in most states. Always review your local and state regulations which can vary. Based upon the NEMA* Standard LL 1 (*Procedures for Linear Fluorescent Lamp Sample Preparation and the TCLP*) testing protocol, ECOLOGIC® lamps, marked "ECO," pass the TCLP test.

*NEMA (National Electrical Manufacturers Association) standard may be obtained from NEMA, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209.

VIII. SPECIAL HANDLING INFORMATION - FOR BROKEN LAMPS

Ventilation: Use adequate general and local exhaust ventilation to maintain exposure levels below the PEL or TLV limits. If such ventilation is unavailable, use respirators as specified below.
Respiratory Protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the pertinent PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.
Eye Protection: OSHA specified safety glasses, goggles or face shield are recommended if lamps are being broken.
Protective Clothing: OSHA specified cut and puncture resistant gloves are recommended for dealing with broken lamps.
Hygienic Practices: After handling broken lamps, wash hands and face thoroughly before eating, smoking or handling tobacco products, applying cosmetics, or using toilet facilities.

Issue Date: July 27, 2012 Supersedes: April 26, 2011
Rev G. (Osram SYLVANIA name/logo edits)

In case of questions, please call:
OSRAM SYLVANIA Inc.
Product Safety Engineer
(978) 777-1900

SAFETY DATA SHEET

CITGO AW Hydraulic Oil 100

Section 1. Identification

GHS product identifier : CITGO AW Hydraulic Oil 100

Synonyms : Hydraulic Fluid

Code : 633440001

Supplier's details : CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210
sdsvend@citgo.com

Emergency telephone number : Technical Contact: (800) 248-4684
Medical Emergency: (832) 486-4700
CHEMTREC Emergency: (800) 424-9300
(United States Only)

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : Warning

Hazard statements : Injection under the skin can cause severe injury.
Most damage occurs in the first few hours.
Initial symptoms may be minimal.

Precautionary statements

General : Avoid contact with eyes, skin and clothing. MAY BE HARMFUL IF SWALLOWED. IF IN EYES: Rinse cautiously with water for several minutes. IF SWALLOWED: After handling, wash hands, contacted skin and soiled clothing thoroughly with soap and water. Keep out of reach of children.

Prevention : Not applicable.

Response : Not applicable.

Storage : Store in a dry place and/or in closed container. Store in accordance with all local, regional, national and international regulations.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : Injection of petroleum hydrocarbons requires immediate medical attention

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Hydraulic Fluid

CAS number/other identifiers

CAS number : Not applicable.

Section 3. Composition/information on ingredients

Any concentration shown as a range is to protect confidentiality or is due to process variation.

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : Injection of pressurized hydrocarbons can cause severe permanent tissue damage. Initial symptoms may be minor.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : Treat symptomatically and supportively.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Section 5. Fire-fighting measures

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Bulk Storage Conditions: Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None identified.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Physical state : Liquid.

Color : Light Amber to Amber [Light]

Odor : Mild petroleum odor [Slight]

pH : Not available.

Boiling point : Not applicable.

Flash point : Open cup: 244°C (471.2°F) [Cleveland.]

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : <0.0013 kPa (<0.01 mm Hg) [room temperature]

Vapor density : >1 [Air = 1]

Relative density : Not available.

Density lbs/gal : 7.36 lbs/gal

Gravity, °API : 30.3 @ 60F F

Viscosity : Kinematic (40°C (104°F)): 0.98 cm^2/s (98 cSt)

Viscosity SUS : 450 SUS @100 F

Section 10. Stability and reactivity

Reactivity : Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary : **Distillates (petroleum), hydrotreated heavy paraffinic**: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.

Irritation/Corrosion

Skin : No additional information.

Eyes : No additional information.

Respiratory : No additional information.

Sensitization

Skin : No additional information.

Respiratory : No additional information.

Mutagenicity

Conclusion/Summary : No additional information.

Carcinogenicity

Conclusion/Summary : No additional information.

Reproductive toxicity

Conclusion/Summary : No additional information.

Teratogenicity

Conclusion/Summary : No additional information.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Section 11. Toxicological information

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : Injection of pressurized hydrocarbons can cause severe permanent tissue damage. Initial symptoms may be minor.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Potential chronic health effects

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Conclusion/Summary : Not available.

Persistence and degradability

Conclusion/Summary : Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

Clean Water Act (CWA) 307: Zinc and zinc compounds; toluene; phenol; lead; Cadmium (Non-pyrophoric); benzene

Clean Water Act (CWA) 311: toluene; phenol; benzene

This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

SARA 302/304

Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

Section 15. Regulatory information

WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer.
WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
toluene	<0.01	No.	Yes.	No.	7000 µg/day (ingestion)
ethyl acrylate	<0.0001	Yes.	No.	No.	No.
lead	trace	Yes.	Yes.	15 µg/day (ingestion)	Yes.
Cadmium (Non-pyrophoric)	trace	Yes.	Yes.	0.05 µg/day (inhalation)	4.1 µg/day (ingestion)
benzene	trace	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Canada inventory : All components are listed or exempted.

EU Inventory : All components are listed or exempted.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

Section 16. Other information

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision : 11/24/2014.

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships,

Section 16. Other information

1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

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SDS Date: April, 2015

Safety Data Sheet

Per GHS Standard Format

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: LBC (Lead Barrier Compound) No. 5800, No. 5801 White, 5800 Antique Linen (or 5899 Custom tint)
Recommended Use of Product: Lead Encapsulant

Information on the Supplier of the Safety Data Sheet

Manufactured For:
Fiberlock Technologies, Inc.
150 Dascomb Road
Andover, MA 01810
P: 800-342-3755 F: 978-475-6205

Emergency Telephone Numbers:
CHEM TEL: (U.S.): 1-800-255-3924
(Outside the U.S.): 813-248-0585
Poison Control Center (Medical): 800-222-1222

SECTION 2: HAZARDS IDENTIFICATION

Signal Word: **WARNING**

GHS Label Statements
Hazard Statements:
Harmful if inhaled.
Causes serious eye irritation.
May cause an allergic skin reaction.
Suspected of causing cancer.

GHS Classifications
This product is considered hazardous by The 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
Acute Toxicity-Inhalation (Vapors) Category 4
Acute Toxicity-Inhalation (Dust-mists) Category 2
Serious eye damage/eye irritation – Category 2
Skin sensitization – Category 1
Carcinogenicity – Category 2

PRECAUTIONARY STATEMENTS

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protection (eye protection, gloves) during application. When grinding/sanding dry films, wear respiratory protection.
Response: If on skin, wash with plenty of soap and water. If in eyes, rinse cautiously for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If inhaled, remove victim to fresh air. If exposed or concerned, get medical advice.
Storage: Keep closures tight and containers upright to prevent leakage. KEEP FROM FREEZING. Product is non-combustible.
Disposal: The coating and any contaminated diking material should be thoroughly air dried and collected into drums. The drums should be sealed and labeled and land-filled or incinerated according to local, regional and national regulations.
Hazards Not Otherwise Classified (NHOC): Not applicable
Unknown Toxicity: Over 70% of the mixture consists of ingredients of unknown toxicity.
Other Information: Toxic to aquatic life with long lasting effects. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight, %*
Titanium dioxide	13463-67-7	10-30
Calcium carbonate	1317-65-3	10-30
Propylene glycol	57-55-6	3-7
Chlorothalonil	1897-45-6	0.1-1
Methylchloroisothiazolinone	26172-55-4	0.1-1
Zinc oxide	1314-13-2	1-4

***The exact concentration of composition has been withheld as a trade secret.**

SECTION 4: FIRST AID MEASURES

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Skin Contact
Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction.

Inhalation
Remove to fresh air. If symptoms persist, call a physician. If breathing has stopped, give artificial respiration. Get medical attention immediately. If not breathing, give artificial respiration. Do not breathe dust.

Ingestion
Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Self-Protection of the First Aider
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid breathing vapors or mists.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects
Burning sensation. Coughing and/or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Notes to Physician
Treat symptomatically. May cause sensitization of susceptible persons.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media: CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical: Product is/or contains a sensitizer. May cause sensitization by skin contact.

Uniform Fire Code
Sensitizer: Liquid Toxic: Liquid

Hazardous Combustion Products: Carbon oxides

Explosion Data
Sensitivity to mechanical impact No.
Sensitivity to static impact No.

Protective Equipment and Precautions for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions: Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Avoid breathing vapors or mists. Avoid generation of dust.

Other Information: Refer to protective measures listed in Sections 7 & 8

Environmental Precautions

Environmental Precautions: Refer to protective measures listed in Sections 7 & 8.

Methods and Material for Containment and Cleaning Up

Methods for Containment: Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up: Immediately place absorbent material in a sealed water-filled metal container to avoid spontaneous combustion of absorbent material contaminated with this product. Pick up and transfer to properly labeled containers.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Avoid breathing vapors or mists. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash before reuse. Keep away from contact with clothing and other combustible materials to avoid fire.

Conditions for Safe Storage, Including any Incompatibilities

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

Incompatible Products: None known based on information supplied.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	*ACGIH TLV*	*OSHA PEL*	*NIOSH IDLH*
Titanium dioxide 13463-67-7	TWA: 10 mg/m3	TWA: 15 mg/m^3 total dust (vacated) TWA: 10 mg/m3 total dust	IDLH: 5000 mg/m3
Calcium carbonate 1317-65-3		TWA: 15mg/m^3 TWA: 5 mg/m^3 (vacated) TWA: 15 mg/m^3 (vacated) TWA: 5 mg/m^3	TWA: 5 mg/m^3 respirable dust TWA: 10 mg/m^3 total dust
Zinc oxide 1314-13-2	TWA: 5 mg/m^3	TWA: 5 STEL 100 CSI; 25 mg/m^3	No data available

ACGIH TLV: American Conference of Governmental Industrial Hygienists – Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration – Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters

Appropriate Engineering Controls

Engineering Measures: Showers / Eyewash Stations / Ventilation Systems

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection: If splashes are likely to occur, wear safety glasses with side shields (or goggles). None required for consumer use.

Skin and Body Protection: Wear protective gloves and protective clothing

Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Viscous liquid	**Odor:**	Very Slight
Appearance:	White	**Odor Threshold:**	No information available
Color:	No information available		

Property	Values	Remarks/Method
pH	8.5	None known
Melting/freezing point	No data available	None known
Boiling point/boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		
Upper flammability limit	No data available	None known
Lower flammability limit	No data available	None known
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	Miscible in water	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive properties	No data available	
Oxidizing properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle size	No data available

Particle size distribution	No data available

SECTION 10: STABILITY AND REACTIVITY

Reactivity
No data available

Conditions to Avoid
Excessive heat

Chemical Stability
Stable under recommended storage conditions

Incompatible Materials
None known based on information supplied

Possibility of Hazardous Reactions
None under normal processing

Hazardous Decomposition Products
Carbon oxides

Hazardous Polymerization
Hazardous polymerization does not occur

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information: Product does not present an acute toxicity hazard based on known or supplied information

Inhalation: Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation (based on components).

Eye Contact: Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. May cause redness, itching, and pain. May cause temporary eye irritation.

Skin Contact: Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

Ingestion: Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Component Information

Chemical Name	*Oral LD50*	*Dermal LD50*	*Inhalation LC50*
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)		

Propylene Glycol 57-55-6	= 20000 mg/kg (Rat)	= 20800 mg/kg (Rabbit)	
Chlorothalonil 1897-45-6		> 10 g/kg (Rabbit)	= 310 mg/m3 (Rat) 1 h
Methylchloroisothiazolinone 26172-55-4	= 481 mg/kg (Rat)	> 1008 mg/kg (Rat)	= 1.23 mg/L (Rat) 4 h
Zinc oxide – 1314-13-2	7950 mg/kg (Mouse)	No data available	No data available

Information on Toxicological Effects

Symptoms: May cause redness and tearing of the eyes, coughing and/or wheezing, itching, rashes and hives.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-Term Exposure

Sensitization: May cause sensitization of susceptible persons. May cause sensitization by skin contact.

Mutagenic Effects: No information available

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	*ACGIH*	*IARC*	*NTP*	*OSHA*
Titanium dioxide 13463-67-7		Group 2B		X
Chlorothalonil 1897-45-6		Group 2B		X

ACGIH (American Conference of Governmental Industrial Hygienists)
A2 – Suspected Human Carcinogen
IARC (International Agency for Research on Cancer)
Group 2B – Possibly Carcinogenic to Humans
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X-Present

Reproductive Toxicity, STOT Single Exposure, STOT Repeated Exposure: No information available

Chronic Toxicity: Titanium dioxide has been classified by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B) by inhalation. Contains a known or suspected carcinogen.

Target Organ Effects: Eyes, respiratory system, skin, gastrointestinal tract (GI) & lungs.

Aspiration Hazard: No information available

Numerical Measures of Toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	**ATEmix (inhalation-dust/mist)**
8,711.00 mg/kg	2.41 mg/l

ATEmix (dermal)
21,608.00 mg/kg (ATE)

ATEmix (inhalation-vapor)
16.00 ATEmix

ATEmix (inhalation-gas)
3,118.00 ppm (4hr)

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Toxic to aquatic life with long lasting effects

Chemical Name	*Toxicity to Algae*	*Toxicity to Fish*	*Toxicity to Microorganisms*	*Daphnia Magna (Water Flea)*
Propylene Glycol 57-55-6	96h EC50: = mg/L (Pseudokirchneriella Subcapitata)	96h LC50: = 51600 mg/L (Oncorhynchus mykiss) 96h LC50: 41-47 mL/L (Oncorhynchus mykiss) 96h LC50: 51400 mg/L (Pimephales promelas) 96h LC50: = 710 mg/L (Pimephales promelas)		24h EC50: > 10000 mg/L 48h EC50: > 1000 mg/L
Chlorothalonil 1897-45-6	72h EC50: = 0.57 mg/L (Desmodesmus Subspicatus) 72h EC50: = 0.0068 mg/L (Pseudokirchneriella Subcapitata)	96h LC50: = 0.012 mg/L (Oncorhynchus mykiss) 96h LC50: 0.0076 mg/L (Oncorhynchus mykiss) 96h LC50: 0.0221-0.032 mg/L (Lepomis macrochirus) 96h LC50: 0.045-0.057 mg/L (Lepomis macrochirus)		48h EC50: 0.0342-0.143 mg/L
Methylchloroisothiazolinone 26172-55-4	72h EC50: 0.11-0.16mg/L (Pseudokirchneriella Subcapitata) 96h EC50: 0.03-0.13 mg/L (Pseudokirchneriella subcapitata) 120h EC50: = 0.31 mg/L (Anabaena Flos-aquae)	96h LC50: = 1.6 mg/L (Oncorhynchus mykiss)	EC50 = 5.7 mg/L 16h	48th EC50: = 4.71 mg/L 48h EC50: 0.12-0.3 mg/L 48h EC50: 0.71-0.99 mg/L

Persistence and Degradability: No information available

Bioaccumulation

Chemical Name	*Log Pow*
Chlorothalonil 1897-45-6	2.9
Methylchloroisothiazolinone 26172-55-4	-0.71-0.75

Other Adverse Effects: No information available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal Methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered

material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging: Dispose of contents/containers in accordance with local regulations

California Hazardous Waste Codes: 331

SECTION 14: TRANSPORT INFORMATION

DOT	Not Regulated
Proper Shipping Name	Non-Regulated
Hazard Class	N/A

TDG

Un-No.	UN3082
Proper Shipping Name	Environmentally Hazardous Substance, Liquid, N.O.S.
Hazard Class	9
Packing Group	III
Description	UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), 9, III, Marine Pollutant

IATA

Un-No.	3082
Proper Shipping Name	Environmentally Hazardous Substance, Liquid, N.O.S.
Hazard Class	9
Packing Group	III
Description	UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), 9, III

IMDG/IMO

Un-No.	3082
Proper Shipping Name	Environmentally Hazardous Substance, Liquid, N.O.S.
Hazard Class	9
Packing Group	III
EmS No.	F-A, S-F
Marine Pollutant Description	Product is a marine pollutant according to the criteria set by IMDG/IMO UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), 9, III, Marine Pollutant

SECTION 15: REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL

TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical Name	*CAS No.*	*Weight - %*	*SARA 313 – Threshold Values %*
Chlorothalonil	1897-45-6	0.1-1	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

Chemical Name	*California Proposition 65*
Titanium dioxide – 13463-67-7	Carcinogen
Chlorothalonil – 1897-45-6	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	*New Jersey*	*Massachusetts*	*Pennsylvania*	*Rhode Island*	*Illinois*
Titanium dioxide – 13463-67-4	X	X	X		
Calcium carbonate – 1317-65-3	X	X	X		
Propylene Glycol – 57-55-6	X		X		
Chlorothalonil – 1897-45-6	X	X	X	X	
Zinc oxide – 1314-13-2	X	X	X		

International Regulations

Canada
WHMIS Hazard Class
D2A – Very toxic materials
D2B – Toxic materials

SECTION 16: OTHER INFORMATION

NFPA	Health Hazards 2	Flammability 0	Instability 0	Physical and Chemical Hazards Personal Protection
HMIS	Health Hazards 2*	Flammability 0	Physical Hazard 0	X

Chromic Hazard Star Legend * = Chronic Health Hazard

WARNING! If you scrape, sand or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear NIOSH-approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD (5323) or log on to: www.epa.gov/lead

LEAD METAL
SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product Identity: Lead Metal

Trade Names and Synonyms: Lead; Pb; Plumbum; Metallic Lead; Inorganic Lead; ASTM B29; TADANAC Lead, Low-Alpha Lead.

Manufacturer:
Teck Metals Ltd.
Trail Operations
Trail, British Columbia
V1R 4L8
Emergency Telephone: 250-364-4214

Supplier:
In U.S.:
Teck American Metal Sales Incorporated
501 North Riverpoint Blvd, Suite 300
Spokane, WA
USA, 99202

Other than U.S.:
Teck Metals Ltd.
#1700 – 11 King Street West
Toronto, Ontario
M5H 4C7

Preparer:
Teck Metals Ltd.
Suite 3300 – 550 Burrard Street
Vancouver, British Columbia
V6C 0B3

Date of Last Review: June 29, 2015.

Date of Last Edit: June 29, 2015.

Product Use: Used as a construction material for tank linings, piping, and equipment used in the manufacture of sulphuric acid and the refining and processing of petroleum; used in x-ray and atomic radiation shielding; used in the manufacture of paint pigments, organic and inorganic lead compounds, lead shot, lead wire for bullets, ballast, and lead solders; used as a bearing metal or alloy; used in the manufacture of storage batteries, ceramics, plastics, and electronic devices; used in the metallurgy of steel and other metals; and used in the form of lead oxide for batteries.

