

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

GHS Product Code: C238-A-0C0
 Product Name: CORCHEM® 238 FRAC TANK LINING COMPONENT A, COLOR: CLEAR
 Recommended use: INDUSTRIAL PROTECTIVE COATING/LINING
 Restrictions on use: INTENDED FOR PROFESSIONAL USE ONLY
 Manufacturer: CORCHEM MANUFACTURING, INC.
 Address: 1227 SOUTH MURPHY STREET
 ODESSA TEXAS, USA 79766-8811
 Emergency phone: INFOTRAC: +1-352-323-3500 (TOLL-FREE IN THE US: 800-535-5053)
 Contract No. 74435
 Revision: 2-03072016

SECTION 2: HAZARDS IDENTIFICATION

GHS Classification

- Category 1 Skin sensitization
Serious eye damage
- Category 1B Skin corrosion
- Category 2 Skin irritation
Acute toxicity – Inhalation
Reproductive toxicity
Germ cell mutagenicity
Specific target organ toxicity – repeated exposure
STOT-RE: Oral
- Category 3 Specific target organ toxicity – single exposure
STOT-SE: Respiratory System
- Category 4 Acute toxicity – Oral
Acute toxicity – Dermal

GHS Label elements, including precautionary statements

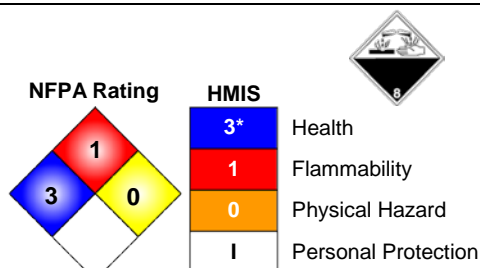
Hazard Pictograms



Signal word: **Danger**

GHS Hazard statement(s)

- H302 + H312: Harmful if swallowed or in contact with skin.
- H314: Causes severe skin burns and eye damage.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H330: Fatal if inhaled.
- H335: May cause respiratory irritation.



PERSONAL PROTECTION INDEX						
A	Goggles	G	Goggles + Gloves + Respirator			
B	Goggles + Gloves	H	Face Shield + Gloves + Boots + Respirator			
C	Goggles + Gloves + Boots	I	Goggles + Gloves + Respirator			
D	Respirator + Gloves + Boots	J	Face Shield + Gloves + Boots + Respirator			
E	Goggles + Gloves + Respirator	K	Respirator + Gloves + Boots			
F	Goggles + Gloves + Boots + Respirator	X	Consult your supervisor or S.O.P. for "SPECIAL" handling directions			
A	n	o	p	q	r	s
Safety Glasses	Splash Goggles	Face Shield & Eye Protection	Gloves	Boots	Synthetic Apron	Full Suit
t	u	w	y	z	Additional Information	
Dust Respirator	Vapor Respirator	Dust & Vapor Respirator	Full Face Respirator	Airline Hood or Mask		



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- H361: Suspected of damaging fertility or the unborn child.
 H373a: May cause damage to organs through prolonged or repeated exposure if swallowed.
 H373b: May cause damage to organs through prolonged or repeated exposure if inhaled.

GHS Precautionary statement(s)

- P102: Keep out of reach of children.
 P202: Do not handle until all safety precautions have been read and understood.
 P234: Keep only in original container.
 P260: Do not breathe dust/fume/gas/mist/vapors/spray.
 P262: Do not get in eyes, on skin, or on clothing.
 P264: Wash thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P271: Use only outdoors or in a well-ventilated area.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P281: Use personal protective equipment as required.
 P284: Wear respiratory protection.
 P301 + P310 + P330: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
 P302 + P352 + P312: IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/physician if you feel unwell.
 P304 + P340 + P310: 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.
 P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P314: If exposed or concerned: Get medical advice / attention if you feel unwell.
 P337 + P313: If eye irritation persists: Get medical advice / attention.
 P391: Collect spillage.
 P401: Store protected at temperatures between 40°F (4°C) and 100°F (38°C).
 P403: Store in a well ventilated place.
 P410: Protect from sunlight.
 P501: Dispose of contents/container to comply with the requirements of environmental protection and waste disposal legislation and any regional, local authority requirements.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredient(s)</u>	<u>CAS No.</u>	<u>% (by Weight)</u>
4,4'-Isopropylidenediphenol	80-05-7	<5
Phenol	108-95-2	<10
Diethylenetriamine	111-40-0	<20
1,3-Bis(aminomethyl)benzene	1477-55-0	>5
4,4'-Diaminodicyclohexyl methane	1761-71-3	<10
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	>20
CBI Additives [NOT REGULATED BY GHS, DOT, IMDG, OR IATA]	MIXTURE	>30

