

COMPANY IDENTITY: Kardol Quality Products
 PRODUCT IDENTITY: EPOXY GLUE HARDENER

SDS DATE: 02/06/2015
 ORIGINAL: 02/06/2015

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements of the Global Harmonizing System.

THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)

IMPORTANT: Read this SDS before handling & disposing of this product. Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: **EPOXY GLUE HARDENER**
 PRODUCT USES: Epoxy Glue Hardener

COMPANY IDENTITY: Kardol Quality Products
 COMPANY ADDRESS: 9933 Alliance Road
 COMPANY CITY: Cincinnati, OH 45242
 COMPANY PHONE: 1-513-933-8206
 EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
 CANUTEC: 1-613-996-6666 (CANADA)

SECTION 2. HAZARDS IDENTIFICATION

DANGER!!

2.1 HAZARD STATEMENTS: (CAT = Hazard Category)

- (H300s) HEALTH: Acute Toxicity, Oral(CAT:4)
H302 HARMFUL IF SWALLOWED.
 (H300s) HEALTH: Skin Corrosion/Irritation(CAT:2)
H315 CAUSES SKIN IRRITATION.
 (H300s) HEALTH: Serious Eye Damage/Eye Irritation(CAT:2)
H320 CAUSES EYE IRRITATION.
 (H300s) HEALTH: Target Organ Toxicity, Single Exposure(CAT:3)
H335 MAY CAUSE RESPIRATORY IRRITATION.
H336 MAY CAUSE DROWSINESS OR DIZZINESS.



2.2 PRECAUTIONARY STATEMENTS:

EXPOSURE PREVENTION: PREVENT DISPERSION OF MISTS OR DUST!

P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

- P264 Wash with soap & water thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P302+352 IF ON SKIN: Wash with soap & water.
 P304+340 IF INHALED: Remove victim to fresh air & keep at rest in a position comfortable for breathing.
 P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present & easy to do - Continue rinsing.
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 P332+313 If skin irritation occurs: Get medical advice/attention.
 P337+313 If eye irritation persists, get medical advice/attention.
 P361 Remove/Take off immediately all contaminated clothing.
 P363 Wash contaminated clothing before reuse.

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Aliphatic Polyaminoamide	68910-93-0	-	70-80
Nonyl Phenol	84852-15-3	-	10-15
Amorphous Silicate	112945-52-5	-	5- 7
Ethylene Glycol	107-21-1	203-473-3	1- 2

The specific chemical component identities and/or the exact component percentages of this material may be withheld as trade secrets. This information is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of 29 CFR 1910.1200 (I)(1).

TRACE COMPONENTS: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

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SECTION 4. FIRST AID MEASURES

4.1 MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE & CHRONIC:

See Section 11 for symptoms/effects, acute & chronic.

4.2 EYE CONTACT:

For eyes, flush with plenty of water for 15 minutes & get medical attention.

4.3 SKIN CONTACT:

In case of contact with skin immediately remove contaminated clothing.
Wash thoroughly with soap & water. Wash contaminated clothing before reuse.

4.4 INHALATION:

After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR).

4.5 SWALLOWING:

Rinse mouth. Give two glass of a slurry of activated charcoal in water to drink. DO NOT INDUCE VOMITING. If medical advice is delayed, and if the person swallowed a moderate volume of material (a few ounces), then give three to four ounces of hard liquor, such as whiskey, which may prevent kidney failure. For children give proportionally less, liquid, according to weight. GET MEDICAL ATTENTION IMMEDIATELY. Do NOT give liquids to an unconscious or convulsing person.

4.6 RESCUERS: Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and SDS to physician or health professional with victim.