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION:

Health		Physical	Environmental
Acute Toxicity (Oral, Inhalation)	– Does not meet criteria	Does not meet criteria for any Physical Hazard	**Aquatic Toxicity – Short Term (Acute) Category 3**
Skin Corrosion/Irritation	– Does not meet criteria		
Eye Damage/Eye Irritation	– Does not meet criteria		
Respiratory or Skin Sensitization	– Does not meet criteria		
Mutagenicity	– Does not meet criteria		
Carcinogenicity	**– Category 2**		
Reproductive Toxicity	**– Category 1A**		
Specific Target Organ Toxicity Chronic Exposure	**– Category 1**		

LABEL:

Symbols:

Signal Word:

DANGER

Hazard Statements	Precautionary Statements:
DANGER! Causes damage to kidneys, blood-forming systems, central nervous system and digestive tract through prolonged or repeated exposure. May damage the unborn child. May cause harm to breast-fed children. Suspected of damaging fertility. Suspected of causing cancer. Harmful to aquatic life.	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection. Do not breathe dust or fumes. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. If exposed or concerned or you feel unwell: Get medical advice/attention. Avoid release to the environment.

Emergency Overview: A bluish-white to silvery-grey, heavy, soft metal that does not burn in bulk. Finely-divided lead dust clouds are a moderate fire and explosion hazard, however. When heated strongly in air, highly toxic lead oxide fumes can be generated. Inhalation or ingestion of lead may produce both acute and chronic health effects. Possible cancer and reproductive hazard. SCBA and full protective clothing are required for fire emergency response personnel.

Potential Health Effects: Inhalation or ingestion of lead may result in headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia and leg, arm, and joint pain. Prolonged exposure may also cause central nervous system damage, hypertension, gastrointestinal disturbances, anemia, kidney dysfunction and possible reproductive effects. Pregnant women should be protected from excessive exposure in order to prevent lead crossing the placental barrier and causing infant neurological disorders. Lead and inorganic lead compounds are listed as an *A3 Carcinogen (Confirmed Animal Carcinogen with Unknown Relevance to Humans)* by the ACGIH. IARC has listed lead compounds as *Group 2A Carcinogens (Probably Carcinogenic to Humans)* while lead metal is listed as *Group 2B (Possibly Carcinogenic to Humans)*. The NTP lists lead and lead compounds as *Reasonably Anticipated to be a Human Carcinogen*. OSHA and the EU does not currently list lead as a human carcinogen (see Toxicological Information, Section 11).

Potential Environmental Effects: Lead metal has relatively low bioavailability; however, compounds which it forms with other elements can be toxic to both aquatic and terrestrial organisms at low concentrations. These compounds can be particularly toxic in the aquatic environment. Lead bioaccumulates in plants and animals in both aquatic and terrestrial environments (see Ecological Information, Section 12).

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENT	CAS Registry No.	CONCENTRATION (% wgt/wgt)
Lead	7439-92-1	99+%

Note: See Section 8 for Occupational Exposure Guidelines.

SECTION 4. FIRST AID MEASURES

Eye Contact: *Symptoms:* Eye irritation, redness. Gently brush product off face if necessary. Do not rub eye(s). Let the eye(s) water naturally for a few minutes. Look right and left, then up and down. If particle/dust does not dislodge, cautiously rinse eye(s) with lukewarm, gently flowing water for 5 minutes or until particle/dust is removed, while holding eyelid(s) open. If irritation persists, get medical advice/attention. DO NOT attempt to manually remove anything stuck to the eye.

Skin Contact: *Symptoms:* Skin soiling, mild irritation. Gently brush away excess dust. Wash gently and thoroughly with lukewarm, gently flowing water and non-abrasive soap for 5 minutes, or until product is removed. If skin irritation occurs or you feel unwell, get medical advice/attention. *Molten Metal:* Flush contact area to solidify and cool but do not attempt to remove encrusted material or clothing. Cover burns and seek medical attention immediately.

Inhalation: *Symptoms:* Respiratory irritation. Remove source of exposure or move person to fresh air and keep comfortable for breathing. Seek medical attention if you feel unwell.

Ingestion: *Symptoms:* Stomach upset. If you feel unwell or are concerned, get medical advice/attention.

SECTION 5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Massive metal is not flammable or combustible. Finely-divided lead dust or powder is a moderate fire hazard and moderate explosion hazard when dispersed in the air at high concentrations and exposed to heat, flame, or other ignition sources. Explosions may also occur upon contact with certain incompatible materials (see Stability and Reactivity, Section 10).

Extinguishing Media: Use any means of extinction appropriate for surrounding fire conditions such as water spray, carbon dioxide, dry chemical, or foam.

Fire Fighting: Do not use direct water streams on fires where molten metal is present, due to the risk of a steam explosion that could potentially eject molten metal uncontrollably. Use a fine water mist on the front-running edge of the spill and on the top of the molten metal to cool and solidify it. If possible, move solid material from fire area or cool material exposed to flame to prevent melting of the metal ingots. Highly toxic lead oxide fumes may evolve in fires. Fire fighters must be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup: Control source of spillage if possible to do so safely. Restrict access to the area until completion of clean-up. Clean up spilled material immediately, observing precautions outlined below. Molten metal should be allowed to solidify before cleanup. If solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment (see below) and use methods which will minimize dust generation (e.g., vacuum solids). Return uncontaminated spilled material to the process if possible. Place contaminated material in suitable labelled containers for later recovery or disposal. Treat or dispose of waste material in accordance with all local, regional, and national requirements.

Personal Precautions: Persons responding to an accidental release should wear protective clothing, gloves and a respirator (see also Section 8). Close-fitting safety goggles may be necessary in some circumstances to prevent eye contact with dust and fume. Where molten metal is involved, wear heat-resistant gloves and suitable clothing for protection from hot-metal splash as well as a respirator to protect against inhalation of lead fume. Workers should wash and change clothing following cleanup of a lead spill to prevent personal contamination with lead dust.

Environmental Precautions: Lead metal has low bioavailability; however, compounds which it forms with other elements can be toxic to aquatic and terrestrial organisms. Releases of the product to water and soil should be prevented.

SECTION 7. HANDLING AND STORAGE

Store in a DRY, covered area, separate from strong acids, other incompatible materials, active metals and food or feedstuffs. Solid metal suspected of containing moisture should be THOROUGHLY DRIED before being added to a molten bath. Otherwise, entrained moisture could expand explosively and spatter molten metal out of the bath. No special packaging materials are required. Lead metal, in contact with wood or other surfaces, may leave traces of lead particulate that can accumulate over time. Cleaning or disposal of these surfaces requires review to ensure that any effluent or solid waste disposal meets the requirements of regulations in the applicable jurisdiction.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Guidelines:

Component	ACGIH TLV	OSHA PEL	NIOSH REL
Lead	0.05 mg/m^3	0.05 mg/m^3	0.05 mg/m^3

NOTE: OEGs for individual jurisdictions may differ from those given above. Check with local authorities for the applicable OEGs in your jurisdiction.
ACGIH - American Conference of Governmental Industrial Hygienists; OSHA - Occupational Safety and Health Administration; NIOSH - National Institute for Occupational Safety and Health. TLV – Threshold Limit Value, PEL – Permissible Exposure Limit, REL – Recommended Exposure Limit.

NOTE: The selection of the necessary level of engineering controls and personal protective equipment will vary depending upon the conditions of use and the potential for exposure. The following are therefore only general guidelines that may not fit all circumstances. Control measures to consider include:

Ventilation: Use adequate local or general ventilation to maintain the concentration of lead fumes in the working environment well below recommended occupational exposure limits. Supply sufficient replacement air to make up for air removed by the exhaust system. Local exhaust is recommended for melting, casting, welding, grinding, flame cutting or burning, and use of lead powders.

Protective Clothing: Gloves and coveralls or other work clothing are recommended to prevent prolonged or repeated direct skin contact when lead is processed. Appropriate eye protection should be worn where fume or dust is generated. Where hot or molten metal is handled, heat resistant gloves, goggles or face shield, and clothing to protect from radiant heat and hot metal splash should be worn. Safety type boots are recommended.

Respirators: Where lead dust or fumes are generated and cannot be controlled to within acceptable levels by engineering means, use appropriate NIOSH-approved respiratory protection equipment (a 42CFR84 Class N, R or P-100 particulate filter cartridge). When exposure levels are obviously high but the actual concentration is unknown, a self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask should be worn.

General Hygiene Considerations: Do not eat, drink or smoke in work areas. Thoroughly wash hands before eating, drinking, or smoking in appropriate, designated areas as well as at the end of the workday. A double locker-shower system with separate clean and dirty sides is usually required for lead handling operations to avoid cross-contamination of street clothes. Contaminated clothing should be changed frequently and laundered before each reuse. Inform laundry personnel of contaminants' hazards. Workers should not take dirty work clothes home and launder them with other personal clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Malleable, bluish-white to silvery-grey solid metal	**Odour:** None	**Odour Threshold:** Not Applicable	**pH:** Not Applicable
Vapour Pressure: (negligible @ 20°C)	**Vapour Density:** Not Applicable	**Melting Point/Range:** 328°C	**Boiling Point/Range:** 1,740°C
Relative Density (Water = 1): 11.34	**Evaporation Rate:** Not Applicable	**Coefficient of Water/Oil Distribution:** Not Applicable	**Solubility:** Insoluble in water
Flash Point: None	**Flammable Limits (LEL/UEL):** Not Flammable	**Auto-ignition Temperature:** None	**Decomposition Temperature:** None

SECTION 10. STABILITY AND REACTIVITY

Stability & Reactivity: Massive metal is stable and not considered reactive under normal temperatures and pressures. Hazardous polymerization or runaway reactions will not occur. Freshly cut or cast lead surfaces tarnish rapidly due to the formation of an insoluble protective layer of basic lead carbonate.

Incompatibilities: Lead reacts vigorously with strong acids (e.g., hot concentrated nitric acid, boiling concentrated hydrochloric acid, etc.), strong oxidizers such as peroxides, chlorates, nitrates and halogen or interhalogen compounds such as chlorine trifluoride. Powdered lead metal in contact with disodium acetylide, chlorine trifluoride, sodium carbide or fused ammonium nitrate poses a risk of explosion. Solutions of sodium azide in contact with lead metal can form lead azide, which is a detonating compound. Vigorous reactions can also occur between molten lead and active metals, such as sodium, potassium, lithium and calcium. A lead-zirconium alloy (10-70% Zr) will ignite when struck with a hammer.

Hazardous Decomposition Products: High temperature operations such as oxy-acetylene cutting or burning, electric arc welding or overheating a molten bath will generate highly toxic lead oxide fume. Lead oxide is highly soluble in body fluids and the particle size of the metal fumes is largely within the respirable size range, which increases the likelihood of inhalation and deposition of the fume within the body.

SECTION 11. TOXICOLOGICAL INFORMATION

General: Lead accumulates in bone and body organs once it enters the body. Elimination from the body is slow. Initial and periodic medical examinations are advised for persons repeatedly exposed to levels at or above the exposure limits of lead dust or fumes. Once lead enters the body, it can affect a variety of organ systems, including the nervous system, kidneys, reproductive system, blood formation, and gastrointestinal system. The primary routes of exposure to lead are inhalation or ingestion of dust and fumes.

Acute:
Skin/Eye: Contact with dust or fume may cause local irritation but would not cause tissue damage.

Inhalation: Exposure to lead dust or fume may cause headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia, and pain in legs, arms, and joints. An intense, short-term exposure to lead could cause acute encephalopathy with seizures, coma, and death. However, short-term exposures of this magnitude are unlikely in industry today. Kidney damage, as well as anemia, can occur from acute exposure.

Ingestion: Symptoms due to ingestion of lead dust or fume would be similar to those from inhalation. Other health effects such as metallic taste in the mouth and constipation or bloody diarrhea might also occur.

Chronic:
Prolonged exposure to lead dust and fume may produce many of the symptoms of short-term exposure and may also cause central nervous system damage, gastrointestinal disturbances, anemia, and, rarely, wrist drop. Reduced hemoglobin production has been associated with low lead exposures. Symptoms of central nervous system damage due to moderate lead exposure include fatigue, headaches, tremors and hypertension. Very high lead exposure can result in lead encephalopathy with symptoms of hallucinations, convulsions, and delirium. Kidney dysfunction and possible injury has also been associated with chronic lead poisoning. Chronic over-exposure to lead has been implicated as a causative agent for the impairment of male and female reproductive capacity. Pregnant women should be protected from excessive exposure as lead can cross the placental barrier and unborn children may suffer neurological damage or developmental problems due to excessive lead exposure. Teratogenic and mutagenic effects from exposure to lead have been reported in some studies but not in others. The literature is inconsistent and no firm conclusions can be drawn at this time. Lead and lead compounds are listed as an *A3 Carcinogen (Confirmed Animal Carcinogen with Unknown Relevance to Humans)* by the ACGIH. IARC has listed lead compounds as *Group 2A Carcinogens (Probably Carcinogenic to Humans)* while lead metal is listed as *Group 2B (Possibly Carcinogenic to Humans)*. The NTP lists lead and lead compounds as *Reasonably Anticipated to be a Human Carcinogen*. OSHA and the EU do not currently list lead as a human carcinogen.

Animal Toxicity:

Hazardous Ingredient:	Acute Oral Toxicity:	Acute Dermal Toxicity:	Acute Inhalation Toxicity:
Lead	No Data	No Data	No Data

SECTION 12. ECOLOGICAL INFORMATION

While lead metal is relatively insoluble, its processing or extended exposure in aquatic and terrestrial environments may lead to the release of lead compounds in more bioavailable forms. While lead compounds are not particularly mobile in the aquatic environment, they can be toxic to aquatic organisms, especially fish, at low concentrations. Water hardness, pH and dissolved organic carbon content are three major factors which regulate the degree of lead toxicity. Lead in soil is generally neither very mobile nor bioavailable, as it can become strongly sorbed onto soil particles, increasingly so over time, to a degree related to physical properties of the soil. Lead bioaccumulates in plants and animals in both aquatic and terrestrial environments.

SECTION 13. DISPOSAL CONSIDERATIONS

If material cannot be returned to process or salvage, dispose of in accordance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

PROPER SHIPPING NAME ..... Not a regulated product in ingot form.
TRANSPORT CANADA AND U.S. DOT CLASSIFICATION..... Not Applicable

TRANSPORT CANADA AND U.S. DOT PIN ..... Not Applicable
MARINE POLLUTANT..... No
IMO CLASSIFICATION ..... Not Regulated

SECTION 15. REGULATORY INFORMATION

U.S.
Ingredient Listed on TSCA Inventory..... Yes

Hazardous Under Hazard Communication Standard ..... Yes

CERCLA Section 103 Hazardous Substances..... ..... Lead ..... RQ: 10 lbs. (4.54 kg.)*
*reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers (0.004 inches).

EPCRA Section 302 Extremely Hazardous Substance..... No

EPCRA Section 311/312 Hazard Categories ..... Delayed (chronic) health hazard - Carcinogen
Delayed (chronic) health hazard – Reproductive toxin

EPCRA Section 313 Toxic Release Inventory..... Lead CAS No. 7439-92-1
Percent by Weight - At least 99%

SECTION 16. OTHER INFORMATION

Date of Original Issue: July 23, 1997 **Version:** 01 *(First edition)*

Date of Latest Revision: June 29, 2015 **Version:** 13

The information in this Safety Data Sheet is based on the following references:

- American Conference of Governmental Industrial Hygienists, 2004, Documentation of the Threshold Limit Values and Biological Exposure Indices, Seventh Edition plus updates.
- American Conference of Governmental Industrial Hygienists, 2015, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
- American Conference of Governmental Industrial Hygienists, Guide to Occupational Exposure Values – 2015.
- Bretherick's Handbook of Reactive Chemical Hazards, 20th Anniversary Edition. (P. G. Urben, Ed), 1995.
- Canadian Centre for Occupational Health and Safety, Hamilton, ON, CHEMINFO Record No. 608 - Lead (Rev. 2009-05).
- European Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (REACH).
- Health Canada, SOR/2015-17, Hazardous Products Regulations, 30 January 2015.
- International Agency for Research on Cancer (IARC), Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, 1972 – present, (multi-volume work), World Health Organization, Geneva.
- International Chemical Safety Cards (WHO/IPCS/ILO), ICSC:0052 - Lead.
- Merck & Co., Inc., 2001, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, Thirteenth Edition.
- National Library of Medicine, National Toxicology Information Program, Hazardous Substance Data Bank (online version).
- Patty's Toxicology, Fifth Edition, 2001: E. Bingham, B. Cohrssen & C.H. Powell, Ed.
- U.S. Dept. of Health and Human Services, National Institute of Environmental Health Sciences, National Toxicology Program (NTP), 13th Report on Carcinogens, October 2014.
- U.S. Dept. of Health and Human Services, National Institute for Occupational Safety and Health, NIOSH Pocket Guide to Chemical Hazards, on-line edition.
- U.S. Dept. of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Toxicological Profile for Lead, September 2005.
- U.S. Occupational Safety and Health Administration, 1989, Code of Federal Regulations, Title 29, Part 1910.

Notice to Reader
Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. Teck American Metal Sales Incorporated and Teck Metals Ltd. extend no warranty and assume no responsibility for the accuracy of the content and expressly disclaim all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

PRODUCT SAFETY DATA SHEET
PSDS No. 1.2.6
MERCURY LAMPS (FOSHAN)

Sylvania brand Mercury Lamps, manufactured by OSRAM SYLVANIA Inc., are exempted from the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) because they are "articles." The following information is provided by OSRAM SYLVANIA as a courtesy to its customers.

I. PRODUCT IDENTIFICATION

Trade Name (as labeled): Sylvania Mercury Lamps (For General Lighting)
(Mercury Vapor Lamps, High Pressure Mercury Lamps)

Manufacturer: OSRAM China Lighting LTD.
No. 1 North Industrial Road
Foshan, Guangdong, 52800

II. HAZARDOUS INGREDIENTS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT. If a lamp is broken, the following materials may be released:

	Chemical Name	CAS Number	% by wt.	Exposure Limits in Air (mg/cubic m) ACGIH (TLV)	OSHA (PEL)
(1, 2)	Lead Solder (as Pb)	7439-92-1	0-<1.0	0.05	0.05
(1, 2)	Mercury	7439-97-6	0.01-< 0.1	0.025	0.1 Ceiling
	Quartz, Fused	60676-86-0	5-15	0.1 Resp. Dust	0.1
(1, 2)	Glass (Lead Borosilicate)	---	0-75	10 (3)	15 (3)
(1, 2)	(as Lead Oxide, 6%)	1317-36-8	---	0.05	0.05
	Glass (Borosilicate)	---	0-75	10 (3)	15 (3)
	Yttrium Vanadate	13566-12-6	0-<0.5	1.0	1.0
	Aluminum Oxide	1344-28-1	0-<0.03	10 (3)	15 (3)

(1) These chemicals are subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

(2) The mercury and lead in this product are substances known to the state of California to cause reproductive toxicity if ingested. [California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).]

(3) Limits as nuisance particulate.

III. PHYSICAL PROPERTIES

Not Applicable to intact lamp.

IV. FIRE & EXPLOSION HAZARDS

Flammability: Non-combustible

Fire Extinguishing Materials: Use extinguishing agents suitable for surrounding fire.

Special Firefighting Procedure: Use a self-contained breathing apparatus to prevent inhalation of dust and/or fumes that may be generated from broken lamps during firefighting activities.

Unusual Fire and Explosion Hazards: When exposed to high temperature, toxic fumes may be released from broken lamps.

V. HEALTH HAZARDS

A. OPERATING LAMPS

Consult the OSRAM SYLVANIA Product Catalog or relevant technical data sheets for complete warnings, operating and installation guides for specific lamp types.