SECTION 4: FIRST AID MEASURES

Ingestion

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

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, initiate and maintain continuous irrigation until patient receives medical care. If medical care is not promptly available, continue to irrigate for one hour. Cover wound with sterile dressing, seek immediate medical attention. If skin is not damaged and symptoms persist, avoid further exposure, **seek immediate medical attention**. Launder clothing before reuse.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If not breathing, if breathing is irregular, or if respiratory arrest occurs, artificial respiration or oxygen should be administered by trained personnel only. It may be dangerous to provide mouth-to-mouth resuscitation. Keep person warm and quiet; **seek immediate medical attention**. If unconscious, place in recovery position and get medical attention immediately. Maintain open airway. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if adverse health effects persist or are severe.

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 30 minutes while holding eyelids open; seek immediate medical attention.

Protection of first aid personnel

No action shall be taken involving any personal risk without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, wear gloves.

Notes to physicians or first aid providers

No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable extinguishing media

Alcohol-resistant foam, water-fog, carbon dioxide, dry chemicals, dry sand, Limestone powder.

Unsuitable extinguishing media

High volume water jet.

Specific hazards and by-products from combustion

May generate ammonia gas. May generate toxic nitrogen oxide gases. Incomplete combustion may form carbon monoxide. Burning produces noxious and toxic fumes. **Downwind personnel must be evacuated**. Decomposition products may be toxic and include the following materials: carbon dioxide, carbon monoxide, and various hydrocarbons. Fumes and vapors from the thermal and chemical decompositions vary widely in combustion and toxicity. Do not allow runoff from firefighting to enter drains or waterways. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment and precautions for fire-fighters

Avoid contact with skin. A face shield should be worn. Use Personal Protective Equipment. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

THIS MATERIAL IS TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS, CONTAMINATED FIRE EXTINGUISHING MEDIA MUST NOT BE DISCHARGED INTO WATERWAYS, SEWERS, DRAINS, OR THE ENVIRONMENT. FIRE RESIDUES AND CONTAMINATED FIRE EXTINGUISHING MEDIA MUST BE DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATIONS.

Flash point

Estimated: >200°F (>93°C)

Explosive limit

Not established

Autoignition temperature

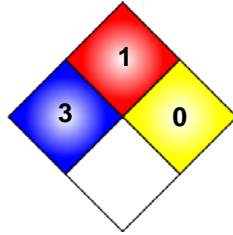
Not Established

Fire and explosion hazards

In a fire or if heated, a pressure increase will occur and the container may burst.

NFPA Rating

Health:	3
Flammability:	1
Reactivity:	0
Special:	



SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions

No action shall be taken involving personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Wear appropriate personal protective equipment (see section 8).

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).

COLLECT CONTAMINATED MATERIAL SEPARATELY. RESIDUES AND CONTAMINATED MATERIAL MUST BE DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATIONS.

Small spill

Stop leak if without risk. Dilute with water and mop up if water soluble or absorb liquid with a dry, inert, non-combustible, absorbent material such as: sand, diatomaceous earth, vermiculite, or other absorbent material. Persons not wearing proper personal protective equipment should be excluded from area of spill.

COLLECT CONTAMINATED CLEAN-UP MATERIALS SEPARATELY. RESIDUES AND CONTAMINATED CLEAN-UP MATERIALS MUST BE DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATIONS.

Large spill

Stop leak if without risk. Move containers from spill area. Prevent run-off to sewers, water courses basements, or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with a dry, inert, non-combustible, absorbent material such as: sand, diatomaceous earth, vermiculite, or other absorbent material and place in container for disposal according to local regulations (see section 13). Dispose via a licensed waste disposal contractor. **Contaminated absorbent material may pose the same hazard as the spilled product.** If run-off occurs, notify proper authorities as required, that a spill has occurred. Note: see section 1 for emergency contact information and section 13 for waste disposal.