4.7 NOTE TO PHYSICIAN:

It is estimated that the lethal oral dose to adults is of the order of 1.0 ml/kg. Ethylene Glycol is metabolized by alcohol dehydrogenase to various metabolites including glycerinaldehydes, glycolic acid and oxalic acid which cause an elevated anion-gap metabolic acidosis and renal tubular injury. The signs and symptoms in ethylene glycol poisoning are those of metabolic acidosis, CNS depression, and kidney injury. Urinalysis may show albuminuria, hematuria, and oxaluria. Clinical chemistry may reveal anion-gap metabolic acidosis and uremia. The currently recommended medical management of ethylene glycol poisoning includes elimination of ethylene glycol and metabolites, correction of metabolic acidosis and prevention of kidney injury. It is essential to have immediate and follow up urinalysis and clinical chemistry. There should be particular emphasis on acid-base balance and renal function tests. A continuous infusion of 5% sodium bicarbonate with frequent monitoring of electrolytes and fluid balance is used to achieve correction of metabolic acidosis and forced diuresis. As a competitive substrate for alcohol dehydrogenase, ethanol is antidotal. Given in the early stages of intoxication, it blocks the formulation of nephrotoxic metabolites. A therapeutically effective blood concentration of ethanol is in the range 100-150 mg/dL, and should be achieved by a rapid loading dose and maintained by intravenous infusion. For severe and/or deteriorating cases, hemodialysis may be required. Dialysis should be considered for patients who are symptomatic, have severe metabolic acidosis, a blood ethylene glycol concentration greater than 25 md/dL, or compromise of renal functions.

A more effective intravenous antidote for physician use is 4-methylpyrazole, a potent inhibitor of alcohol dehydrogenases, which effectively blocks the formation of toxic metabolites of ethylene glycol. It has been used to decrease the metabolic consequences of ethylene glycol poisoning before metabolic acidosis, coma, seizures, and renal failure have occurred. A generally recommended protocol is loading dose of 15 mg/kg followed by 10 mg/kg every 12 hours for 4 doses and then 15 mg/kg every 12 hours until ethylene glycol concentrations are below 20 mg/100 ml. Slow intravenous infusion is required. Since 4-methylpyrazole is dialyzable, increased dosage may be necessary during hemodialysis. Additional therapeutic measures may include the administration of cofactors involved in the metabolism of ethylene glycol. Thiamine (100 mg) and pyridoxine (50 mg) should be given every six hours.

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SECTION 4. FIRST AID MEASURES (CONTINUED)

Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. The mechanism of production has not been elucidated, but it appears to be non-cardiogenic in origin in several cases. Respiratory support with mechanical ventilation and positive end expiratory pressure may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing and dysphasia.

SECTION 5. FIRE FIGHTING MEASURES

5.1 FIRE & EXPLOSION PREVENTIVE MEASURES:

NO open flames.

5.2 SUITABLE (& UNSUITABLE) EXTINGUISHING MEDIA:

Use dry powder, alcohol-resistant foam, water spray, carbon dioxide.

5.3 SPECIAL PROTECTIVE EQUIPMENT & PRECAUTIONS FOR FIRE FIGHTERS:

Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used.

Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).

5.4 SPECIFIC HAZARDS OF CHEMICAL & HAZARDOUS COMBUSTION PRODUCTS:

SLIGHTLY COMBUSTIBLE!

Isolate from oxidizers, acids, heat, & open flame.

Closed containers may explode if exposed to extreme heat.

Applying to hot surfaces requires special precautions.

Continue all label precautions!

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:

Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. No action shall be taken involving personal risk without suitable training. Keep unnecessary and unprotected personnel from entering spill area. Do not touch or walk through material. Avoid breathing vapor or mist. Provide adequate ventilation. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area).

6.2 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES:

The proper personal protective equipment for incidental releases (such as: 1 Liter of the product released in a well-ventilated area), use impermeable gloves, they should be Level B: **triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus** specific for the material handled, goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard hat, and Self-Contained Breathing Apparatus or respirator.

Personal protective equipment are required wherever engineering controls are not adequate or conditions for potential exposure exist. Select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.