WARNING:

- **Mercury lamp arc-tubes operate at high pressure and high temperature and may unexpectedly rupture.**
- **If the outer jacket is broken and the lamp continues to operate, ultraviolet radiation which may cause skin and eye irritation with prolonged exposure will be emitted. Immediately shut power off and replace lamp.**
- **Mercury lamps must be operated only in suitably designed fixtures.**

B. LAMP MATERIALS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT. No adverse effects are expected from occasional exposure to broken lamps. As a matter of good practice, avoid prolonged or frequent exposure to broken lamps unless there is adequate ventilation. The major hazard from broken lamps is the possibility of sustaining glass cuts.

***NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards* and/or *NIOSH Pocket Guide to Chemical Hazards* lists the following effects of overexposure to the chemicals/materials tabulated below when they are inhaled, ingested, or contacted with skin or eye:**

Lead - Ingestion and inhalation of lead dust or fume must be avoided. Irritation of the eyes and respiratory tract may occur. Excessive lead absorption is toxic and may include symptoms such as anemia, weakness, abdominal pain, and kidney disease.

Mercury - Exposure to high concentrations of vapors for brief periods can cause acute symptoms such as pneumonitis, chest pains, shortness of breath, coughing, gingivitis, salivation and possibly stomatitis. May cause redness and irritation as a result of contact with skin and/or eyes.

Quartz,Fused - Fibrosis of the lungs causing shortness of breath and coughing has been associated with silica exposure.

Glass - Glass dust is considered to be physiologically inert and as such, has an OSHA exposure limit of 15 mg/cubic meter for total dust and 5 mg/cubic meter for respirable dust. The ACGIH TLVs for particulates not otherwise classified are 10 mg/cubic meter for total dust and 3 mg/cubic meter for respirable dust.

Yttrium Vanadate - Inhalation of vanadium compounds can cause irritation of the nose, throat, and respiratory tract. Eye contact and prolonged, repeated skin contact may also cause irritation. Studies of workers exposed to this material showed no evidence of chronic or systemic effects.

Aluminum Oxide (Alumina) - Alumina is a non-toxic material which is very low in free-silica content. Sharp-edged particles can irritate the eyes, perhaps the skin, and definitely the mucous membranes of the respiratory tract.

EMERGENCY AND FIRST AID PROCEDURES:

Glass Cuts: Normal first aid procedures. Seek medical attention as required.
Inhalation: If discomfort, irritation or symptoms of pulmonary involvement develop, remove from exposure and seek medical attention.
Ingestion: Seek medical attention.
Contact, Skin: Thoroughly wash affected area with mild soap or detergent and water and prevent further contact. Seek medical attention if irritation occurs.
Contact, Eye: Wash eyes, including under eyelid, immediately with copious amounts of water for 15 minutes. Seek medical attention.

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER): None

VI. REACTIVITY DATA

Stability: Stable
Conditions to avoid: None for intact lamps.
Incompatibility (materials to avoid): None for intact lamps.
Hazardous Decomposition Products (including combustion products): None for intact lamps.
Hazardous Polymerization Products: Will not occur.

VII. PROCEDURES FOR DISPOSAL OF LAMPS

OSRAM SYLVANIA recommends that all mercury-containing lamps be recycled. For a list of lamp recyclers and to obtain state regulatory disposal information, log onto www.lamprecycle.org.

If lamps are broken, ventilate area where breakage occurred. Clean-up with a special mercury vacuum cleaner (not a standard vacuum cleaner) or other suitable means that avoid dust and mercury vapor generation. Take usual precautions for collection of broken glass. Clean-up requires special care due to mercury droplet proliferation. Place materials in closed containers to avoid generating dust.

It is the responsibility of the waste generator to ensure proper classification and disposal of waste products. To that end, TCLP tests should be conducted on all waste products, including this one, to determine the ultimate disposition in accordance with applicable federal, state and local regulations. Some states have specific disposal requirements for lamps containing mercury.

VIII. SPECIAL HANDLING INFORMATION - FOR BROKEN LAMPS

Ventilation: Use adequate general and local exhaust ventilation to maintain exposure levels below the PEL or TLV limits. If such ventilation is unavailable, use respirators as specified below.
Respiratory Protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the pertinent PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.
Eye Protection: OSHA specified safety glasses, goggles or face shield are recommended if lamps are being broken. In the event an outer jacket is broken, the lamp should be shut off and replaced to avoid exposure to ultraviolet radiation.
Protective Clothing: OSHA specified cut and puncture-resistant gloves are recommended for dealing with broken lamps.
Hygienic Practices: After handling broken lamps, wash thoroughly before eating, smoking or handling tobacco products, applying cosmetics, or using toilet facilities.

Issue Date: 05/19/2011 Supersedes: --

In case of questions please call:
OSRAM SYLVANIA Inc.
Product Safety and Compliance Manager
(978) 750 2581

MERCURY

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

Date of issue: 11/19/2013

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : MERCURY

CAS No : 7439-97-6

Other means of identification : Colloidal Mercury, Quick Silver, Liquid Silver, NCI-C60399, Hydrargyrum

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Variety of industrial, analytical and research applications.

1.3. Details of the supplier of the safety data sheet

Bethlehem Apparatus Company

809 Front Street
Hellertown, Pa 18055

Phone: 610-838-7034

1.4. Emergency telephone number

Emergency number : 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 1 (Inhalation:dust,mist)	H330
Repr. 1B	H360
STOT RE 1	H372
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS06 GHS08 GHS09 GHS05

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H330 - Fatal if inhaled
H360 - May damage fertility or the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe vapors, gas
P264 - Wash skin, hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear eye protection, protective clothing, protective gloves, Face mask
P284 - [In case of inadequate ventilation] wear respiratory protection
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER/doctor/…
P314 - Get medical advice and attention if you feel unwell
P320 - Specific treatment is urgent (see First aid measures on this label)
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to comply with applicable local, national and international regulation.

2.3. Other hazards

other hazards which do not result in classification : When inhaled, Mercury will be rapidly distributed throughout the body. During this time, Mercury will cross the blood-brain barrier, and become oxidized to the Hg (II) oxidation state. The oxidized species of Mercury cannot cross the blood-brain barrier and thus accumulates in the

brain. Mercury in other organs is removed slowly from the body via the kidneys. The average half-time for clearance of Mercury for different parts of the human body is as follows: lung: 1.7 days; head: 21 days; kidney region: 64 days; chest: 43 days; whole body: 58 days. Mercury can be irritating to contaminated skin and eye. Prolonged contact may lead to ulceration of the skin. Allergic reactions (i.e. rashes, welts) may occur in sensitive individuals. Mercury can be irritating to contaminated skin and eyes. Short-term over-exposures to high concentrations of mercury vapors can lead to breathing difficulty, coughing, acute, and potentially fatal lung disorders. Depending on the concentration of inhalation over-exposure, heart problems, damage to the kidney, liver or nerves and effects on the brain may occur.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

Full text of H-phrases: see section 16

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Mercury	(CAS No) 7439-97-6	100	Acute Tox. 2 (Inhalation), H330 Repr. 1B, H360 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. Assure fresh air breathing. Allow the victim to rest. Immediately call a POISON CENTER or doctor/physician. In case of irregular breathing or respiratory arrest provide artificial respiration.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Seek immediate medical advice.

First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Keep eye wide open while rinsing. Seek medical attention immediately.

First-aid measures after ingestion : Immediately call a POISON CENTER or doctor/physician. Rinse mouth. If conscious, give large amounts of water and induce vomiting. Give water or milk if the person is fully conscious. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Short-term over-exposures to high concentrations of mercury vapors can lead to breathing difficulty, coughing, acute, chemical pneumonia, and pulmonary edema (a potentially fatal accumulation of fluid in the lungs) . Depending on the concentration of over-exposure, cardiac abnormalities, damage to the kidney, liver or nerves and effects on the brain may occur. Long-term inhalation over-exposures can lead to the development of a wide variety of symptoms, including the following: excessive salivation, gingivitis, anorexia, chills, fever, cardiac abnormalities, anemia, digestive problems, abdominal pains, frequent urination, an inability to urinate, diarrhea, peripheral neuropathy (numbness, weakness, or burning sensations in the hands or feet), tremors (especially in the hands, fingers, eyelids, lips, cheeks, tongue, or legs), alteration of tendon reflexes, slurred speech, visual disturbances, and deafness. Allergic reactions (i.e. breathing difficulty) may also occur in sensitive individuals.

Symptoms/injuries after skin contact : Symptoms of skin exposure can include redness, dry skin, and pain. Prolonged contact may lead to ulceration of the skin. Allergic reactions (i.e. rashes, welts) may occur in sensitive individuals. Dermatitis (redness and inflammation of the skin) may occur after repeated skin exposures.

Symptoms/injuries after eye contact : Symptoms of eye exposure can include redness, pain, and watery eyes. A symptom of Mercury exposure is discoloration of the lens of the eyes.

Symptoms/injuries after ingestion : If Mercury is swallowed, symptoms of such over-exposure can include metallic taste in mouth, nausea, vomiting, central nervous system effects, and damage to the kidneys. Metallic mercury is not usually absorbed sufficiently from the gastrointestinal tract to induce an acute, toxic response. Damage to the tissues of the mouth, throat, esophagus, and other tissues of the digestive system may occur. Ingestion may be fatal, due to effects on gastrointestinal system and kidneys.

Chronic symptoms : Long-term over-exposure can lead to a wide range of adverse health effects. Anyone using Mercury must pay attention to personality changes, weight loss, skin or gum discolorations, stomach pains, and other signs of Mercury over-exposure. Gradually developing syndromes (“Erethism” and “Acrodynia”) are indicative of potentially severe health problems. Mercury can cause the development of allergic reactions (i.e. dermatitis, rashes, breathing difficulty) upon prolonged or repeated exposures. Refer to Section 11 (Toxicology Information) for additional data.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment for Mercury over-exposure must be given. The following treatment protocol for ingestion of Mercury is from Clinical Toxicology of Commercial Products (5th Edition, 1984).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not flammable. Mercury vapors and oxides generated during fires involving this product are toxic.

Reactivity : Stable. Reacts with (some) metals. Mercury can react with metals to form amalgams.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not allow run-off from fire fighting to enter drains or water courses.

Protective equipment for firefighters : Do not enter fire area without proper protective equipment, including respiratory protection.

Other information : Decontaminate all equipment thoroughly after the conclusion of fire-fighting activities.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Uncontrolled release should be responded to by trained personnel using pre-planned procedures. Evacuate area. Evacuate personnel to a safe area.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. In the event of a release under 1 pound: the minimum level “C” Personal Protective Equipment is needed. Triple-gloves (rubber gloves and nitril gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Air-Purifying Respirator with Cartridge appropriate for Mercury.
In the event of a release over 1 pound or when concentration of oxygen in atmosphere is less than 19.5% or unknown, the level “B” Personal Protective Equipments which includes Self-Contained Breathing Apparatus must be worn.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : For larger spills, dike area and pump into waste containers. Put into a labelled container and provide safe disposal.

Methods for cleaning up : There are a variety of methods which can be used to clean-up Mercury spills. Use a commercially available Mercury Spill Kit for small spills. A suction pump with aspirator can also be used during clean-up operations. For larger release, a Mercury vacuum can be used. Calcium polysulfide or excess sulfur can be also used for clean-up. Mercury can migrate into cracks and other difficult-to-clean areas; calcium polysulfide and sulfur can be sprinkled effectively into these areas. Decontaminate the area thoroughly. The area should be inspected visually and with colorimetric tubes for Mercury to ensure all traces have been removed prior to re-occupation by non-emergency personnel. Decontaminate all equipment used in response thoroughly. If such equipments cannot de adequately decontaminated, it must be discarded with other spill residue. Place all spill residues in an appropriate container, seal immediately, and label appropriately. Dispose of in accordance with federal, state, and local hazardous waste disposal requirements. (Refer to Section 13 of this SDS).

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Supervisors and responsible personnel must be aware of personality changes, weight loss, or other sign of Mercury over-exposure in employees using this product; These symptoms can develop gradually and are indicative of potentially severe health effects related to Mercury contamination.

Precautions for safe handling : As with all chemicals, avoid getting Mercury ON YOU or IN YOU. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Report all Mercury releases promptly. Open container slowly on a stable surface. Drums, flasks and bottles of this product must be properly labeled. Empty containers may contain residual amounts of Mercury and should be handled with care.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands and face immediately after handling this product, and once again before leaving the workplace. Remove contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Follow practice indicated in Section 6. Make certain that application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment thoroughly before maintenance begins.

Storage conditions : Keep container tightly closed. Store drums, flasks and bottles in a cool, dry location, away from direct sunlight, source of intense heat, or where freezing is possible. Store away from incompatible materials. Material should be stored in secondary container or in a diked area, as appropriate.

Incompatible materials : Acetylene and acetylene derivatives, amines, ammonia, 3-bromopropyne, boron diiodophosphide, methyl azide, sodium carbide, heated sulfuric acid, methylsilane/oxygen mixtures, nitric acid/alcohol mixtures, tetracarbonylnickel/oxygen mixtures, alkyne/silver perchlorate mixtures, halogens and strong oxidizers. Mercury can attack copper alloys. Mercury can react with many metals (i.e. calcium, lithium, potassium, sodium, rubidium, aluminum) to form amalgams.

Prohibitions on mixed storage : Mercury can attack copper alloys. Mercury can react with many metals (i.e. calcium, lithium, potassium, sodium, rubidium, aluminum) to form amalgams.

Storage area : Storage area should be made of fire-resistant materials.

Special rules on packaging : Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Mercury (7439-97-6)		
USA ACGIH	ACGIH TWA (mg/m³)	0.025 mg/m³
USA OSHA	OSHA PEL (Ceiling) (mg/m³)	0.1 mg/m³

8.2. Exposure controls

Appropriate engineering controls : Ensure adequate ventilation. Ensure exposure is below occupational exposure limits (where available). Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective clothing. Safety glasses. Mist formation: aerosol mask.

Hand protection : Wear neoprene gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 of this SDS.

Eye protection : Splash goggles or safety glasses. For operation involving the use of more than 1 pound of Mercury, or if the operation may generate a spray of Mercury, the use of a faceshield is recommended.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : Maintain airborne contaminants concentration below provided exposure limits. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134 or applicable state regulations. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.

Other information : Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Colour : Silver white.

Odor	:	Odorless.
Odor threshold	:	Not applicable
pH	:	Not applicable
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	No data available
Freezing point	:	-38,87 °C (-37.97 F)
Boiling point	:	No data available
Flash point	:	Not applicable
Self ignition temperature	:	Not applicable
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	0,002 mm Hg at 25°C
Relative vapor density at 20 °C	:	6,9 (Air = 1)
Relative density	:	No data available
Relative density of saturated gas/air mixture	:	13,6
Solubility	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	Not applicable

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable. Reacts with (some) metals. Mercury can react with metals to form amalgams.

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established. Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Acetylene and acetylene derivatives, amines, ammonia, 3-bromopropyne, boron diiodophosphide, methyl azide, sodium carbide, heated sulfuric acid, methylsilane/oxygen mixtures, nitric acid/alcohol mixtures, tetracarbonylnickel/oxygen mixtures, alkyne/silver perchlorate mixtures, halogens and strong oxidizers. Mercury can attack copper alloys. Mercury can react with many metals (i.e. calcium, lithium, potassium, sodium, rubidium, aluminum) to form amalgams.

10.6. Hazardous decomposition products

If this product is exposed to extremely high temperature in the presence of oxygen or air, toxic vapor of mercury and mercury oxides will be generated.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	Fatal if inhaled.
Skin corrosion/irritation	:	Not classified pH: Not applicable
Serious eye damage/irritation	:	Not classified pH: Not applicable
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified Based on available data, the classification criteria are not met
Carcinogenicity	:	Not classified

Mercury (7439-97-6)	
IARC group	3

Reproductive toxicity : May damage fertility or the unborn child.
Based on available data, the classification criteria are not met

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Causes damage to organs through prolonged or repeated exposure.
Based on available data, the classification criteria are not met
Causes damage to organs through prolonged or repeated exposure

Aspiration hazard : Not classified
Based on available data, the classification criteria are not met

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Fatal if inhaled.

Symptoms/injuries after inhalation : Short-term over-exposures to high concentrations of mercury vapors can lead to breathing difficulty, coughing, acute,chemical pneumonia, and pulmonary edema (a potentially fatal accumulation of fluid in the lungs) . Depending on the concentration of over-exposure, cardiac abnormalities, damage to the kidney, liver or nerves and effects on the brain may occur. Long-term inhalation over-exposures can lead to the development of a wide variety of symptoms, including the following: excessive salivation, gingivitis, anorexia, chills, fever, cardiac abnormalities, anemia, digestive problems, abdominal pains, frequent urination, an inability to urinate, diarrhea, peripheral neuropathy (numbness, weakness, or burning sensations in the hands or feet), tremors (especially in the hands, fingers, eyelids, lips, cheeks, tongue, or legs), alteration of tendon reflexes, slurred speech, visual disturbances, and deafness. Allergic reactions (i.e. breathing difficulty) may also occur in sensitive individuals.

Symptoms/injuries after skin contact : Symptoms of skin exposure can include redness, dry skin, and pain. Prolonged contact may lead to ulceration of the skin. Allergic reactions (i.e. rashes, welts) may occur in sensitive individuals. Dermatitis (redness and inflammation of the skin) may occur after repeated skin exposures.

Symptoms/injuries after eye contact : Symptoms of eye exposure can include redness, pain, and watery eyes. A symptom of Mercury exposure is discoloration of the lens of the eyes.

Symptoms/injuries after ingestion : If Mercury is swallowed, symptoms of such over-exposure can include metallic taste in mouth, nausea, vomiting, central nervous system effects, and damage to the kidneys. Metallic mercury is not usually absorbed sufficiently from the gastrointestinal tract to induce an acute, toxic response. Damage to the tissues of the mouth, throat, esophagus, and other tissues of the digestive system may occur. Ingestion may be fatal, due to effects on gastrointestinal system and kidneys.

Chronic symptoms : Long-term over-exposure can lead to a wide range of adverse health effects. Anyone using Mercury must pay attention to personality changes, weight loss, skin or gum discolorations, stomach pains, and other signs of Mercury over-exposure. Gradually developing syndromes ("Erethism" and "Acrodynia") are indicative of potentially severe health problems. Mercury can cause the development of allergic reactions (i.e. dermatitis, rashes, breathing difficulty) upon prolonged or repeated exposures. Refer to Section 11 (Toxicology Information) for additional data.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Mercury (7439-97-6)	
LC50 fishes 1	0,5 mg/l (Exposure time: 96 h - Species: Cyprinus carpio)
EC50 Daphnia 1	5,0 µg/l (Exposure time: 96 h - Species: water flea)
LC50 fish 2	0,16 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])

12.2. Persistence and degradability

MERCURY (7439-97-6)	
Persistence and degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative potential

MERCURY (7439-97-6)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Waste disposal must be in accordance with appropriate federal, state, and local regulations. This product, if unaltered by use, should be recycled. If altered by use, recycling may be possible. Consult Bethlehem Apparatus Company for information. If Mercury must be disposed of as hazardous waste, it must be handled at a permitted facility or as advised by your local hazardous waste regulatory authority.