COLLECT CONTAMINATED CLEAN-UP MATERIALS SEPARATELY. RESIDUES AND CONTAMINATED CLEAN-UP MATERIALS MUST BE DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATIONS.

SECTION 7: HANDLING AND STORAGE

Handling

Wear appropriate personal protective equipment (see section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands and face prior to eating, drinking, and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

OPENED, PARTIAL, AND EMPTY CONTAINERS RETAIN PRODUCT RESIDUE AND CAN BE HAZARDOUS. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THIS SAFETY DATA SHEET (SDS) MUST BE OBSERVED.

Storage

Store in accordance with local regulations. Store in a dry, cool, climate controlled area between 40°F (8°C) and 100°F (38°C), away from incompatible materials (see section 10), food and drink. Keep container tightly closed and sealed until ready to 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.

OPENED, PARTIAL, AND EMPTY CONTAINERS RETAIN PRODUCT RESIDUE AND CAN BE HAZARDOUS. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THIS SAFETY DATA SHEET (SDS) MUST BE OBSERVED.

Other precautions

Consult local, state and federal hazardous waste regulators before disposing of waste materials.

Can cause skin irritation, eye irritation, and allergic skin reaction. Avoid contact with eyes, skin, and clothing. Wash thoroughly after using. **DO NOT TAKE INTERNALLY! HARMFUL IF SWALLOWED! FOR PROFESSIONAL USE ONLY.** Use protective skin cream such as FEND2 (MSA) where skin contact is likely. Prevent prolonged or repeated breathing of vapor, or spray mists. Liquid penetrated shoes and leather, causing delayed irritation or skin reactions. **KEEP OUT OF REACH OF CHILDREN. DO NOT HANDLE UNTIL THE MANUFACTURER'S INSTRUCTIONS AND SAFETY PRECAUTIONS HAVE BEEN READ AND UNDERSTOOD!** Contact manufacturer if further information is required.

OPENED, PARTIAL, AND EMPTY CONTAINERS RETAIN PRODUCT RESIDUE AND CAN BE HAZARDOUS. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THIS SAFETY DATA SHEET (SDS) MUST BE OBSERVED.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit(s)

Note: The table includes Occupational Exposure Limits (OELs) for substances listed in the OSHA Z-1 – Z-3 tables as well as OEL's listed by NIOSH and ACGIH. These organizations periodically make revisions to their OELs and so they should be consulted directly for their most current values and substances, as well as special notations such as for skin absorption. The TLVs[®] and BEIs[®] are copyrighted by ACGIH[®] and are not publicly available. However, they can be purchased in their entirety from the ACGIH[®]. Permission must be requested from ACGIH[®] to reproduce the TLVs[®] and BEIs[®], CORCHEM[®] is a registered member of ACGIH[®].

Authorities:

ACGIH The American Conference of Governmental Industrial Hygienists

NIOSH United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health

OSHA United States Department of Labor, Occupational safety and Health Administration

BEI[®] Biological Exposure Indices: the BEI[®] is a guideline for the control of potential health hazards to the worker by knowledgeable occupational health professionals and should not be used for any other purpose.

IDLH Immediately Dangerous to Life and Health: is defined by (NIOSH) as exposure to airborne contaminants that is "likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment."

The OSHA regulation (1910.134(b)) defines the term as "an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere."

IDLH values are often used to guide the selection of breathing apparatus that are made available to workers or firefighters in specific situations.

mg/m³ Approximate milligrams of substance per cubic meter of air.

PEL Permissible Exposure Limit: usually given as a time-weighted average (TWA). A TWA is the average exposure over a specified period of time, usually a nominal eight hours.

ppm Parts of vapor or gas per million parts of contaminated air by volume at 25 degrees C and 760 torr.

REL Recommended Exposure Limit: is an occupational exposure limit that has been recommended by NIOSH to OSHA for adoption as a permissible exposure limit. The REL is a level that NIOSH believes would be protective of worker safety and health over a working lifetime if used in combination with engineering and work practice controls, exposure and medical monitoring, posting and labeling of hazards, worker training and personal protective equipment. Although not legally enforceable limits, NIOSH RELs are considered by OSHA during the promulgation of legally enforceable PELs.

TLV[®] Threshold Limit Value: TLVs[®] refer to airborne concentrations of chemical substances and represent conditions under which it is believed that *nearly all* workers may be repeatedly exposed, day-after-day, over a working lifetime, without adverse health effects.