6.3 ENVIRONMENTAL PRECAUTIONS:

Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

6.4 METHODS AND MATERIAL FOR CONTAINMENT & CLEAN-UP:

Absorb spilled liquid with polypads or other suitable absorbent materials. If necessary, neutralize using suitable buffering material, (acid with soda ash or base with phosphoric acid), and test area with litmus paper to confirm neutralization. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

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SECTION 6. ACCIDENTAL RELEASE MEASURES (CONTINUED)

6.5 NOTIFICATION PROCEDURES:

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting release of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:

Isolate from oxidizers, acids, heat, & open flame. Use only with adequate ventilation. Avoid or repeated breathing of vapor or spray mist. Do not get in eyes, on skin or clothing. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse. Avoid free fall of solid. Ground containers when transferring. Do not flame cut, braze, or weld. Continue all label precautions!

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Keep separated from strong oxidants, strong bases. Keep dry. Use ventilation along the floor. Do not store above 49 C/120 F. Keep container tightly closed & upright when not in use to prevent leakage. Wear full face shield, gloves & full protective clothing when opening or handling. When empty, drain completely, replace bungs securely.

7.3 NONBULK: CONTAINERS:

Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

7.4 BULK CONTAINERS:

All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

7.5 TANK CAR SHIPMENTS:

Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

7.6 PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:

Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all rinsates and dispose of according to applicable Federal, State, Provincial, or local procedures.

7.7 EMPTY CONTAINER WARNING:

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 PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.**

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 EXPOSURE LIMITS:

MATERIAL	CAS#	EINECS#	TWA (OSHA)	TLV (ACGIH)
Aliphatic Polyaminoamide	68910-93-0	-	None Known	None Known
Nonyl Phenol	84852-15-3	-	None Known	None Known
Amorphous Silicate	112945-52-5	-	None Known	None Known
Ethylene Glycol	107-21-1	203-473-3	50 ppm	100 mg/m3 A4
Sodium Silicate	1344-09-8	-	None Known	None Known
Water	7732-18-5	231-791-2	None Known	None Known

MATERIAL	CAS#	EINECS#	CEILING	STEL(OSHA/ACGIH)	HAP
Ethylene Glycol	107-21-1	203-473-3	39 ppm	100.0 mg/cu m	Yes

Each component showing 'Yes' under "HAP" is an EPA Hazardous Air Pollutant.

8.2 APPROPRIATE ENGINEERING CONTROLS:

RESPIRATORY EXPOSURE CONTROLS

Airborne concentrations should be kept to lowest levels possible. If vapor, dust or mist is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air-supplied respirator authorized in 29 CFR 1910.134, European Standard EN 149, or applicable State regulations, after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown. Maintain airborne contaminant concentrations below exposure limits. If adequate ventilation is not available or there is potential for airborne exposure above the exposure limits, a respirator may be worn up to the respirator exposure limitations, check with respirator equipment manufacturer's recommendations/limitations. For particulates, a particulate respirator (NIOSH Type N95 or better filters) may be worn. If oil particles (such as: lubricants, cutting fluids, glycerine, and so on) are present, use a NIOSH Type R or P filter. For a higher level of protection, use positive pressure supplied air respiration protection or Self-Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS

Positive pressure, full-face piece Self-Contained Breathing Apparatus; or positive pressure, full-face piece Self-Contained Breathing Apparatus with an auxilliary positive pressure Self-Contained Breathing Apparatus.

VENTILATION

LOCAL EXHAUST: Necessary
 SPECIAL: None
 MECHANICAL (GENERAL): Necessary
 OTHER: None
 Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

8.3 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

EYE 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 or dusts. If contact is possible, chemical splash goggles should be worn, when a higher degree of protection is necessary, use splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION:

Use gloves chemically resistant to this material. Glove must be inspected prior to use. Preferred examples: Butyl rubber, Chlorinated Polyethylene, Polyethylene, Ethyl vinyl alcohol laminate ("EVAL"), Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"), Neoprene, Nitrile/butadiene rubber ("nitril") or ("NBR"), Polyvinyl chloride ("PVC") or "vinyl"), Viton. 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. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good practices. Wash and dry hands.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

BODY PROTECTION:

Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

WORK & HYGIENIC PRACTICES:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using toilet facilities and at the end of the working period. Provide readily accessible eye wash stations & safety showers. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Solid, Amber
ODOR:	None
ODOR THRESHOLD:	Not Available
pH (Neutrality):	13.0
MELTING POINT/FREEZING POINT:	Not Available
BOILING RANGE (IBP,50%,Dry Point):	Not Available
FLASH POINT (TEST METHOD):	> 93 C / > 201 F (PM)
EVAPORATION RATE (n-Butyl Acetate=1):	Not Applicable
FLAMMABILITY CLASSIFICATION:	Class IIIB
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	3.2 (Lowest Component)
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C	15.1
VAPOR DENSITY (air=1):	0.881
GRAVITY @ 68/68F / 20/20C:	
DENSITY:	1.797
SPECIFIC GRAVITY (Water=1):	1.800
POUNDS/GALLON:	14.994
WATER SOLUBILITY:	Appreciable
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	412C / 775F
DECOMPOSITION TEMPERATURE:	Not Available
VISCOSITY @ 20 C (ASTM D445):	Not Available

* Using CARB (California Air Resources Board Rules).

SECTION 10. STABILITY & REACTIVITY

10.1 REACTIVITY & CHEMICAL STABILITY:

Stable under normal conditions, no hazardous reactions when kept from incompatibles.

10.2 POSSIBILITY OF HAZARDOUS REACTIONS & CONDITIONS TO AVOID:

Isolate from oxidizers, acids, heat, & open flame.

10.3 INCOMPATIBLE MATERIALS:

Reacts with strong oxidants, causing fire & explosion hazard.

10.4 HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon Monoxide, Carbon Dioxide, Silicon Dioxide
 from burning.

10.5 HAZARDOUS POLYMERIZATION:

Will not occur.

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SECTION 11. TOXICOLOGICAL INFORMATION

11.1 ACUTE HAZARDS

11.11 EYE & SKIN CONTACT:

Severe burns to skin, defatting, dermatitis.
Absorption thru skin increases exposure.
Severe burns to eyes, redness, tearing, blurred vision.
Solid can cause severe skin & eye burns. Wash thoroughly after handling.

11.12 INHALATION:

Severe respiratory tract irritation may occur. Vapor harmful.

11.13 SWALLOWING:

Harmful or fatal if swallowed.

11.2 SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Pre-existing disorders of any target organs mentioned in this Document can be aggravated by over-exposure by routes of entry to components of this product. Persons with these disorders should avoid use of this product.

11.3 CHRONIC HAZARDS

11.31 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:

This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

11.31 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:

This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.
Absorption thru skin may be harmful. Studies with laboratory animals indicate this product can cause damage to fetus.

Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. The no-effect doses for developmental toxicity for ethylene glycol given by gavage over the period of organogenesis has been shown to be 150 mg/kg/day for the rat. Also, in a preliminary study to assess the effects of exposure of pregnant rats and made to aerosol at concentrations of 150, 1000 and 25000 mg/m³ for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentration, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol percutaneous absorption of ethylene glycol from contaminated skin, or swallowing ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1000 and 25000 mg/m³) and developmental toxicity with minimal evidence of teratogenicity (2500 mg/m³). The no-effects concentration (based on maternal toxicity) was 500 mg/m³. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen. There is currently no available information to suggest that ethylene glycol has caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity. The major route for producing developmental toxicity is personally. Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence or a different pattern of tumors compared with untreated controls. The absence of carcinogenic potential for ethylene glycol has been supported by numerous in vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

11.32 TARGET ORGANS: May cause damage to target organs, based on animal data.

11.33 IRRITANCY: Irritating to contaminated tissue.

11.34 SENSITIZATION: No component is known as a sensitizer.

11.35 MUTAGENICITY: No known reports of mutagenic effects in humans.

11.36 EMBRYOTOXICITY: No known reports of embryotoxic effects in humans.

11.37 TERATOGENICITY: No known reports of teratogenic effects in humans.

11.38 REPRODUCTIVE TOXICITY: No known reports of reproductive effects in humans.

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SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

A MUTAGEN is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate across generational lines. An EMBRYOTOXIN is a chemical which causes damage to a developing embryo (such as: within the first 8 weeks of pregnancy in humans), but the damage does not propagate across generational lines. A TERATOGEN is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A REPRODUCTIVE TOXIN is any substance which interferes in any way with the reproductive process.