Ecology - waste materials : Hazardous waste due to toxicity. Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

14.1. UN number

UN-No.(DOT) : 2809

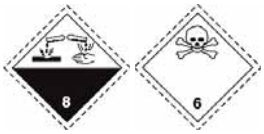
DOT NA no. UN2809

14.2. UN proper shipping name

DOT Proper Shipping Name : Mercury

Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136

Hazard labels (DOT) : 8 - Corrosive substances
6.1 - Toxic substances



DOT Symbols : A - Material is regulated as a hazardous material only when transported by air, W - Material is regulated as a hazardous material only when transported by water

Packing group (DOT) : III - Minor Danger

DOT Packaging Exceptions (49 CFR 173.xxx) : 164

DOT Packaging Non Bulk (49 CFR 173.xxx) : 164

DOT Packaging Bulk (49 CFR 173.xxx) : 240

14.3. Additional information

Other information : No supplementary information available.

Overland transport

No additional information available

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other : 40 - Stow ‘‘clear of living quarters’’,97 - Stow ‘‘away from’’ azides

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 35 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 35 kg

SECTION 15: Regulatory information

15.1. US Federal regulations

Mercury (7439-97-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
EPA TSCA Regulatory Flag	S - S - indicates a substance that is identified in a proposed or final Significant New Uses Rule.
SARA Section 313 - Emission Reporting	1,0 %

15.2. International regulations

CANADA

Mercury (7439-97-6)	
Listed on the Canadian DSL (Domestic Sustances List) inventory.	
WHMIS Classification	Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class E - Corrosive Material

EU-Regulations

Mercury (7439-97-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) substances.

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

15.2.2. National regulations

Mercury (7439-97-6)
Listed on the AICS (the Australian Inventory of Chemical Substances) Listed on Inventory of Existing Chemical Substances (IECSC) Listed on the Korean ECL (Existing Chemical List) inventory. Listed on New Zealand - Inventory of Chemicals (NZIoC) Listed on Inventory of Chemicals and Chemical Substances (PICCS) Poisonous and Deleterious Substances Control Law Pollutant Release and Transfer Register Law (PRTR Law) Listed on the Canadian Ingredient Disclosure List

15.3. US State regulations

Mercury (7439-97-6)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
	Yes			

SECTION 16: Other information

Other information : None.

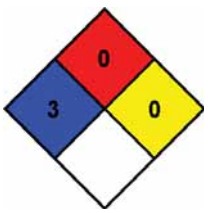
Full text of H-phrases: see section 16:

Acute Tox. 1 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhalation) Category 2
Aquatic Acute 1	Hazardous to the aquatic environment — AcuteHazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Repr. 1B	Reproductive toxicity Category 1B
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
H330	Fatal if inhaled
H360	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

NFPA health hazard : 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

THIS SDS PURCHASED FROM INTERTEK CHEMICALS & PHARMACEUTICALS, 2 RIVERWAY, SUITE 500, HOUSTON, TX 77056.

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

As of the revision date above, this (M)SDS meets the regulations in the United Kingdom & Ireland.

PRODUCT

Product Name: **MOBIL 1 ESP FORMULA 5W-30**
Product Description: Synthetic Base Stocks and Additives
Product Code: 2015101010K0, 482497-60
Intended Use: Engine oil

COMPANY IDENTIFICATION

Supplier: **EXXONMOBIL LUBRICANTS & SPECIALTIES EUROPE, A DIVISION OF EXXONMOBIL PETROLEUM & CHEMICAL, BVBA (EMPC)**
POLDERDIJKWEG
B-2030 Antwerpen
Belgium

24 Hour Environmental / Health Emergency Telephone (UK) 01372 222 000 / (IRELAND) 44 1372 222 000
e-mail SDS-UK@EXXONMOBIL.COM

SECTION 2 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH HAZARDS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

Note: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	EINECS / ELINCS	Concentration *	Symbols/Risk Phrases
POLYOLEFIN POLYAMINE SUCCINIMIDE	147880-09-9		1 - 5%	R53

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200C (392F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable

regulations.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid contact with used product. Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL.

Note: Information about recommended monitoring procedures can be obtained from the relevant agency(ies)/institute(s):

UK Health and Safety Executive (HSE)

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid
Colour: Amber
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.85
Flash Point [Method]: >200C (392F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316C (601F)
Vapour Density (Air = 1): > 2 at 101 kPa

Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C
Evaporation Rate (N-Butyl Acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 72.8 cSt (72.8 mm²/sec) at 40°C | 11.9 cSt (11.9 mm²/sec) at 100C
Oxidising properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -36°C (-33°F)

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

Route of Exposure	Conclusion / Remarks
INHALATION	
Toxicity: LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
INGESTION	
Toxicity: LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity: LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation: Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Diesel engine oils: Not carcinogenic in animals tests. Used and unused diesel engine oils did not produce any

carcinogenic effects in chronic mouse skin painting studies. Oils that are used in gasoline engines may become hazardous and display the following properties: Carcinogenic in animal tests. Caused mutations in vitro. Possible allergen and photoallergen. Contains polycyclic aromatic compounds (PAC) from combustion products of gasoline and/or thermal degradation products.

Contains:
Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitising in test animals and humans.

Additional information is available by request.

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

European Waste Code: 13 02 06

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

This material is considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be

completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (ADR/RID) : Not Regulated for Land Transport

INLAND WATERWAYS (ADNR) : Not Regulated for Inland Waterways Transport

SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA) : Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives.

EU LABELING: Not regulated according to EC Directives

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Complies with the following national/regional chemical inventory requirements: AICS, IECSC, DSL, ENCS, KECI, PICCS, TSCA

Special Cases:

Inventory	Status
ELINCS	Restrictions Apply

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable
KEY TO THE RISK CODES CONTAINED IN SECTION 2 AND 3 OF THIS DOCUMENT (for information only):
R53; May cause long-term adverse effects in the aquatic environment.

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Revision Changes:
Section 07: Handling and Storage - Storage was modified.
Section 05: Hazardous Combustion Products was modified.
Section 15: National Chemical Inventory Listing was modified.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 7010404XGB (1005867)

NAPA® ANTIFREEZE COOLANT
NP001

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland P.O. Box 2219 Columbus, OH 43216	Regulatory Information Number Telephone Emergency telephone	1-800-325-3751 614-790-3333 1-800-ASHLAND (1-800-274-5263)

Product name	NAPA® ANTIFREEZE COOLANT
Product code	NP001
Product Use Description	No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, green

WARNING! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. HARMFUL IF SWALLOWED. MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION.

Potential Health Effects

Exposure routes

Skin absorption, Skin contact, Eye Contact, Inhalation, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

May cause mild skin irritation. Symptoms may include redness and burning of skin. Although rare, skin contact with ethylene glycol may cause allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects). Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Ingestion

Swallowing this material may be harmful.Liver, kidney and brain damage in humans has resulted from swallowing lethal or near-lethal amounts of ethylene glycol.Ingestion of medications contaminated with diethylene glycol has caused kidney failure and death in humans. Products containing diethylene glycol should be considered toxic by ingestion.

Inhalation

Breathing of vapor or fume is possible. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, lung (for example, asthma-like conditions), Liver, Kidney, Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias.

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Cough, central nervous system excitation (giddiness, liveliness, light-headed feeling) followed by central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, involuntary eye movement, cyanosis (causes blue coloring of the skin and nails from lack of oxygen), lung edema (fluid buildup in the lung tissue), acute kidney failure (sudden slowing or stopping of urine production), liver damage, Convulsions, coma

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, reproductive effects, kidney damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, kidney damage, liver damage

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard

Ethylene glycol has caused birth defects in animal studies at high oral doses. However, it did not cause harm to the pregnant animal or to the fetus when applied to the skin of the pregnant animal.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Concentration
ETHYLENE GLYCOL	107-21-1	>=90-<=100%
DIETHYLENE GLYCOL	111-46-6	>=1.5-<5%
INORGANIC SALT	NJTS# 254504001-5237	>=1.5-<5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Effects of acute ethylene glycol poisoning appear in three fairly distinct stages. The initial stage occurs shortly after exposure, lasts 6-12 hours, and is characterized by central nervous system effects (transient exhilaration, nausea, vomiting, and in severe cases, coma, convulsions, and possible death). The second stage lasts from 12-36 hours after exposure and is initiated by the onset of coma. This phase is characterized by tachypnia, tachycardia, mild hypotension, cyanosis, and in severe cases, pulmonary edema, bronchopneumonia, cardiac enlargement, and congestive failure. The final stage occurs 24-72 post-exposure and is characterized by renal failure, ranging from a mild increase in blood urea nitrogen and creatinine followed by recovery, to complete anuria with acute tubular necrosis that can lead to death. Oxaluria is found in most cases. The most significant laboratory finding in ethylene glycol intoxication is severe metabolic acidosis.

Treatment: This product contains ethylene glycol. Ethanol decreases the metabolism of ethylene glycol to toxic metabolites. Ethanol should be administered as soon as possible in cases of severe poisoning since the elimination half-life of ethylene glycol is 3 hours. If medical care will be delayed several hours, give the patient three to four 1-ounce oral "shots" of 86-proof or higher whiskey before or during transport to the hospital. Fomepizole (4-methylpyrazole) is an effective antagonist of alcohol dehydrogenase, and as such, may be used as an antidote in the treatment of ethylene glycol poisoning. Hemodialysis effectively removes ethylene glycol and its metabolites from the body.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Water spray, Dry chemical, Carbon dioxide (CO2)

Hazardous combustion products

carbon dioxide and carbon monoxide, various hydrocarbons

Precautions for fire-fighting

Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

Flammability Class for Flammable Liquids
Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions
Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up
Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information
Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling
Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage
Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

ETHYLENE GLYCOL		**107-21-1**	
ACGIH	Ceiling Limit Value:	100 mg/m3	Aerosol.

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.
Wear resistant gloves such as:
Neoprene
polyvinyl chloride
Nitrile rubber

Respiratory protection

Respiratory protection is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	No data
Colour	green
Odour	No data
Boiling point/boiling range	330.00 °F / 330 °F@ 760.00 mmHg
pH	(+/- 0.7) 10.7

Flash point	250 °F / 121 °C
Evaporation rate	No data
Explosion limits	3.2 %(V) 15.3 %(V)
Vapour pressure	23.33 hPa @ 68 °F / 20 °C
Vapour density	No data
Density	(Average) 1.236 g/cm3 @ 60.01 °F / 15.56 °C 9.41 lb/gal @ 60.1 °F / 15.6 °C
Solubility	soluble in water
Partition coefficient: n-octanol/water	No data
log Pow	no data available
Autoignition temperature	No data

10. STABILITY AND REACTIVITY

Stability
Stable.

Conditions to avoid
None known.

Incompatible products
Strong oxidizing agents

Hazardous decomposition products
carbon dioxide and carbon monoxide, various hydrocarbons

Hazardous reactions
Product will not undergo hazardous polymerization.

Thermal decomposition
No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

ETHYLENE GLYCOL	LD 50 Rat: 6,140 mg/kg
DIETHYLENE GLYCOL	LD 50 Rat: 12,565 mg/kg
INORGANIC SALT	LD 50 Rat: > 500 mg/kg

Acute inhalation toxicity

ETHYLENE GLYCOL	no data available
DIETHYLENE GLYCOL	LC Lo Mouse: 130 mg/m3 , 2 h
INORGANIC SALT	no data available

Acute dermal toxicity

ETHYLENE GLYCOL	LD 50 Rabbit: 9,530 mg/kg
DIETHYLENE GLYCOL	LD 50 Rabbit: 11,890 mg/kg
INORGANIC SALT	LD 50 Rabbit: > 300 mg/kg

12. ECOLOGICAL INFORMATION

Aquatic toxicity

Acute and Prolonged Toxicity to Fish
No data
Acute Toxicity to Aquatic Invertebrates
No data

Environmental fate and pathways
No data

13. DISPOSAL CONSIDERATIONS

Waste disposal methods
Destroy by liquid incineration. Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution's Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65
Proposition 65 warnings are not required for this product based on the results of a risk assessment.
SARA Hazard Classification Acute Health Hazard

SARA 313 Component(s)

ETHYLENE GLYCOL	107-21-1	95.01%

New Jersey RTK Label Information

ETHYLENE GLYCOL	107-21-1
DIETHYLENE GLYCOL	111-46-6
WATER	7732-18-5
INORGANIC SALT	NJTS 254504001-5237

Pennsylvania RTK Label Information

ETHYLENE GLYCOL	107-21-1
DIETHYLENE GLYCOL	111-46-6

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	5262 lbs

Reportable quantity - Components

ETHYLENE GLYCOL	107-21-1	5000 lbs
DIETHYLENE GLYCOL	111-46-6	none
INORGANIC SALT	NJTS# 254504001-5237	none

	Health	Flammability	Reactivity	Other
HMIS	2*	1	0	
NFPA	1	1	0	

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

SAFETY DATA SHEET
Nashua 357 Spray Adhesive

1. IDENTIFICATION

Product Name	Nashua 357 Spray Adhesive
Recommended use of the chemical and restrictions on use	
Identified uses	Spray Adhesive
Company Identification	Berry Plastics Corporation 25 Forge Parkway Franklin, MA 02038
Customer Information Number	(800) 248-7659 (Monday – Friday 8:00 am to 5:00 pm) msdstechnical@berryplastics.com
Emergency Telephone Number	
Chemtrec Number	Within USA and Canada: 1-800-424-9300 CCN22955 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)
Issue Date	May 6, 2014
Supersedes Date	May 29, 2013

Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200)and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2. HAZARD IDENTIFICATION

Hazard Classification
Flammable Aerosols - Category 1
Serious eye damage/eye irritation - Category 2A
Skin corrosion/irritation - Category 2
Specific Target Organ Toxicity Repeat Exposure - Category 2
Specific Target Organ Toxicity Single Exposure - Category 3
Toxic to Reproduction - Category 2
Aspiration hazard - Category 1

Label Elements
Hazard Symbols

Signal Word: Danger

Hazard Statements
Extremely flammable aerosol.
Causes serious eye irritation.
Causes skin irritation.
May cause drowsiness or dizziness
May cause damage to organs (nervous system) through prolonged or repeated exposure (Inhalation).
May be fatal if swallowed and enters airways.

2. HAZARD IDENTIFICATION

Precautionary Statements

Prevention

Pressurized container: Do not pierce or burn, even after use.
Do not spray on an open flame or other ignition source.
Keep away from heat/sparks/open flame/hot surfaces. - No smoking.
Wear eye protection/face protection/protective gloves/protective clothing.
Do not handle until all safety precautions have been read and understood.
Obtain special instructions before use.
Avoid breathing fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.
Use only outdoors or in a well-ventilated area.

Response

If swallowed: Immediately call a poison center/doctor/physician. Do not induce vomiting.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists, get medical advice/attention.
Take off contaminated clothing and wash before re-use.
If exposed or concerned: Get medical attention/advice.
If on skin: Wash with plenty of soap and water.
If skin irritation occurs, get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a poison center or doctor/physician if you feel unwell.

Storage

Protect from sunlight.
Store in a well-ventilated place. Keep container tightly closed.
Do not expose to temperatures exceeding 50 °C/122 °F.
Store locked up.

Disposal

Dispose of contents/container in accordance with local regulation.

Other Hazards

None identified.

2. HAZARD IDENTIFICATION

Specific Concentration Limits

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	55 - 65 %
Acute dermal toxicity	55 - 65 %
Acute inhalation toxicity	70 - 80%
Acute aquatic toxicity	70 - 80%

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:

This product is a mixture.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	Concentration
Acetone	67-64-1	20 - 30%
n-Hexane	110-54-3	10 - 20%
Dimethyl Ether	115-10-6	10 - 20%
Propane	74-98-6	10 - 20%
2-methylpentane	107-83-5	1 - 10%
3-methylpentane	96-14-0	1 - 10%

4. FIRST- AID MEASURES

Description of necessary first-aid measures

Eyes

Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin

Immediately flood the skin with large quantities of water for at least 15 minutes, preferably under a shower. Remove contaminated clothing and continue washing. Contaminated clothing should be washed or dry-cleaned before re-use. Obtain medical attention if blistering occurs or redness persists.

Ingestion

Do not induce vomiting. Have victim drink 1-3 glasses of water to dilute stomach contents. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.

Inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

Most important symptoms/effects, acute and delayed

Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

Notes to Physicians

Treat symptomatically.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media

Use foam, dry chemical or carbon dioxide. Be aware of the possibility of re-ignition. Keep containers and surroundings cool with water spray.

Specific hazards arising from the chemical

Vapors can travel a considerable distance to a source of ignition and flashback. Flashback can occur if air temperature exceeds flash point. Be aware of possibility of re-ignition. For aerosol products – exposure to temperature over 130^{o}F may cause containers to burst and release highly flammable gas.

Special Protective Actions for Fire-Fighters

Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear appropriate protective clothing. Eliminate all sources of ignition. Use non-sparking scoops for flammable materials.

Environmental Precautions
Prevent the material from entering drains or watercourses. Notify authorities if spill has entered watercourse or sewer or has contaminated soil or vegetation. Dispose in accordance with federal, state and local regulations.

Methods and materials for containment and cleaning up
Contain and absorb using earth, sand or other insert material. Transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Keep from reach of children. Do not puncture, incinerate or place aerosol product containers in compactors. Use in well ventilated area. Use local exhaust ventilation. Avoid inhaling vapor. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use. Do not flame cut, braze or use welding torch on container. Intentional misuse by deliberately concentrating or inhaling the vapors from this product may be harmful or fatal.

Conditions for safe storage
Store away from sources of heat or ignition. Storage area should be: cool - dry - well ventilated - away from incompatible materials - out of direct sunlight - away from sources of ignition (heat, sparks, flames, and pilot lights) Do not store above 120^{o}F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

Hexane
ACGIH: TLV 50ppm 8h TWA. (skin)
OSHA: PEL 500ppm (1800 mg/m^3) 8h TWA.
Can be absorbed through skin.
Acetone
ACGIH: TLV 500 ppm 8h TWA.
ACGIH (STEL): 750 ppm 15min.
OSHA: PEL 1000 ppm (2400 mg/m^3) 8h TWA.
Propane
ACGIH: See ACGIH Appendix F: Minimal Oxygen Content.
OSHA: PEL 1000ppm (1800 mg/m^3) 8h TWA.
2-Methylpentane as Hexane, Isomers other than n-Hexane
ACGIH: TLV 500 ppm 8h TWA.
ACGIH (STEL): 1000 ppm 15min
3-Methylpentane as Hexane, Isomers other than n-Hexane
ACGIH: TLV 500 ppm 8h TWA.
ACGIH (STEL): 1000 ppm 15min

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Appropriate engineering controls
Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.