TLV-C Threshold Limit Value-Ceiling: The concentration that should not be exceeded during any part of the working exposure.

TLV-STEL Threshold Limit Value-Short Term Exposure Limit: a 15 minute TWA exposure that should not be exceeded at any time during a work day, even if the 8-hour TWA is within the TLV-TWA.

TLV-TWA Threshold Limit Value-Time Weighted Average: the Time Weighted Average concentration for a conventional 8-hour workday and a 40-hour workweek to which it is believed that nearly all workers may be repeatedly exposed, day-after-day for a working lifetime without adverse effects.

TWA Time Weighted Average: is the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.

Component(s)	Exposure Level	Authority	Adopted Value(s)		Note
4,4'-Isopropylidenediphenol	IDLH	NIOSH	–	–	IDLH Not Determined
4,4'-Isopropylidenediphenol	PEL	OSHA	–	–	OEL Not Established
4,4'-Isopropylidenediphenol	TLV-TWA	ACGIH	–	–	OEL Not Established
4,4'-Isopropylidenediphenol	REL-CEIL	NIOSH	–	–	OEL Not Established
Phenol	IDLH	NIOSH	250 ppm	962 mg/m ³	
Phenol	TLV-TWA	ACGIH	5 ppm	19 mg/m ³	
Phenol	PEL	OSHA	5 ppm	19 mg/m ³	
Phenol	REL-CEIL	NIOSH	15.6 ppm	60 mg/m ³	
Diethylenetriamine	IDLH	NIOSH	–	–	IDLH Not Determined
Diethylenetriamine	PEL	OSHA	–	–	OEL Not Established
Diethylenetriamine	TLV-TWA	ACGIH	1 ppm	4 mg/m ³	
Diethylenetriamine	REL-TWA	NIOSH	1 ppm	4 mg/m ³	
1,3-Bis(aminomethyl)benzene	IDLH	NIOSH	–	–	IDLH Not Determined
1,3-Bis(aminomethyl)benzene	PEL	OSHA	–	–	OEL Not Established
1,3-Bis(aminomethyl)benzene	TLV-TWA	ACGIH	0.02 ppm	0.1 mg/m ³	
1,3-Bis(aminomethyl)benzene	TLV-CEIL	NIOSH	0.02 ppm	0.1 mg/m ³	
4,4'-Diaminodicyclohexyl methane	IDLH	NIOSH	–	–	IDLH Not Determined
4,4'-Diaminodicyclohexyl methane	PEL	OSHA	–	–	OEL Not Established
4,4'-Diaminodicyclohexyl methane	TLV-TWA	ACGIH	–	–	OEL Not Established
4,4'-Diaminodicyclohexyl methane	REL-CEIL	NIOSH	–	–	OEL Not Established
Formaldehyde, polymer with benzenamine, hydrogenated	IDLH	NIOSH	–	–	IDLH Not Determined
Formaldehyde, polymer with benzenamine, hydrogenated	PEL	OSHA	–	–	OEL Not Established
Formaldehyde, polymer with benzenamine, hydrogenated	TLV-TWA	ACGIH	–	–	OEL Not Established
Formaldehyde, polymer with benzenamine, hydrogenated	REL-CEIL	NIOSH	–	–	OEL Not Established

Exposure guidelines

Consult local authorities for acceptable exposure limits.

Personal Protective Equipment (PPE)

Respiratory protection

When utilizing this material wear a NIOSH approved cartridge respirator or gas mask suitable to keep airborne mists and vapor concentration below the time-weighted threshold limit values. **WHEN USING IN POORLY VENTILATED OR CONFINED SPACES, USE A FRESH-AIR SUPPLYING RESPIRATOR OR A SELF-CONTAINED BREATHING APPARATUS.**

Skin protection

Drench affected area with water for at least 15 minutes. Wash hands at the end of each work shift and before eating, drinking, using tobacco products, or restroom. To prevent repeated or prolonged skin contact, wear appropriate safety garments such as impervious gloves, head/neck covers, aprons, jackets, pants, coveralls, and boots. Replace defective PPE and/or spoiled garments/boots.

Eye protection

Chemical splash goggles and face shield in compliance with OSHA regulations are advised for eye protection. Provide readily accessible eye wash stations and safety showers.