11.4 MAMMALIAN TOXICITY INFORMATION

MATERIAL	CAS#	EINECS#	LOWEST KNOWN LETHAL DOSE DATA
Ethylene Glycol	107-21-1	-	LOWEST KNOWN LD50 (ORAL) 5840.0 mg/kg(Rats)
Ethylene Glycol	107-21-1	-	LOWEST KNOWN LD50 (SKIN) 9530.0 mg/kg (Rabbits)

SECTION 12. ECOLOGICAL INFORMATION

12.1 ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.2 EFFECT OF MATERIAL ON PLANTS AND ANIMALS:

This product may be harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

12.3 EFFECT OF MATERIAL ON AQUATIC LIFE:

The most sensitive known aquatic group to any component of this product is: Goldfish 5000 ppm or mg/L (96 hour exposure).
 Keep out of sewers and natural water supplies.

12.4 MOBILITY IN SOIL

Mobility of this material has not been determined.

12.5 DEGRADABILITY

This product is completely biodegradable.

12.6 ACCUMULATION

Bioaccumulation of this product has not been determined.

SECTION 13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. 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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers and liners may retain some product residues. Vapor from some product residues may create a highly flammable or explosive atmosphere inside the container. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE USED CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.** Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Processing, use or contamination may change the waste disposal requirements. Do not dispose of on land, in surface waters, or in storm drains. Waste should be recycled or disposed of in accordance with regulations. Large amounts should be collected for reuse or consigned to licensed hazardous waste haulers for disposal. **ALL DISPOSAL MUST BE IN ACCORDANCE WITH ALL FEDERAL, STATE, PROVINCIAL, AND LOCAL REGULATIONS. IF IN DOUBT, CONTACT PROPER AGENCIES. EPA CHARACTERISTIC: D002**

SECTION 14. TRANSPORT INFORMATION

MARINE POLLUTANT: No
 DOT/TDG SHIP NAME: Not Regulated
 DRUM LABEL: None
 IATA / ICAO: Not Regulated
 IMO / IMDG: Not Regulated
 EMERGENCY RESPONSE GUIDEBOOK NUMBER: None



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SECTION 15. REGULATORY INFORMATION

15.1 EPA REGULATION:

SARA SECTION 311/312 HAZARDS: Acute Health, Chronic Health

All components of this product are on the TSCA list.

SARA Title III Section 313 Supplier Notification

This product contains the indicated <*> toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be included in all MSDSs that are copied and distributed for this material.

SARA TITLE III INGREDIENTS	CAS#	EINECS#	WT%	(REG.SECTION)	RQ(LBS)
*Ethylene Glycol	107-21-1	203-473-3	0- 5	(313)	5000

Any release equal to or exceeding the RQ must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR 302.6 and 40 CFR 355.40 respectively. Failure to report may result in substantial civil and criminal penalties. State & local regulations may be more restrictive than federal regulations.

15.2 STATE REGULATIONS:

CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):

This product contains no chemicals known to the State of California to cause cancer or reproductive toxicity.

15.3 INTERNATIONAL REGULATIONS

The identified components of this product are listed on the chemical inventories of the following countries:

Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS), Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC), Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

15.4 CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

D2B: Irritating to skin / eyes.

E: Corrosive Material.

This product was classified using the hazard criteria of the Controlled Products Regulations (CPR). This Document contains all information required by the CPR.

SECTION 16. OTHER INFORMATION

16.1 HAZARD RATINGS:

HEALTH (NFPA): 2, HEALTH (HMIS): 2, FLAMMABILITY: 1, PHYSICAL HAZARD: 0
 (Personal Protection Rating to be supplied by user based on use conditions.)

This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

16.2 EMPLOYEE TRAINING

See Section 2 (Hazards Identification). Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

16.3 SDS DATE: 02/06/2015

NOTICE

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency.

Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

Unless updated, the Safety Data Sheet is valid until 02/06/2018.

Safety Data Sheet was prepared by: Chemical Data Services, e-mail: chemdatsrv@aol.com.