Individual protection measures
Respiratory Protection
Wear respiratory protection if there is a risk of exposure to high vapor concentrations, aerosols or if applied to hot surfaces. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.
Skin Protection
Butyl gloves are recommended.
Eye/Face Protection
Chemical goggles or safety glasses with side shields.
Body Protection
If there is danger of splashing, wear: overall or apron

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Aerosol
Color	No data available
Odor	No data available
Odor Threshold	No data available
pH	Not applicable
Specific Gravity	0.703 estimated
Boiling Range/Point (°C/F)	Not determined
Melting Point (°C/F)	Not determined
Flash Point (PMCC) (°C/F)	-104.44 °C/-156°F Propellant estimated
Vapor Pressure	Not determined
Evaporation Rate	Faster than butyl acetate
Solubility in Water	No data available
Vapor Density (Air = 1)	Heavier than air
VOC (g/l)	No data available
VOC (%)	No data available
Partition coefficient (n-octanol/water)	Not applicable
Viscosity	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	No data available
Lower explosive limit	No data available
Flammability (solid, gas)	No data available

10. STABILITY AND REACTIVITY

Reactivity
Data is not available

Chemical Stability
Stable under normal conditions.

Possibility of hazardous reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Heat, sparks, flames - contact with incompatible materials

Incompatible Materials
Strong oxidizers

Hazardous Decomposition Products
Oxides of carbon - aldehydes

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Acetone
Oral LD50 (rat) 5800 mg/kg
Dermal LD50 (rabbit) 20,000 mg/kg
Inhalation LC50 (rat) 76 mg/l 4hr
n-Hexane
Oral LD50 (rat) >16,000 mg/kg
Dermal LD50 (rabbit) >2000 mg/kg

Specific Target Organ Toxicity (STOT) – single exposure
Inhalation of this product may cause narcotic effects such as drowsiness or dizziness (Hexane, Acetone, 2-methylpentane, 3-methylpentane).

Specific Target Organ Toxicity (STOT) – repeat exposure
Hexane: May cause adverse effects to the nervous system through repeated inhalation exposure..

Serious Eye damage/Irritation
Acetone: Undiluted acetone was severely irritating to rabbit eyes, mild irritation was observed for acetone concentrations of 30% and lower.
Hexane: Not irritating to eyes in rabbit studies.

Skin Corrosion/Irritation
Acetone: Repeated exposure may cause skin dryness and cracking.
Hexane: Irritating to skin in animal studies.
2-methylpentane: May cause skin irritation.
3-methylpentane: May cause skin irritation.

Respiratory or Skin Sensitization
Acetone: No indications of a sensitizing potential of acetone were found in a guinea pig maximization test.
Hexane: Not sensitizing to skin in Mouse local lymph node assay (LLNA)

11. TOXICOLOGICAL INFORMATION

Carcinogenicity
Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity
Available data indicates this product is not expected to be mutagenic.

Reproductive Toxicity
Hexane: In animal studies adverse reproductive and developmental effects were seen.

Aspiration Hazard
Available data indicates this product may be an aspiration hazard. May be fatal if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Hexane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)
2-methylpentane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)
3-methylpentane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)

Mobility in soil
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of in accordance with all applicable local and national regulations. Labels should not be removed from containers until they have been cleaned. Do not cut, puncture or weld on or near to the container. Use non-sparking tools. Do not incinerate closed containers. Empty containers may contain hazardous residues. Dispose of containers with care.

14. TRANSPORT INFORMATION

DOT CFR 172.101 Data	Consumer Commodity, ORM-D (US ground shipment only)
UN Proper Shipping Name	Aerosols
UN Class	(2.1)
UN Number	UN1950
UN Packaging Group	None
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.
Environmental Hazards	Not a marine pollutant

15. REGULATORY INFORMATION

United States TSCA Inventory
All ingredients have been verified for inclusion or are exempt from listing on the EPA Toxic Substance Control Act Chemical Substance Inventory.

Canada DSL and NDSL Inventory
All ingredients in this product have been verified for inclusion or are exempt from listing on the Domestic Substance List (DSL).

WHMIS Classification
B5. D.2 A

This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

California Proposition 65
This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

SARA Title III Sect. 311/312 Categorization
Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard, Fire Hazard, Sudden Release of Pressure

SARA Title III Sect. 313
This product contains a chemical that is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: Hexane (110-54-3)

16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Health - 2
NFPA Code for Flammability - 4
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards – None

HMIS Ratings
HMIS Code for Health - 2*
HMIS Code for Flammability - 4
HMIS Code for Physical Hazard - 0
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend
ACGIH: American Conference of Governmental Industrial Hygienists
CAS#: Chemical Abstracts Service Number
ECHA: European Chemicals Agency
EC50: Effect Concentration 50%
IARC: International Agency for Research on Cancer
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
N/A: Denotes no applicable information found or available
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit

16. OTHER INFORMATION

TLV: Threshold Limit Value
TSCA: Toxic Substance Control Act

Information Source and References
This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

Prepared By: EnviroNet LLC.

The information and recommendations presented in this SDS are based on sources believed to be accurate. Berry Plastics Corporation assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the **material** for their particular purposes. In particular, we make NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use **or disposal** of the material is in accordance with applicable Federal, State, and local laws and regulations.

Section 1 Identification.

Product name:

NOCO® NCP-2 Battery Corrosion Preventative

Product code:

NW728289

Other means of identification:	Not available.
Product type:	Aerosol
Relevant identified uses of the substance or mixture and uses advised against:	Not applicable.
Manufacturer:	For Balkamp by The NOCO Company Glenwillow, OH 44139
Emergency telephone number of the company:	(800) 424-9300

Section 2 Hazards identification.

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Product code:

FLAMMABLE AEROSOLS - Category 1
GASES UNDER PRESSURE - Compressed gas
ACUTE TOXICITY (inhalation) - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
ASPIRATION HAZARD - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 55%

GHS label elements:

Hazard pictograms:

Signal word: Danger.

Hazard statements:

Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
Harmful if inhaled.
Causes serious eye irritation.
Causes skin irritation.
Suspected of causing cancer.
May be fatal if swallowed and enters airways.

May cause respiratory irritation.
May cause drowsiness and dizziness.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

General: Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Pressurized container: Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source. Use only outdoors or in a well-ventilated area. Do not breathe dust or mist. Wash hands thoroughly after handling.

Response: Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage: Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Store in a well-ventilated place.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. FOR INDUSTRIAL USE ONLY.
Please refer to the SDS for additional information. Keep upright in a cool, dry place. Do not discard empty can in trash compactor.

Hazards not otherwise classified: None known.

Section 3 Composition/information on ingredients.

Substance/mixture: Mixture.

Other means of identification: Not available.

CAS number/other identifiers:

Ingredient name	% by weight	CAS Number
Paraffin oil	33.8	64742-62-7
Acetone	20.0	67-64-1
Propane	15.0	74-98-6
Xylene	12.7	1330-20-7
Methyl Ethyl Ketone	10.0	78-93-3
Ethylbenzene	2.3	100-41-4

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health of the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

Section 4 First aid measures.

Description of necessary first aid measures:

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Description of necessary first aid measures:

Eye contact: Causes serious eye irritation.

Inhalation: Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.

Most important symptoms/effects, acute and delayed.
Potential acute health effects:

Skin contact: Causes skin irritation.

Ingestion: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms:

Eye contact: Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation: Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact: Adverse symptoms may include the following:
irritation
redness

Ingestion: Adverse symptoms may include the following:
nausea of vomiting

Indication of immediate medical attention and special treatment needed, if necessary.

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5 Fire-fighting measures.

Extinguishing media:

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical:	Extremely flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard.
Hazardous thermal decomposition products:	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Special protective actions for fire-fighters:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6 Accidental release measures.

Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders:	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel.”
Environmental precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up:

Small spill:	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Section 7 Handling and storage.

Precautions for safe handling:

Protective measures: Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Store locked up. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

Section 8 Exposure controls/personal protection.

Control parameters, occupational exposure limits:

Paraffin Oil

ACGIH TLV (United States, 6/2013).
TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction
NIOSH REL (United States, 10/2013).
TWA: 5 mg/m³ 10 hours. Form: Mist
STEL: 10 mg/m³ 15 minutes. Form: Mist
OSHA PEL (United States, 2/2013).
TWA: 5 mg/m³ 8 hours.

Acetone:

ACGIH TLV (United States, 6/2013).
TWA: 500 ppm 8 hours.
TWA: 1188 mg/m³ 8 hours.
STEL: 750 ppm 15 minutes.
STEL: 1782 mg/m³ 15 minutes.
NIOSH REL (United States, 10/2013).
TWA: 250 ppm 10 hours.
TWA: 590 mg/m³ 10 hours.
OSHA PEL (United States, 2/2013).
TWA: 1000 ppm 8 hours.
TWA: 2400 mg/m³ 8 hours.

Propane:

NIOSH REL (United States, 10/2013).
TWA: 1000 ppm 10 hours.
TWA: 1800 mg/m³ 10 hours.
OSHA PEL (United States, 2/2013).
TWA: 1000 ppm 8 hours.
TWA: 1800 mg/m³ 8 hours.

Xylene:

ACGIH TLV (United States, 6/2013).
TWA: 100 ppm 8 hours.
TWA: 434 mg/m³ 8 hours.
STEL: 150 ppm 15 minutes.
STEL: 651 mg/m³ 15 minutes.
OSHA PEL (United States, 2/2013).
TWA: 100 ppm 8 hours.
TWA: 435 mg/m³ 8 hours.

Methyl Ethyl Ketone:

ACGIH TLV (United States, 6/2013).
TWA: 200 ppm 8 hours.
TWA: 590 mg/m³ 8 hours.
STEL: 300 ppm 15 minutes.
STEL: 885 mg/m³ 15 minutes.
NIOSH REL (United States, 10/2013).
TWA: 200 ppm 10 hours.
TWA: 590 mg/m³ 10 hours.
STEL: 300 ppm 15 minutes.
STEL: 885 mg/m³ 15 minutes.
OSHA PEL (United States, 2/2013).
TWA: 200 ppm 8 hours.
TWA: 590 mg/m³ 8 hours.

Ethylbenzene:

ACGIH TLV (United States, 6/2013).
TWA: 20 ppm 8 hours.
NIOSH REL (United States, 10/2013).
TWA: 100 ppm 10 hours.
TWA: 435 mg/m³ 10 hours.
STEL: 125 ppm 15 minutes.
STEL: 545 mg/m³ 15 minutes.
OSHA PEL (United States, 2/2013).
TWA: 100 ppm 8 hours.
TWA: 435 mg/m³ 8 hours.

Appropriate engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures:

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection:

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9 Physical and chemical properties.

Appearance:

Physical state:	Liquid.
Color:	Not available.
Odor:	Not available.
Odor threshold:	Not available.
pH:	Not available.
Melting point:	Not available.
Boiling point:	Not available.
Flash point:	Closed cup: -29°C (-20.2°F) [Pensky-Martens Closed Cup]
Evaporation rate:	5.6 (butyl acetate = 1)
Falmmability (solid, gas):	Not available.
Lower and upper explosive (flammable) limits:	Lower: 1% Upper: 12.8%
Vapor pressure:	13.5 kPa (101.325 mm Hg) [at 20°C]
Vapor density:	1.55 [Air = 1]
Relative density:	0.76
Solubility:	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature:	Not available.
Decomposition temperature:	Not available.
Viscosity:	Kinematic (40°C (104°F)): <0.07 cm2 /s (<7 cSt)

Aerosol product:

Type of aerosol:	Spray
Heat of combustion:	32.91 kJ/g

Section 10 Stability and reactivity.

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable.
Possibility of hazardous reactions:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid:	Avoid all possible sources of ignition (spark or flame).
Incompatible materials:	No specific data.
Hazardous decomposition products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological information.

Information on toxicological effects:

Acute toxicity:

Product/ ingredient name	Result	Species	Dose	Exposure
Acetone	LD50 Oral	Rat	5800 mg/kg	-
Xylene	LD50 Inhalation Gas	Rat	5000 ppm	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
			6480 mg/kg	-
Methyl Ethyl Ketone	LD50 Dermal	Rabbit	2737 mg/kg	-
	LD50 Oral	Rat		
Ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	

Irritation/Corrosion:

Product/ ingredient name	Result	Species	Exposure
Acetone	Eyes- Mild irritant	Human	186300 parts per million
	Eyes- Mild irritant	Rabbit	10 microliters
	Eyes- Moderate irritant	Rabbit	24 hours 20 milligrams
	Eyes- Severe irritant	Rabbit	20 milligrams
	Skin- Mild irritant	Rabbit	24 hours 500 milligrams
	Skin- Mild irritant	Rabbit	395 milligrams
Xylene	Eyes- Mild irritant	Rabbit	87 milligrams
	Eyes- Severe irritant	Rabbit	24 hours 5 milligrams
	Skin- Mild irritant	Rat	8 hours 60 microliters
	Skin- Moderate irritant	Rabbit	24 hours 500 milligrams
	Skin- Moderate irritant	Rabbit	100 Percent
Methyl Ethyl Ketone	Skin- Mild irritant	Rabbit	24 hours 14 milligrams
	Skin- Moderate irritant	Rabbit	24 hours 500 milligrams
Ethylbenzene	Eyes- Severe irritant	Rabbit	500 milligrams
	Skin- Mild irritant	Rabbit	24 hours 15 milligrams

Sensitization:

Not available.

Mutagenicity:

Not available.

Carcinogenicity:

Not available.

Classification:

Product/ ingredient name	OSHA	IARC	NTP
Xylene	-	3	-
Ethylbenzene	-	2B	-

Reproductive toxicity:

Not available.

Teratogenicity:

Not available.

Specific target organ toxicity (single exposure):

Name	Category	Route of exposure	Target organs
Paraffin Oil	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Acetone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Propane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Xylene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Methyl Ethyl Ketone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure):

Name	Category	Route of exposure	Target organs
Paraffin Oil	Category 2	Not determined.	Not determined.
Acetone	Category 2	Not determined.	Not determined.
Propane	Category 2	Not determined.	Not determined.
Xylene	Category 2	Not determined.	Not determined.
Methyl Ethyl Ketone	Category 2	Not determined.	Not determined.
Ethylbenzene	Category 2	Not determined.	Not determined.

Aspiration hazard:

Name	Result
Propane	ASPIRATION HAZARD-Category 1
Ethylbenzene	ASPIRATION HAZARD-Category 1

Information on the likely routes of exposure: Not available.

Potential acute health effects:

Eye contact: Causes serious eye irritation.

Inhalation: Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.

Skin contact: Causes skin irritation.

Ingestion: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics:

Eye contact: Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation: Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact: Adverse symptoms may include the following:
irritation
redness

Ingestion: Adverse symptoms may include the following:
nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure:

Short term exposure:

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Long term exposure:

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects:

Not available.

General:	May cause damage to organs through prolonged or repeated exposure.
Carcinogenicity:	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity:	No known significant effects or critical hazards.
Teratogenicity:	No known significant effects or critical hazards.
Developmental effects:	No known significant effects or critical hazards.
Fertility effects:	No known significant effects or critical hazards.

Numerical measures of toxicity:

Acute toxicity estimates:

Route	ATE value
Oral	6201.2 mg/kg
Inhalation (gases)	17676.3 ppm

Section 12 Ecological information.

Toxicity:

Product/ingredient name	Result	Species	Exposure
Acetone	Acute EC50 20.565 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 6000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 10000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 100 mg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 4.95 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.016 ml/L Fresh water	Crustaceans - Daphniidae	21 days
	Chronic NOEC 0.1 ml/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 5 µg/l Marine water	Fish - Gasterosteus aculeatus - Larvae	42 days
Xylene	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
Methyl Ethyl Ketone	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 500000 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 520000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 400 ppm Marine water	Fish - Cyprinodon variegatus - Juvenile (Fledgling, Hatchling, Weanling)	96 hours

Toxicity:

Product/ingredient name	Result	Species	Exposure
Ethylbenzene	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 2930 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 5200 µg/l Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 days

Persistence and degradability:

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Acetone	-	-	Readily

Bioaccumulative potential:

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Xylene	-	8.1 to 25.9	low

Mobility in soil:

Soil/water partition coefficient (K_{oc}): Not available.

Other adverse effects: No known significant effects or critical hazards.

Section 13 Disposal considerations.

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14 Transport information.

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1950	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS, flammable	AEROSOLS
Transport hazard class(es)	2.1	2.1	2.1	2.1	2.1
Packing group	- 	- 	- 	- 	- 
Environmental hazards	No.	No.	No.	No.	No.
Additional information	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY

Special precautions for user: Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

Section 15 Regulatory information.

U.S. Federal regulations:

SARA 313: SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

State regulations:

California Prop. 65 WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16 Other information.

Prepared on: May 22, 2015

Hazardous Material Information System (U.S.A.):

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

Notice to reader:

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

Date of Issue:
27 May 2015

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 3090
SRM Name: Aroclors in Transformer Oil
Other Means of Identification: Not Applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is a set of six different solutions of individual Aroclors in transformer oil and consists of six 2-mL ampoules, each containing approximately 1.2 mL of each of the following SRMs: SRM 3075, Aroclor 1016 in Transformer Oil; SRM 3076, Aroclor 1232 in Transformer Oil; SRM 3077, Aroclor 1242 in Transformer Oil; SRM 3078, Aroclor 1248 in Transformer Oil; SRM 3079, Aroclor 1254 in Transformer Oil; and SRM 3080; Aroclor 1260 in Transformer Oil. This SRM is intended primarily for calibrating chromatographic instrumentation and methods of analysis used for the determination of Aroclors and polychlorinated biphenyls (PCBs) in transformer oil.

Company Information

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

Telephone: 301-975-2200
FAX: 301-948-3730
E-mail: SRMMSDS@nist.gov
Website: http://www.nist.gov/srm

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

2. HAZARDS IDENTIFICATION

Classification

Physical Hazard:	Not classified.	
Health Hazard:	Carcinogenicity	Category 1B
	Reproductive Toxicity	Category 2
	Aspiration Hazard	Category 1

Label Elements

Symbol

Signal Word

DANGER

Hazard Statement(s)

H304	May be fatal if swallowed and enters airways.
H350	May cause cancer <inhalation, ingestion>.
H361	Suspected of damaging fertility or the unborn child.

Precautionary Statement(s):

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves, protective clothing, and eye protection.
P308+P313	If exposed or concerned: Get medical attention.
P301+P310	If swallowed: Immediately call a doctor.

P331 Do NOT induce vomiting.

P405 Store locked up.

P501 Dispose of contents and container according to local regulations.

Hazards Not Otherwise Classified: Not applicable.

Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. Composition and Information on Hazardous Ingredients

Substance: Aroclor 1260 in transformer oil.

Other Designations:

Transformer oil (hydrotreated light naphthenic distillate (petroleum), hydraulic petroleum oil, distillates, petroleum).

Aroclor 1232: PCB 1232; chlorodiphenyl (32 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Aroclor 1242: PCB 1242; chlorodiphenyl (42 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Aroclor 1248: PCB 1248; chlorodiphenyl (48 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Aroclor 1254: PCB 1254; chlorodiphenyl (54 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Aroclor 1260: PCB 1260; chlorodiphenyl (60 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Components are listed in compliance with OSHA 29 CFR 1910.1200.

Hazardous Component(s)	CAS Number	EC Number[(a)] (EINECS)	Nominal Mass Concentration (%)
SRM 3075			
Transformer Oil	64742-53-6	265-156-6	>99.99
SRM 3076			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1232	11141-16-5	215-648-1	0.43
SRM 3077			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1242	53469-21-9	215-648-1	0.41
SRM 3078			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1248	12672-29-6	215-648-1	0.37
SRM 3079			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1254	11097-69-1	215-648-1	0.36
SRM 3080			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1260	11096-82-5	215-648-1	0.11

[(a)] EC Number as PCB, polychlorinated biphenyl

4. First Aid Measures

Description of First Aid Measures:

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Skin Contact: Wash exposed skin with soap and water for at least 15 minutes. Seek medical attention if needed.

Eye Contact: Immediately flush eyes, including under the eyelids with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Ingestion: Aspiration hazard. Do not induce vomiting. If vomiting occurs, keep head lower than hips to prevent aspiration. If not breathing, give artificial respiration by qualified personnel. Seek immediate medical attention.

Most Important Symptoms/Effects, Acute and Delayed: Irritation, dizziness, nausea, coughing, and aspiration.

Indication of any immediate medical attention and special treatment needed, if necessary: Not applicable.

5. Fire Fighting Measures

Fire and Explosion Hazards: Slight fire hazard. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media:

Suitable: Regular dry chemical, carbon dioxide, regular foam.
Unsuitable: Straight streams of water.

Specific Hazards Arising from the Chemical: None listed.

Special Protective Equipment and Precautions for Fire-Fighters: Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 2 Fire = 1 Reactivity = 0

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

Methods and Materials for Containment and Clean up: Absorb spilled material with sand or non-combustible material and collect in appropriate container for disposal. Keep out of water supplies and sewers.

7. Handling and Storage

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

Storage: Store and handle in accordance with all current regulations and standards. The storage floor must be impermeable and form a collecting basin so that, in the event of an accident spillage, the liquid cannot spread beyond the storage area.

8. Exposure Controls and Personal Protection

Exposure Limits:

Transformer oil: No occupational exposure limits established.

Aroclors: NIOSH (TWA): 0.001 mg/m^3 (related to 1,1'-Biphenyl, chloro derivatives)

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection Measures: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye/Face Protection: Wear splash resistant safety goggles with a face shield. An eye wash station should be readily available near areas of use.

Skin and Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Descriptive Properties	**Transformer oil (>99 %)**
Appearance (physical state, color, etc.):	clear, yellow liquid
Molecular Formula:	not applicable
Molar Mass (g/mol):	not applicable
Odor:	not available
Odor threshold:	not available
pH:	not available
Evaporation rate:	not available
Melting point/freezing point:	–55 °C (–67 °F)
Pour point:	–40 °C (–40 °F)
Density:	0.8912 g/mL at 22 °C[(b)]
Vapor Pressure:	0.1 mmHg 20 °C[(a)]
Vapor Density (air = 1):	>5 at 101 kPa[(a)]
Kinematic Viscosity:	12 cSt (12 mm^2/s) at 40 °C
Solubility(ies):	insoluble in water
Partition coefficient (n-octanol/water):	>6.5[(a)]
Thermal Stability Properties	
Autoignition Temperature:	>315 °C (599 °F)[(a)]
Thermal Decomposition:	not available
Initial boiling point and boiling range:	260 °C to 371 °C (500 °F to 700 °F)
Explosive Limits, LEL:	not available
Explosive Limits, UEL:	not available
Flash Point:	>145 °C (293 °F)[(a)]
Flammability (solid, gas):	not applicable

[(a)] Physical property listed in the NIST Certificate of Analysis. Values are not certified.
[(b)] Vendor supplied health and safety information.

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Stability: X Stable _____ Unstable

Possible Hazardous Reactions: None listed.

Conditions to Avoid: Avoid excessive heat; high energy ignition sources.

Incompatible Materials: Oxidizers.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Oxides of carbon, sulfur oxides, aldehydes.

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: X Inhalation X Skin X Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Dizziness, nausea, coughing.

Potential Health Effects (Acute, Chronic and Delayed):

Inhalation: Acute exposure to high levels of vapor from transformer oil may cause central nervous system depression, headache, dizziness, nausea, vomiting, anorexia, incoordination and unconsciousness. Prolonged or repeated exposure may cause irritation. Short term exposure to Aroclors may cause irritation or liver damage; long term exposure may cause rash, itching, hair loss, digestive issues, headache, dizziness, impotence, coma, and cancer.

Skin Contact: Short term and long term contact with transformer oil may cause skin irritation and dermatitis. Short-term exposure to Aroclors may cause skin irritation or liver damage; long term exposure to Aroclors may cause same effects as for inhalation, plus hair loss and reproductive effects.

Eye Contact: Acute exposure of liquid or vapor may cause irritation.

Ingestion: Acute ingestion of transformer oil may cause abdominal pain, nausea, and vomiting. Small amounts of oil aspirated during ingestion or vomiting may cause lung damage; no information available for long-term exposure to transformer oil. Short term exposure to Aroclors may cause liver damage; long term exposure to Aroclors may cause same effects as for inhalation, plus hyperactivity, menstrual disorders, reproductive effects.

Numerical Measures of Toxicity:

Acute Toxicity: Not classified.

Component: Transformer oil
Rat, Oral LD50: >5000 mg/kg
Rat, Inhalation LC50: 2180 mg/m^3 (4 h)
Rabbit, Skin LD50: >2000 mg/kg

Component: Aroclor 1232
Rat, Oral LD50: 4470 mg/kg

Component: Aroclor 1242
Rat, Oral LD50: 4250 mg/kg

Component: Aroclor 1248
Rat, Oral LD50: 11000 mg/kg

Component: Aroclor 1254
Rat, Oral LD50: 1010 mg/kg

Component: Aroclor 1260
Rat, Oral LD50: 1315 mg/kg

Skin Corrosion/Irritation: Not classified.
Transformer oil, Rabbit, skin: 0.5 mL/24 h, moderate

Serious Eye Damage/ Eye Irritation: Not classified.
Transformer oil, Rabbit, eye: 0.1 mL, mild

Respiratory Sensitization: No data available; not classified.

Skin Sensitization: No data available; not classified.

Germ Cell Mutagenicity: No data available; not classified.

Carcinogenicity: Category 1B

Listed as a Carcinogen/Potential Carcinogen X Yes _____ No

Transformer oil is not listed by NTP, IARC, or OSHA as a carcinogen/potential carcinogen.

Aroclors are is listed by NTP as *reasonably anticipated to be a human carcinogen* (as PCB, polychlorinated biphenyl, CAS number 1336-36-3) and by IARC as Group 1, c*arcinogenic to humans* (related to Polychlorinated biphenyls).

Reproductive Toxicity: Category 2

Aroclors: Overexposure has resulted in decreased birth weight in offspring of exposed mothers. Significant exposure to PCBs that reach the fetus can cause teratogenic effects.

Component: Aroclor 1232
Oral Rat TDLo: 420 mg/kg TDLo (21 days)

Component: Aroclor 1242
Oral Rat TDLo: 945 mg/kg TDLo (prior to copulation, 36 week)

Component: Aroclor 1248
Monkey, Oral TDLo: 32 mg/kg (pregnant 1-23 week, 91 days)

Component: Aroclor 1254
Oral Mammal TDLo - species unspecified: 14 mg/kg, prior to copulation 30 day(s)

Component: Aroclor 1260
Oral Rat TDLo: 210 mg/kg, pregnant 14-20 days

STOT, Single Exposure: No data available; not classified.

STOT, Repeated Exposure: Not classified; this SRM contains less than 1 % of Aroclor, a Category 2 target organ toxicant.

Aspiration Hazard: Category 1
Transformer oil is a human aspiration toxicity hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data:

Transformer oil:	Fish, Rainbow Trout (*Oncorhynchus mykiss*) LC50: >5000 mg/L (96 h) Invertebrate, Water flea (*Daphnia magna*) EC50: >1000 mg/L (48 h)
Aroclor 1232:	No data available.
Aroclor 1242:	Fish, Fathead minnow (*Pimephales promelas*) LC50 (flow-through, newly hatched): 0.015 mg/L (96 h)
Aroclor 1248:	No data available.
Aroclor 1254:	No data available.
Aroclor 1260:	No data available.

Persistence and Degradability: Has the potential to biodegradable.

Bioaccumulative Potential: No data available

Mobility in Soil: Expected to migrate from land to water and vice versa.

Other Adverse effects: Keep out of water supplies.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of waste in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: This material is not regulated by IATA or DOT.

15. REGULATORY INFORMATION

U.S. Regulations:

CERCLA Sections 102a/103 (40 CFR 302.4): Aroclors 1 lb. (0.454 kg) final RQ.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Aroclors, 0.1 % supplier notification limit (related or polychlorinated biphenyls).

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH:	Yes.
CHRONIC HEALTH:	Yes.
FIRE:	No.
REACTIVE:	No.
PRESSURE:	No.

State Regulations:

California Proposition 65:

> WARNING! This product contains a chemical (Aroclors 1232, 1242, 1248, 1254 and 1260, related to PCBs) known to the state of California to cause cancer, reproductive, and/or developmental effects.

U.S. TSCA Inventory: Transformer oil is listed.

TSCA 12(b), Export Notification: Aroclors 1232, 1242, 1248, 1254 and 1260 is listed in Section 6, 50 ppm de minimus concentration (see 40 CFR 761, related to polychlorinated biphenyls).

Canadian Regulations:

WHMIS Information: Not provided for this material.

16. OTHER INFORMATION

Issue Date: 27 May 2015

Sources: ChemADVISOR, Inc., SDS, *Aroclor 1232*, 20 March 2015

ChemADVISOR, Inc., SDS, *Aroclor 1242*, 20 March 2015

ChemADVISOR, Inc., SDS, *Aroclor 1248*, 20 March 2015

ChemADVISOR, Inc., SDS, *Aroclor 1254*, 20 March 2015

ChemADVISOR, Inc., SDS, *Aroclor 1260*, 20 March 2015.

ChemADVISOR, Inc., SDS, *Transformer Oil*, 20 March 2015.

Vendor MSDS, Exxon Mobile Corporation, UNIVOLT N 61 B, 30 May 2014.

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	RM	Reference Material
LC50	Lethal Concentration	STEL	Short Term Exposure Limit
LD50	Median Lethal Dose or Lethal Dose, 50 %	STOT	Specific Target Organ Toxicity
LEL	Lower Explosive Limit	TLV	Threshold Limit Value
MSDS	Material Safety Data Sheet	TPQ	Threshold Planning Quantity
NFPA	National Fire Protection Association	TSCA	Toxic Substances Control Act
NIOSH	National Institute for Occupational Safety and Health	TWA	Time Weighted Average
NIST	National Institute of Standards and Technology	UEL	Upper Explosive Limit
		WHMIS	Workplace Hazardous Materials Information System

Disclaimer: Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srmmsds@nist.gov; or via the Internet at http://www.nist.gov/srm.

SAFETY DATA SHEET

Issue Date 01-Jan-2008 **Revision Date** 28-Aug-2015 **Version** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name Peel Away 1

Other Means of Identification
SDS # DCI-009

UN/ID No UN1823

Recommended Use of the Chemical and Restrictions on Use
Recommended Use Paint remover.

Details of the Supplier of the Safety Data Sheet
Supplier Address
Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number
Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Signal Word
Danger

Hazard Statements
Causes severe skin burns and eye damage
May cause respiratory irritation. May cause drowsiness or dizziness

Appearance White paste **Physical State** Paste **Odor** None

Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Call a POISON CENTER or doctor/physician if you feel unwell
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Alkaline.

Chemical Name	CAS No	Weight-%
Calcium hydroxide	1305-62-0	21
Magnesium hydroxide	1309-42-8	16
Sodium hydroxide	1310-73-2	9

4. FIRST AID MEASURES

First Aid Measures

Inhalation Remove to fresh air. Immediate medical attention is required.

Eye Contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Call a physician immediately.

Ingestion If conscious, give water or milk. Do NOT induce vomiting. Get medical attention if necessary.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms May cause dermatitis or irritation in some individuals upon prolonged contact. May cause severe chemical burns with reddening and pain. Causes eye irritation. Causes skin irritation. May cause irritation to the mucous membranes and upper respiratory tract. Ingestion may cause severe burns to mouth, throat or stomach.

Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians Treat symptomatically. Individuals with chronic respiratory or skin diseases may be at risk from exposure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
At elevated temperatures, containers may rupture. Contents are corrosive and all personal contact must be avoided.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Cool containers with flooding quantities of water until well after fire is out.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions Use personal protective equipment as required.

Environmental Precautions Do not allow into any sewer, on the ground or into any body of water.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Keep in suitable, closed containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling Handle in accordance with good industrial hygiene and safety practice. Wash face, hands, and any exposed skin thoroughly after handling. Do not breathe dust/fume/gas/mist/vapors/spray. Use only in well-ventilated areas.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Store in a cool, well ventilated area away from acids and other incompatible substances. Store locked up.

Incompatible Materials Acids. Organic halogen compounds. Nitromethane. Flammable liquid. Metals such as aluminum, tin, and zinc.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH

Calcium hydroxide 1305-62-0	TWA: 5 mg/m³	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 5 mg/m³ not in effect as a result of reconsideration	TWA: 5 mg/m³
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m³	TWA: 2 mg/m³ (vacated) Ceiling: 2 mg/m³	IDLH: 10 mg/m³ Ceiling: 2 mg/m³

Appropriate Engineering Controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits. Use in a Well-ventilated location (eg. local exhaust ventilation, fans). Shower (On site portable shower is an acceptable method). Eye Wash Station.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Chemical safety goggles/faceshield.

Skin and Body Protection Wear suitable protective clothing. Rubber, neoprene, or other impervious gloves are recommended to prevent skin contact. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory Protection Ensure adequate ventilation, especially in confined areas. For spray application, a NIOSH approved dust respirator and eye protection.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Paste		
Appearance	White paste	**Odor**	None
Color	White	**Odor threshold**	Not determined

Property	**Values**	**Remarks • Method**
pH	12	
Melting point/freezing point	Not determined	
Boiling point/boiling range	> 100 °C / >212 °F	
Flash point	None	
Evaporation rate	Same as water	
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Same as water	@ 20 C
Vapor density	Same as water	
Specific gravity	1.33	
Water solubility	Completely soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not determined	
Autoignition temperature	None	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic viscosity	Not determined	
Explosive properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

VOC Content (%) 0%

VOC Content 0 lbs/gal

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to Avoid
Keep out of reach of children.

Incompatible Materials
Acids. Organic halogen compounds. Nitromethane. Flammable liquid. Metals such as aluminum, tin, and zinc.

Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation Avoid breathing vapors or mists.

Eye Contact Causes severe eye damage.

Skin Contact Causes severe skin burns.

Ingestion Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Calcium hydroxide 1305-62-0	= 7340 mg/kg (Rat)	-	-
Magnesium hydroxide 1309-42-8	= 8500 mg/kg (Rat)	-	-
Sodium hydroxide 1310-73-2	-	= 1350 mg/kg (Rabbit)	-

Information on Physical, Chemical and Toxicological Effects

Symptoms May cause dermatitis or irritation in some individuals upon prolonged contact. May cause severe chemical burns with reddening and pain. May cause skin and eye irritation. May cause irritation to the mucous membranes and upper respiratory tract. May cause burns to mouth and gastrointestinal corrosion.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

STOT - single exposure May cause respiratory irritation. May cause drowsiness or dizziness.

Numerical Measures of Toxicity- Product
Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 21097 mg/kg
ATEmix (dermal) 9445 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Calcium hydroxide 1305-62-0		160: 96 h Gambusia affinis mg/L LC50 static		
Sodium hydroxide 1310-73-2		45.4: 96 h Oncorhynchus mykiss mg/L LC50 static		

Persistence and Degradability
Not determined.

Bioaccumulation
Not determined.

Mobility
Not determined.

Other Adverse Effects Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	California Hazardous Waste Status
Calcium hydroxide 1305-62-0	Corrosive
Sodium hydroxide 1310-73-2	Toxic Corrosive

14. TRANSPORT INFORMATION

Note Based on package size, product may be eligible for limited quantity exception

DOT

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

IATA

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

IMDG

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

15. REGULATORY INFORMATION

International Inventories

Legend:
TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*
DSL/NDSL *- Canadian Domestic Substances List/Non-Domestic Substances List*
EINECS/ELINCS *- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*
ENCS *- Japan Existing and New Chemical Substances* ***IECSC***
- China Inventory of Existing Chemical Substances ***KECL*** *-*
Korean Existing and Evaluated Chemical Substances
PICCS *- Philippines Inventory of Chemicals and Chemical Substances*

US Federal Regulations

SARA 311/312 Hazard Categories

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hydroxide 1310-73-2	1000 lb			X

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Sodium hydroxide 1310-73-2	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Calcium hydroxide 1305-62-0	X	X	X
Sodium hydroxide 1310-73-2	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	Not determined	Not determined	Not determined	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	3	0	0	Not determined

Issue Date	01-Jan-2008
Revision Date	12-Dec-2012
Revision Note	New format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Issue Date 18-Apr-2007 **Revision Date** 3-Mar-2015 **Version** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name Peel Away 7

Other Means of Identification
SDS # DCI-014

Recommended Use of the Chemical and Restrictions on Use
Recommended Use Paint remover.

Details of the Supplier of the Safety Data Sheet
Supplier Address
Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number
Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

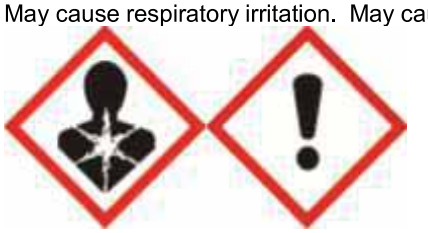
2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Inhalation (Vapors)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3

Signal Word
Danger

Hazard Statements
Harmful if inhaled
Causes skin irritation
Causes severe eye irritation
May damage fertility or the unborn child
May cause respiratory irritation. May cause drowsiness or dizziness



Appearance Light brown paste **Physical State** Paste **Odor** Slight Sweet

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Get medical attention if irritation occurs
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards Not Otherwise Classified (HNOC)
May be harmful if swallowed
May be harmful in contact with skin

Other Hazards
Toxic to aquatic life with long lasting effects
Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Benzyl alcohol	100-51-6	20-40
1-Methyl-2-pyrrolidone	872-50-4	10-20
alpha-(4-nonylphenyl)-omega-hydroxy-poly(oxy-1,2-ethanediyl) branched	127087-87-0	<2

Chemical Additions: Contains 10-20% dibasic ester, which is a mixture of dimethyl glutarate (CAS# 1119-40-0) and dimethyl adipate (CAS# 627-93-0)
Water

4. FIRST AID MEASURES

First Aid Measures

General advice If exposed or concerned: Get medical advice/attention.

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Eye Contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention if irritation occurs.

Ingestion If conscious give 1 glass of water to dilute. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Skin Contact Wash with soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/ attention.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract. May cause irritation, redness and pain. Area of contact may become numb due to anesthetic effects. May cause gastrointestinal irritation, nausea, diarrhea, and vomiting.

Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians Treat symptomatically. Individuals with chronic respiratory or skin diseases may be at risk from exposure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Water spray (fog). Alcohol resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
At elevated temperatures, containers may rupture. Cool containers exposed to flames with water until well after the fire is out. Vapors may form explosive mixtures with air.

Hazardous combustion products Carbon oxides. Nitrogen oxides (NOx).

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions Use personal protective equipment as required. Remove all sources of ignition.

Environmental Precautions Do not allow into any sewer, on the ground or into any body of water.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so. Dike the spilled material, where this is possible. Collect using an inert absorbent material and place in appropriate containers for disposal.

Methods for Cleaning Up Keep in suitable, closed containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protection recommended in Section 8. Avoid breathing vapors or mists. Use only in well-ventilated areas. Wash face, hands, and any exposed skin thoroughly after handling. Protect container from physical damage. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Follow all SDS/label precautions even after container is emptied because it may retain product residues.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Store away from incompatible materials.

Incompatible Materials Strong acids. Strong bases. Strong oxidizing agents. Strong reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Kaolin 1332-58-7	TWA: 2 mg/m^3 particulate matter containing no asbestos and <1% crystalline silica, respirable fraction	TWA: 15 mg/m^3 total dust TWA: 5 mg/m^3 respirable fraction (vacated) TWA: 10 mg/m^3 total dust (vacated) TWA: 5 mg/m^3 respirable fraction	TWA: 10 mg/m^3 total dust TWA: 5 mg/m^3 respirable dust

Appropriate Engineering Controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits. If the recommended exposure limit is exceeded increased mechanical ventilation such as local exhaust may be required. Showers. Eyewash stations.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Wear approved safety goggles. Face Mask. Do not wear contact lenses.

Skin and Body Protection Wear protective butyl rubber gloves. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory Protection If occupational exposure limits are exceeded, use NIOSH approved respirator with organic vapor cartridges and dust/mist pre-filter. For higher concentrations (greater than10 times the recommended exposure limit) an approved supplied air respirator (with escape bottle if required) or self–contained breathing apparatus may be required. Selection of respiratory protection depends on the contaminant type, form, and concentration. Select in accordance with OSHA 1910.134 and good industrial hygiene practice.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Paste		
Appearance	Light brown paste	**Odor**	Slight Sweet
Color	Light brown	**Odor threshold**	Not determined

Property	**Values**	**Remarks • Method**
pH	6	
Melting point/freezing point	Not available	
Boiling point/boiling range	Not available	
Flash point	> 93.3 °C / > 200 °F	Cleveland Open Cup
Evaporation rate	<1	(butyl alcohol = 1)
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not available	
Lower flammability limit	Not determined	
Vapor pressure	<0.3	(n-methyl-2-pyrrolidone)
Vapor density	3-4	(Air=1)
Specific gravity	12.0 lbs/gal	
Water solubility	partially soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not available	
Autoignition temperature	Not determined	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic viscosity	Not determined	
Explosive properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

VOC Content (%)	15.64%
VOC Content	1.88 lbs/gal

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to Avoid
Keep out of reach of children.

Incompatible Materials
Strong acids. Strong bases. Strong oxidizing agents. Strong reducing agents.

Hazardous Decomposition Products
Thermal decomposition may produce oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation Harmful if inhaled.

Eye Contact Causes severe eye irritation.

Skin Contact Causes skin irritation. May be harmful in contact with skin.

Ingestion May be harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Benzyl alcohol 100-51-6	= 1230 mg/kg (Rat)	= 2000 mg/kg (Rabbit)	= 8.8 mg/L (Rat) 4 h
1-Methyl-2-pyrrolidone 872-50-4	= 3598 mg/kg (Rat)	= 2500 mg/kg (Rat) > 5000 mg/kg (Rabbit)	= 3.1 mg/L (Rat) 4 h
Dimethyl Adipate 627-93-0	= 1920 mg/kg (Rat)	-	-
Dimethyl Glutarate 1119-40-0	= 8191 mg/kg (Rat)	-	> 5.6 mg/L (Rat) 4 h

Information on Physical, Chemical and Toxicological Effects

Symptoms Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract. May cause irritation, redness and pain. Area of contact may become numb due to anesthetic effects. May cause gastrointestinal irritation, nausea, diarrhea, and vomiting.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Reproductive toxicity May damage fertility or the unborn child.

STOT - single exposure May cause respiratory irritation. May cause drowsiness or dizziness.

Numerical Measures of Toxicity- Product

Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 2017 mg/kg
ATEmix (dermal) 2311 mg/kg
ATEmix (inhalation-gas) 809 mg/l
ATEmix (inhalation-dust/mist) 0.1 mg/l
ATEmix (inhalation-vapor) 10.5 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea

Benzyl alcohol 100-51-6	35: 3 h Anabaena variabilis mg/L EC50	460: 96 h Pimephales promelas mg/L LC50 static 10: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 50 mg/L 5 min EC50 = 63.7 mg/L 15 min EC50 = 63.7 mg/L 5 min EC50 = 71.4 mg/L 30 min	23: 48 h water flea mg/L EC50
1-Methyl-2-pyrrolidone 872-50-4	500: 72 h Desmodesmus subspicatus mg/L EC50	832: 96 h Lepomis macrochirus mg/L LC50 static 4000: 96 h Leuciscus idus mg/L LC50 static 1072: 96 h Pimephales promelas mg/L LC50 static 1400: 96 h Poecilia reticulata mg/L LC50 static		4897: 48 h Daphnia magna mg/L EC50
Dimethyl Glutarate 1119-40-0		19.6 - 26.2: 96 h Pimephales promelas mg/L LC50 static		122.1 - 163.5: 48 h Daphnia magna mg/L EC50

Persistence and Degradability
Material is readily biodegradable.

Bioaccumulation
The product has low potential for bioaccumulation.

Mobility
Not determined.

Chemical Name	Partition coefficient
Benzyl alcohol 100-51-6	1.1
1-Methyl-2-pyrrolidone 872-50-4	-0.46

Other Adverse Effects Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances

DOT Not regulated

IATA Not regulated

IMDG Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Listed
DSL	Listed

Legend:
TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*
DSL/NDSL *- Canadian Domestic Substances List/Non-Domestic Substances List*
EINECS/ELINCS *- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*
ENCS *- Japan Existing and New Chemical Substances* ***IECSC***
- China Inventory of Existing Chemical Substances ***KECL*** *-*
Korean Existing and Evaluated Chemical Substances
PICCS *- Philippines Inventory of Chemicals and Chemical Substances*

US Federal Regulations

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
1-Methyl-2-pyrrolidone - 872-50-4	872-50-4	10-20	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

US State Regulations

Chemical Name	California Proposition 65
1-Methyl-2-pyrrolidone - 872-50-4	Developmental

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Benzyl alcohol 100-51-6		X	X
Kaolin 1332-58-7	X	X	X
1-Methyl-2-pyrrolidone 872-50-4	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	2	1	0	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	Not determined	Not determined	Not determined	Not determined

Issue Date	18-Apr-2007
Revision Date	12-Dec-2012
Revision Note	New format

Disclaimer

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End of Safety Data Sheet

SAFETY DATA SHEET

Issue Date 23-Jun-2011 **Revision Date** 3-Mar-2015 **Version** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name Peel Away ST-1

Other Means of Identification
SDS # DCI-026

UN/ID No UN1823

Recommended Use of the Chemical and Restrictions on Use
Recommended Use Paint removal from steel structures.

Details of the Supplier of the Safety Data Sheet
Supplier Address
Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number
Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Signal Word
Danger

Hazard Statements
Causes severe skin burns and eye damage
May cause respiratory irritation. May cause drowsiness or dizziness

Appearance blue paste **Physical State** Paste **Odor** No odor

Precautionary Statements - Prevention

Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Call a POISON CENTER or doctor/physician if you feel unwell
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Calcium hydroxide	1305-62-0	21
Magnesium hydroxide	1309-42-8	16
Sodium hydroxide	1310-73-2	9
Water	N/A	46

4. FIRST AID MEASURES

First Aid Measures

Inhalation Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention/advice.

Eye Contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Seek immediate medical attention/advice.

Ingestion If conscious, give 1 glass of water or milk to dilute. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if necessary.

Skin Contact Wash thoroughly with soap and water (15-30 minutes) until no traces of the chemical remain. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms Causes painful stinging or burning of eyes and lids, watering of eyes. May cause severe chemical burns with reddening and pain. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract. May cause burns to mouth, esophagus and stomach. Swallowing large quantities may cause gastrointestinal tract irritation, nausea, vomiting, and diarrhea.

Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
At elevated temperatures, containers may rupture. Contents are corrosive and all personal contact must be avoided. Cool containers exposed to flames with water until well after the fire is out.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions Use personal protective equipment as required.

Environmental Precautions Do not allow into any sewer, on the ground or into any body of water.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so. Collect using an inert absorbent material and place in appropriate containers for disposal.

Methods for Cleaning Up Keep in suitable, closed containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling Handle in accordance with good industrial hygiene and safety practice. Protect container from physical damage. Since empty container retains residue, follow all label warnings even after container is empty. Avoid contact with skin, eyes or clothing. Do not breathe mists or aerosols. Remove contaminated clothing and shoes. Wash thoroughly after handling before eating, drinking, smoking, or using toilet facilities. Use personal protection recommended in Section 8. Use only in well-ventilated areas.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Keep away from acids and other incompatible materials. Keep container tightly closed and store in a cool, dry and well-ventilated place. Store locked up.

Incompatible Materials Acids. Flammable liquid. Organic halogen compounds. Nitromethane. Metals such as aluminum, tin, and zinc.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Calcium hydroxide 1305-62-0	TWA: 5 mg/m³	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 5 mg/m³ not in effect as a result of reconsideration	TWA: 5 mg/m³
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m³	TWA: 2 mg/m³ (vacated) Ceiling: 2 mg/m³	IDLH: 10 mg/m³ Ceiling: 2 mg/m³

Appropriate Engineering Controls

Engineering Controls For operations where contact can occur, a safety shower and an eye wash facility should be available. Good general room ventilation (equivalent to outdoors) should be adequate under normal conditions.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Use chemical safety goggles and/or full-face shield where dusting is possible. Do not wear contact lenses.

Skin and Body Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Rubber, neoprene, or other impervious gloves are recommended to prevent skin contact.

Respiratory Protection None needed under normal use conditions with adequate ventilation. If the occupational exposure limits are exceeded, a NIOSH approved respirator with acid gas cartridges or supplied air respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 and good industrial hygiene practice.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Paste		
Appearance	blue paste	**Odor**	No odor
Color	Blue	**Odor threshold**	Not determined

Property	**Values**	**Remarks • Method**
pH	12	
Melting point/freezing point	Not available	
Boiling point/boiling range	> 100 °C / 212 °F	
Flash point	None	
Evaporation rate	Same as water	
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Similar to water	
Vapor density	Same as water	
Specific gravity	1.33	
Water solubility	Completely soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not available	
Autoignition temperature	Not established	

Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Explosive properties	Not determined
Oxidizing Properties	Not determined

Other Information

VOC Content (%)	0%
VOC Content	0 lbs/gal

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to Avoid
Keep out of reach of children.

Incompatible Materials
Acids. Flammable liquid. Organic halogen compounds. Nitromethane. Metals such as aluminum, tin, and zinc.

Hazardous Decomposition Products
None known.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation	Avoid breathing vapors or mists.
Eye Contact	Causes serious eye damage.
Skin Contact	Causes severe skin burns.
Ingestion	Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Calcium hydroxide 1305-62-0	= 7340 mg/kg (Rat)	-	-
Magnesium hydroxide 1309-42-8	= 8500 mg/kg (Rat)	-	-
Sodium hydroxide 1310-73-2	-	= 1350 mg/kg (Rabbit)	-

Information on Physical, Chemical and Toxicological Effects

Symptoms Causes painful stinging or burning of eyes and lids, watering of eyes. May cause severe chemical burns with reddening and pain. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract. May cause burns to mouth and gastrointestinal corrosion.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

STOT - single exposure May cause respiratory irritation. May cause drowsiness or dizziness.

Numerical Measures of Toxicity- Product
Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 21097 mg/kg
ATEmix (dermal) 9445 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Calcium hydroxide 1305-62-0		160: 96 h Gambusia affinis mg/L LC50 static		
Sodium hydroxide 1310-73-2		45.4: 96 h Oncorhynchus mykiss mg/L LC50 static		

Persistence and Degradability
Not determined.

Bioaccumulation
Not determined.

Mobility
Not determined.

Other Adverse Effects Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	California Hazardous Waste Status

Calcium hydroxide 1305-62-0	Corrosive
Sodium hydroxide 1310-73-2	Toxic Corrosive

14. TRANSPORT INFORMATION

Note Based on package size, product may be eligible for limited quantity exception

DOT

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

IATA

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

IMDG

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

15. REGULATORY INFORMATION

International Inventories

TSCA Listed

Legend:
TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*
DSL/NDSL *- Canadian Domestic Substances List/Non-Domestic Substances List*
EINECS/ELINCS *- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*
ENCS *- Japan Existing and New Chemical Substances* ***IECSC***
- China Inventory of Existing Chemical Substances ***KECL*** *-*
Korean Existing and Evaluated Chemical Substances
PICCS *- Philippines Inventory of Chemicals and Chemical Substances*

US Federal Regulations

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hydroxide 1310-73-2	1000 lb			X

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Sodium hydroxide 1310-73-2	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Calcium hydroxide 1305-62-0	X	X	X
Sodium hydroxide 1310-73-2	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	3	0	0	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	Not determined	Not determined	Not determined	Not determined

Issue Date	23-Jun-2011
Revision Date	12-Dec-2012
Revision Note	New format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Penetone® Corporation, 700 Gotham Parkway, Carlstadt, NJ 07072
CAGE 56883

PENETONE® 19

Date Prepared: April 15, 2015
MSDS No.: 1862

SECTION 1: IDENTIFICATION

Product name: PENETONE 19
Recommended use: Gas turbine compressor cleaning
Physcial Description: Clear amber liquid with mild solvent odor
Generic Ingredients: Water, surfactants and soap, aromatic hydrocarbons and other solvents

Manufacturer:
Penetone Corporation
700 Gotham Parkway
Carlstadt, NJ 07072
800-631-1652 or 201-567-3000

Business Contact:
Customer Service
800-631-1652 x2602 or 2272
Product Safety
800-631-1652 x2211 or 2257

Emergency Phone Numbers: **PENETONE 201-567-3000** **CHEMTREC 800-424-9300**

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health: Skin irritation: 2 Eye irritation: 2A Carcinogenicity: 2	Specific target organ toxicity - single exposure: 3 Aspiration hazard: 1 **Physical:** Flammable liquid: 4

DANGER!
May Be Fatal If Swallowed and Enters Airways.
Causes Skin and Serious Eye Irritation.
Suspected of Causing Cancer.
May Cause Drowsiness or Dizziness.
Combustible Liquid.

Precautionary Statements:

Prevention:
Obtain special instruction before use. Do not handle until all safety precautions have been read and understood.
Avoid breathing fumes, vapors or mists if inhalable mists occur during use. Use only outdoors or in a well-ventilated area.
Wear protective gloves, eye protection, and face protection. Wash hands and exposed skin thoroughly after handling.
Keep away from flames and hot surfaces.–No smoking.

Response:
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. A mild soap may be used. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center, doctor, emergency room or 911 if you feel unwell.
If swallowed, immediately call a poison center, doctor, emergency room, or 911. Do NOT induce vomiting.
In case of fire: Use dry chemical, carbon dioxide, water spray, water fog, or foam. Do not use solid water stream as this may spread the fire.
If exposed or concerned: Get medical advice/attention.

Storage:
Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal:
Dispose of contents/container in accordance with local, regional, and national regulations (see Sections 13 and 15 of SDS for disposal and reporting requirements).

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Concentration Wt% (1)
Water	7732-18-5	25-50
Ethoxylated nonylphenol	127087-87-0	10-25
Aromatic petroleum naphtha	64742-94-5	10-25
Hexylene glycol	107-41-5	10-25
Diethanolamine	111-42-2	1-10
Diethanolamine soap	68002-82-4	1-10

(1) Exact percentages being withheld under trade secret provision of OHSA HCS 1910.1200(i)

SECTION 4: FIRST-AID MEASURES

General Description of Symptoms & First-Aid Measures
Most likely work-place exposure routes will be *skin contact* or *inhalation*.

For *skin contact*, typically no immediate effects will be observed. Slight reddening or minor irritation could develop some time after exposure if product is not quickly washed off. For sensitive individuals, a rash may appear.

Inhalation exposure may produce varied effects, particularly if exposure occurs above the recommended workplace exposure limits (see SECTION 8). Typical symptoms would include headaches, dizziness, and drowsiness. In extreme cases, unconsciousness and other central nervous effects may occur.

Eyes
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists or develops: Get medical advice or attention. Penetone recommends that after any eye exposure a physician be seen immediately.

Ingestion
If swallowed: Immediately call a poison center, doctor, physician or other competent medical authority. Rinse mouth. Product presents an aspiration hazard. DO NOT INDUCE VOMITING.

Inhalation
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center, doctor, physician or other competent medical authority if you feel unwell.

Skin
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. A mild soap may be used to wash skin. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice or attention.

Special Treatment / Other
None

SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties
Classification: 4
Flash Point: 155°F PMCC
Autoignition Temperature: not determined
Lower Flammable Limit: not determined **Upper Flammable Limit:** not determined

Specific Hazards
Combustible liquid. Can form combustible mixtures at or above the flash point. Although the product is combustible,

it is water based and water dilutable and will self extinguish with addition of water.

Extinguishing Media
Suitable: SMALL FIRE: Use dry chemical, carbon dioxide (CO_2), water spray or regular foam. LARGE FIRE: water spray, water fog, or foam.

Unsuitable: Do not use solid water stream as this may spread fire.

Protection & Precautions for Firefighters
Protective Equipment & Clothing: Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters protective clothing will only provide limited protection.

Fire Fighting Guidance: Cool containers with flooding quantities of water until well after fire is out. Move containers from fire area if you can do it safely. Dike fire control water for later disposal; do not scatter material. Containers can expand and explode under fire conditions due to vapor buildup. Always stay away from containers engulfed in fire.

Hazardous Combustion Products: Smoke, fumes, and oxides of carbon and nitrogen.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Land Spill
Eliminate sources of ignition. Do not touch or walk through spilled material. Stop leak if you can do it safely. For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spill, soak up with absorbent material and place in properly labeled containers for disposal.

Water Spill
Product forms emulsion with water which may make cleanup difficult. Avoid agitation to minimize emulsion formation. Remove product from water surface by skimming or with suitable absorbents. Put into properly labeled containers for reclamation or disposal. If allowed by local environmental regulatory agencies, you may use a suitable dispersant. Check with local environmental regulatory agencies for reporting requirements.

See SECTION 8 for EXPOSURE CONTROLS and PERSONAL PROTECTION.

SECTION 7: HANDLING & STORAGE

Handling
Do not handle near heat, sparks, or flame. Avoid contact with oxidizing agents. Use only with adequate ventilation/personal protection (SEE section 8). Avoid contact with eyes, skin and clothing. After handling, always wash hands thoroughly with soap and water. Avoid personal contact with any residue. Dispose of empty containers with care. Empty containers can contain flammable residue and explosive vapors. ***Do not cut, weld, or reuse empty container.***

Storage
Store in a well-ventilated place. Keep container tightly closed. Store locked up. Do not store near heat, sparks, open flame, or other ignition sources. Do not store near strong oxidizing agents. Do not store in direct sunlight. Avoid storing above 120^0F (49°C).

SECTION 8: EXPOSURE CONTROLS and PERSONAL PROTECTION

Engineering Controls
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Personal Protection

Inhalation A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Use of an organic vapor mask or respirator is recommended.

Skin Wear chemical resistant gloves such as: rubber, nitrile, neoprene, or latex when skin contact is possible. Protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn depending on how the product is used. PPE should be cleaned thoroughly after each use.

Eyes Penetone recommends always wearing safety glasses as a minimum in any workplace. Conditions may warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.

Additional Remarks

Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.

Occupational Exposure Limits

Component Name	Source	Value	Type	Notation
Aromatic petroleum naphtha	ACGIH	100 mg/m^3	TWA	Appendix H
	NIOSH	350 mg/m^3	TWA	
		1800 mg/m^3	Ceiling	15 minutes
	OSHA Z1	500 ppm	TWA	
Diethanolamine	ACGIH	1 mg/m^3 (IFV)	TWA	skin; A3
	NIOSH	3 ppm	TWA	

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

Appearance: clear amber liquid
Odor: mild solvent
Odor Threshold: not determined
pH: about 10
Melting Point / Freezing: about 30°F
Boiling Point / Boiling Point Range: about 212°F
Flash Point: 155°F PMCC
Evaporation Rate: equal to water
Flammability: not applicable
Lower Flammable Limit: not determined
Upper Flammable Limit: not determined
Explosive Properties: not applicable
Vapor Pressure: equal to water
Relative Vapor Density: not determined
Relative Density: 0.99
Solubility (Water): forms emulsion (separate in one to 12 hours)
Partition Coefficient (K_{ow}): not determined
Auto-ignition temperature: not determined
Decomposition temperature: not determined
Viscosity: 10-50 centipoise at room temperature

SECTION 10: STABILITY & REACTIVITY

Reactivity
Product is stable and only reactive under extreme conditions (very high heat/pressure) or in the presence of specific incompatible materials (see below).

Chemical Stability
Product is stable.

Hazardous Reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Combustible liquid. Do not store near sources of heat, sparks, open flame, or other ignition sources.

Incompatible Materials
Strong oxidizing agents.

Hazardous Decomposition Products
Carbon monoxide and dioxide and nitrogen oxides when taken to dryness and burned.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Summary
Product is irritating to the skin and eyes. Vapor/aerosol concentrations above recommended exposure levels are irritating to the eyes and respiratory tract, and may cause headaches, dizziness, drowsiness, unconsciousness and other central nervous system effects.

Acute Toxicity:
Dermal: Rabbits, LD50 > 4,000 mg/kg (estimated using additivity formula)
Inhalation: no data available
Oral: Rats, LD50 > 2,000 mg/kg (estimated using additivity formula)

Skin Corrosion/Irritation
Product when tested as a whole was only mildly irritating.

Serious Eye Damage/Irritation
Based upon component data, product as a whole may cause moderate to serious eye irritation.

Sensitization - Respiratory or Skin
Based upon component data, not expected to be a skin sensitizer.

Germ Cell Mutagenicity
No data available

Carcinogenicity
Diethanolamine is listed by IARC as Group 2B: possibly carcinogenic to humans and by ACGIH as Group 3A: confirmed animal carcinogen with unknown relevance to humans.

Diethanolamine in the presence of nitrites can form suspected cancer causing nitrosamines.

Reproductive Toxicity
No data available.

The nonionic surfactant used in this product has produced effects in the fetus only at levels that were toxic to the

parent animals.

Diethanolamine has been found to be toxic to the fetus at doses toxic to the mother animal. Effects have been reported on male reproductive organs.

Hexylene glycol delayed development of the fetus at doses that were toxic to the mother animal.

Specific Target Organ Effects - Single Exposure
No data available.

Specific Target Organ Effects - Repeated or Prolonged Exposure
No data available.

Repeated exposure in lab animals to diethanolamine includes anemia (rats) and effects on the kidney (rats & mice) and liver (mice). Heart and nervous system effects were also observed in animals given exaggerated doses of diethanolamine.

The aromatic hydrocarbon caused kidney effects in male rats which are not considered relevant to humans.

Hexylene glycol produced effects on the kidney, liver, stomach, and irritation of gastric mucosa in rats. However no significant impairment of function was observed.

Aspiration Hazard
Based upon available data and comparison to similar materials, if swallowed, may pose a lung aspiration hazard during vomiting. Lung aspiration may result in chemical pneumonitis, pulmonary edema, and damage to lung tissue or death.

SECTION 12: ECOLOGICAL INFORMATION

Product Summary
Product is expected to be toxic to fish, aquatic invertebrates, algae, and microorganisms. (Acute aquatic toxicity category 2 by European Union classification).

Ecotoxicity
LC/EC/IC 1-10 mg/l (estimated using additivity formula)

Persistence and Degradability
Based upon component data, product is expected to be inherently biodegradable.

Bioaccumulative Potential
No data available for the product. Aromatic solvent used in this product has the potential to bioaccumulate.

Mobility in soil
No data available for the product. Product is a complex mixture. Components will partition into water and soil phases depending on inherent solubility of component in water.

Other Adverse Effects
None known

SECTION 13: DISPOSAL CONSIDERATIONS

Nonhazardous waste. Dispose of contents/container in accordance with all applicable federal, state, and local regulations.

Note: Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Appropriate hazardous waste designation is the responsibility of the user.

SECTION 14: TRANSPORT INFORMATION

ID No.: none
Proper Shipping Name: nonhazardous (nonregulated) material
Hazard Class: none
Packing Group: none
Label: none
Marine Pollutant: No
RQ: Yes
Special Precautions: None

SECTION 15: REGULATORY INFORMATION

TSCA
The ingredients in this product are listed on the TSCA inventory.

RCRA HAZARD CLASS
Nonhazardous waste

SARA 311/312 REPORTABLE HAZARD CATEGORIES: Immediate (Acute) Health

REPORTING REQUIREMENTS (all quantities in pounds)

Component	CAS / 313 Code	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ (1)	Section 313	CAA 112(r) TQ	CWA / OPA
Diethanolamine	111-42-2			100	313		
Product RQ for component				2,500 300 gal			
Hexylene glycol	N230			(2)	313		

(1) Releases exceeding the RQ just be reported to the National Response Center, 800-424-8802 and may be subject to state and local reporting.
(2) CERCLA hazardous substance with no assigned RQ

NEW JERSEY RIGHT-TO-KNOW INFORMATION
This product contains water (CAS# 7732-18-5), ethoxylated nonylphenol (CAS 127087-87-0), aromatic petroleum naphtha (CAS 64742-94-5), hexylene glycol (CAS 107-41-5), and diethanolamine (CAS 111-42-2).

CALIFORNIA PROPOSITION 65 INFORMATION
This product contains a chemical recognized by the state of California to cause cancer: diethanolamine (CAS# 111-42-2)

SCAQMD INFORMATION
Is there a photochemically reactive material present? Yes
What is the % by volume of photochemically reactive material? 15-20
What is the VOC content? 280 g/l
What is the vapor pressure of VOC's? 0.03 mm Hg @ 20°C

SECTION 16: OTHER INFORMATION

REVISION SUMMARY
New GHS format

SUPERSEDES ISSUE DATE
September 20, 2011

HAZARD RATING SYSTEMS:

	HMIS	NFPA
HEALTH	1	1
FLAMMABILITY	2	2
REACTIVITY	0	0
	B	

KEY
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

FOR ADDITIONAL PRODUCT INFORMATION, CONTACT YOUR SALES ENGINEER
FOR ADDITIONAL HEALTH/SAFETY INFORMATION, CALL 201-567-3000

SAFETY DATA SHEET

Penetone® Corporation, 700 Gotham Parkway, Carlstadt, NJ 07072

POWER CLEANER® 155

Date Prepared: January 25, 2015
MSDS No.: 1870

SECTION 1: IDENTIFICATION

Product name: POWER CLEANER 155
Recommended use: Cleaner, degreaser
Physcial Description: Clear water white liquid with mild odor
Generic Ingredients: Water, builders, surfactants, and chelate

Manufacturer:
Penetone Corporation
700 Gotham Parkway
Carlstadt, NJ 07072
800-631-1652 or 201-567-3000

Business Contact:
Customer Service
800-631-1652 x2602 or 2272
Product Safety
800-631-1652 x2211 or 2257

Emergency Phone Numbers: **PENETONE 201-567-3000** **CHEMTREC 800-424-9300**

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health:	**Physical:**
Skin corrosion: 1C Eye damage: 1	not classified

DANGER!
Causes Severe Skin Burns and Eye Damage.

Precautionary Statements:

Prevention:
Do not breathe mists if inhalable mists occur during use. Wear protective gloves, clothing, eye protection, and face protection.
Wash hands and exposed skin thoroughly after handling.

Response:
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin or hair: Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Immediately call a poison center, doctor, emergency room, or 911.

Storage:
Store locked up.

Disposal:
Dispose of contents/container in accordance with local, regional, and national regulations (see Sections 13 and 15 of SDS for disposal and reporting requirements).

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Concentration Wt% (1)
Water	7732-18-5	75-90
Tripotassium phosphate	7758-53-2	1-10
Sodium xylene sulfonate	1300-72-7	1-10
Tetrapotassium pyrophosphate	7320-34-5	1-10
Trisodium hydroxylethylethylenediamine triacetate	139-89-1	1-10
Potassium silicate	1312-76-1	1-10
Alkoxylated linear alcohol	68551-13-3	<1

Diisooctyl acid phosphate	27215-10-7	0.95

(1) Exact percentages being withheld under trade secret provision of OHSA HCS 1910.1200(i)

SECTION 4: FIRST-AID MEASURES

General Description of Symptoms & First-Aid Measures
Most likely work-place exposure routes will be *skin contact* or *inhalation*.

For *skin contact*, typically no immediate effects will be observed. A tingling or burning sensation might be felt some time after exposure. Slight reddening or minor irritation could also develop if product is not quickly washed off. If product not washed off or left in contact with skin for some time, skin burn could result.

Inhalation exposure may produce varied effects, particularly if exposure occurs above the recommended workplace exposure limits (see SECTION 8). Typical symptoms could include coughing, sneezing, and a tingling or burning sensation in the nose, throat, and lungs.

Eyes
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a local Poison Control Center, doctor, physician or other competent medical authority for medical advice. Penetone recommends that after any eye exposure a physician be seen immediately.

Ingestion
If swallowed: Rinse mouth. DO NOT INDUCE VOMITING. Immediately call a poison center, doctor, physician or other competent medical authority for medical advice.

Inhalation
If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a local Poison Control Center, physician, or other competent medical authority for medical advice.

Skin
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. A mild soap may be used to wash skin. Wash contaminated clothing before reuse. Immediately call a local Poison Control Center, doctor, physician or other competent medical authority for medical advice.

Special Treatment / Other
None

SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties
Classification: Non-flammable
Flash Point: None-to-boil
Autoignition Temperature: not determined
Lower Flammable Limit: Not applicable **Upper Flammable Limit:** Not applicable

Specific Hazards
Product is water based and presents no unusual fire hazards.

Extinguishing Media
Use extinguishing agents appropriate for controlling surrounding fire.

Unsuitable: None.

Protection & Precautions for Firefighters
Protective Equipment & Clothing: Wear positive pressure self-contained breathing apparatus (SCBA). Structural

firefighters protective clothing will only provide limited protection.

Fire Fighting Guidance: Cool containers with flooding quantities of water until well after fire is out. Move containers from fire area if you can do it safely. Dike fire control water for later disposal; do not scatter material. Containers can expand and explode under fire conditions due to vapor buildup. Always stay away from containers engulfed in fire.

Hazardous Combustion Products: Smoke, fumes, and oxides of carbon, nitrogen, phosphorus and sulfur when taken to dryness.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Land Spill
Adsorb spillage to prevent material damage. Stop leak if you can do it safely. For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spill, soak up with absorbent material and place in properly labeled containers for disposal. Neutralize residue with dilute acid and follow with a liberal covering of sodium bicarbonate or other acceptable drying agent.

Water Spill
This is a water based product and will completely mix/dissolve in water making recovery difficult. This product is alkaline and may raise the pH of surface waters with low buffering capacity. Check with local environmental regulatory agencies for reporting requirements.

See SECTION 8 for EXPOSURE CONTROLS and PERSONAL PROTECTION.

SECTION 7: HANDLING & STORAGE

Handling
Avoid contact with eyes, skin and clothing. After handling, always wash hands thoroughly with soap and water. Avoid personal contact with any residue. Do not cut, weld, or reuse empty container.

Storage
Store locked up. Keep container tightly closed when not in use. Do not store near strong acids. Do not store in direct sunlight. Avoid storing above 120^0F (49°C).

SECTION 8: EXPOSURE CONTROLS and PERSONAL PROTECTION

Engineering Controls
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Personal Protection
Inhalation A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Use of an rganic vapor mask or respirator is recommended.

Skin Wear chemical resistant gloves such as: rubber, nitrile, neoprene, or latex when skin contact is possible. Protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn depending on how the product is used. PPE should be cleaned thoroughly after each use.

Eyes Penetone recommends always wearing safety glasses as a minimum in any workplace. Conditions may warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.

Additional Remarks
Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.

Occupational Exposure Limits

Component Name	Source	Value	Type	Notation
Product has no components with established OELs.				
Because of product pH of 12-12.5, Penetone recommends using:				
Potassium hydroxide	ACGIH	2 mg/m^3	C	
	NIOSH	2 mg/m^3	C	

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

Appearance: clear water white liquid
Odor: mild
Odor Threshold: not determined
pH: 12-12.5
Melting Point / Freezing: about 25°F
Boiling Point / Boiling Point Range: about 212°F
Flash Point: not applicable
Evaporation Rate: equal to water
Flammability: not applicable
Lower Flammable Limit: not applicable
Upper Flammable Limit: not applicable
Explosive Properties: not applicable
Vapor Pressure: equal to water
Relative Vapor Density: equal to water
Relative Density: 1.13
Solubility (Water): soluble in water
Partition Coefficient (K_{ow}): not determined
Auto-ignition temperature: not applicable
Decomposition temperature: not applicable
Viscosity: less than 5 centipoise at room temperature

SECTION 10: STABILITY & REACTIVITY

Reactivity
Product will react with acids, giving off heat and possible splattering.

Chemical Stability
Stable.

Hazardous Reactions
Mixing with acids will give off heat and may cause splattering. Hazardous polymerization will not occur.

Conditions to Avoid
Alkaline liquid. Do not store near strong bases.

Incompatible Materials
Strong acids.

Hazardous Decomposition Products
Oxides of carbon, nitrogen, phosphorus and sulfur when taken to dryness.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Summary
This product contains highly alkaline materials. This product contains highly alkaline materials. The product should be considered corrosive to all tissues. Contact with skin and/or eyes, ingestion, or inhalation of spray mist may be corrosive. Possible effects include severe irritation, burns, and permanent damage to exposed tissues if immediate action is not taken.

Acute Toxicity:

Dermal: LD50 > 5,000 g/kg rabbit (estimated usind additivity formula)
Inhalation: No data available
Oral: LD50 > 5,000 mg/kg rat (estimated using additivity formula)

Skin Corrosion/Irritation
Short term exposure may be irritating. Longer term exposure may cause severe irritation or possibly burns. Prolonged or repeat skin exposures can result in dermatitis.

Serious Eye Damage/Irritation
Short term exposure may be irritating. Longer term exposure can cause serious eye damage which can result in severe irritation, pain and burns, and permanent damage including blindness.

Sensitization - Respiratory or Skin
Based upon components, product is not expected to be a respiratory or skin sensitizer.

Germ Cell Mutagenicity
Based upon components, product is not expected to result in germ cell mutagenicity.

Carcinogenicity
No material in this product is listed by IARC, NTP, or OSHA as a carcinogen.

Reproductive Toxicicty
No data for the product. Insufficient data for the components to evaluate. Given the product's tissue corrosiveness, other more pronounced effects would be seen making evaluation of reproductive toxicity unlikely.

Specific Target Organ Effects - Single Exposure
No data.

Specific Target Organ Effects - Repeated or Prolonged Exposure
No data available.

Frequent ingestion over extended periods of time of gram quantities of sodium silicate are associated with kidney stone formation and other siliceous urinary calculi in humans

Inorganic phosphates have been extensively studied because of their use as food additives. Very high oral doses (1% in the diet) have produced toxic effects on the kidneys and parathyroid glands.

Aspiration Hazard
Based upon components, product not expected to be an aspiration hazard.

SECTION 12: ECOLOGICAL INFORMATION

Product Summary
This material is alkaline and may raise the pH of surface waters with low buffering capacity. Product considered

nontoxic to aquatic organisms.

Ecotoxicity
Fathead minnow LC50 96 hr 620 ppm
Water flea LC50 48 hr 720 ppm

Persistence and Degradability
No data available. Surfactant used in this product is readily biodegradable.

Bioaccumulative Potential
No data available. Because of ready biodegradability of surfactant, bioaccumulation potential considered low.

Mobility in soil
No data available. Inorganic materials will stay in water.

Other Adverse Effects
None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Product is a D002 Corrosive Hazardous Waste under RCRA definitions. Dispose of contents/container in accordance with all applicable federal, state, and local regulations.

Note: Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Appropriate hazardous waste designation is the responsibility of the user.

SECTION 14: TRANSPORT INFORMATION

ID No.:	UN3266
Proper Shipping Name:	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S., (contains potassium silicate)
Hazard Class:	8
Packing Group:	III
Label:	CORROSIVE
Marine Pollutant:	No
RQ:	not applicable
Special Precautions:	none

SECTION 15: REGULATORY INFORMATION

TSCA
The ingredients in this product are listed on the TSCA inventory.

RCRA HAZARD CLASS
D002 corrosive hazardous waste

SARA 311/312 REPORTABLE HAZARD CATEGORIES: Immediate (Acute) Health

REPORTING REQUIREMENTS (all quantities in pounds)

Component	CAS / 313 Code	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ	Section 313	CAA 112(r) TQ	CWA / OPA
no components subject to reporting							

NEW JERSEY RIGHT-TO-KNOW INFORMATION
This product contains water (CAS# 7732-18-5), sodium xylene sulfonate (CAS# 1300-72-7), tripotassium phosphate (CAS# 7778-53-2), tetrapotassium pyrophosphate (CAS# 7320-34-5), and trisodium n-hydroxylethylethylenediamine triacetate (CAS# 139-89-9).

CALIFORNIA PROPOSITION 65 INFORMATION
This product does not contain any chemicals recognized by the state of California to cause cancer and/or birth defects or reproductive harm.

SCAQMD INFORMATION
Is there a photochemically reactive material present? No
What is the % by volume of photochemically reactive material? 0
What is the VOC content? 0
What is the vapor pressure of VOC's? 0

SECTION 16: OTHER INFORMATION

REVISION SUMMARY
New GHS format

SUPERSEDES ISSUE DATE
July 23, 2010

HAZARD RATING SYSTEMS:

	HMIS	NFPA
HEALTH	2	2
FLAMMABILITY	0	0
REACTIVITY	0	0
	B	

KEY
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

FOR ADDITIONAL PRODUCT INFORMATION, CONTACT YOUR SALES ENGINEER
FOR ADDITIONAL HEALTH/SAFETY INFORMATION, CALL 201-567-3000