Engineering controls

Use explosion-proof suction type exhaust fans and blowers with sufficient CFM capacity to keep solvent vapors below 20% of the explosive limit. Provide sufficient mechanical ventilation to maintain exposure below TLV(s).

Provide readily accessible eye wash stations and safety showers.

Other protective clothing or equipment

Use protective barrier creams on exposed skin areas. Discard contaminated leather articles. Remove contaminated clothing; do not allow contaminated clothing out of the workplace.

Work hygienic practices

As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, and before eating, drinking, using tobacco products or restrooms. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.):	Viscous amber liquid
Odor:	Irritating, Ammoniacal
Odor Threshold:	Not available
pH:	Alkaline
Melting Point / Freezing Point:	Not available
Initial Boiling Point and Range:	>392° F (>200° C)
Flash Point:	Estimated: >200° F (>93°C)
Evaporation Rate:	Not available.
Flammability (solid, gas):	Not applicable.
Upper/Lower flammability or explosive limits:	Not available.
Vapor Pressure:	<1.00 mmHg at 70° F (21° C)
Vapor Density:	67.422 lb/ft ³ (1.08 g/cm ³) at 70° F (21° C)
Relative Density (water=1):	1.06
Solubility:	Soluble
Partition coefficient: <i>n</i>- octanol/water:	Not available.
Auto-ignition temperature:	Not available.
Decomposition Temperature:	Not available.
Volatile Organic Compounds (VOC):	0.00 lbs/gal (0.00 g/l)
Percent solids by weight:	100
Percent solids by volume:	100
Specific Gravity:	1.067 @ 70° F (21° C)
Weight per gallon:	8.91

SECTION 10: STABILITY AND REACTIVITY

Reactivity:

No specific test data related to reactivity available for this product or its ingredients.

Chemical stability:

Stable under normal conditions.

Possibility of hazardous reactions:

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

Conditions to avoid:

No specific data.

Incompatible materials:

Amines, Incompatible with bases, Reducing agents, Oxidizing agents, Nitrous acid and other nitrosating agents, Organic acids (i.e. acetic acid, citric acid etc.), Mineral acids, Sodium hypochlorite, Reactive metals (e.g. sodium, calcium, zinc etc.), Materials reactive with hydroxyl compounds.

CAUTION! N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion.

Hazardous decomposition products:

Nitric acid, Ammonia, Nitrogen oxides (NOx), Nitrogen oxide can react with water vapors to form corrosive nitric acid, Carbon monoxide, Carbon dioxide (CO₂), Aldehydes, Flammable hydrocarbon fragments, Nitrosamine, Organic acid vapors.

SECTION 11: TOXICOLOGICAL INFORMATION**Toxicological Information****Likely routes of exposure and potential health effects**

- Inhalation:** Toxic by inhalation. This product contains a component that is toxic by inhalation when aerosolized or sprayed. Inhalation of vapors and/or aerosols in high concentration may cause irritation of the respiratory tract. May cause nose, throat, and lung irritation. Can cause severe eye, skin, and respiratory tract burns.
- Ingestion:** Toxic if swallowed, If ingested, severe burns of the mouth, throat, as well as a danger of perforation of the esophagus and the stomach. May cause central nervous system effects, such as, headache, nausea, vomiting, abdominal pain, dizziness, confusion, breathing difficulties. Severe cases of overexposure can result in respiratory failure.
- Skin:** Severely irritating to the skin. Causes skin burns. If absorbed through the skin, may cause central nervous system effects, such as headache, nausea, dizziness, confusion, breathing difficulties. Symptoms of overexposure may include headache, tiredness, nausea, and vomiting.
- Eyes:** Causes eye burns, may cause blindness, or severe eye irritation.

Acute Toxicity Data

Product/ingredient name	Method	Species	Dose	Exposure	Result
4,4'-Isopropylidenediphenol	OECD 401 Oral	Rat	<5,000 mg/kg	4 h	LD ₅₀
4,4'-Isopropylidenediphenol	OECD 402 Dermal	Rabbit	2,230 mg/kg	4 h	LD ₅₀
4,4'-Isopropylidenediphenol	OECD 403 Inhalation	Rat	>16,000 mg/m ³	4 h	LC ₅₀
Phenol	OECD 401 Oral	Rat	340 mg/kg	4 h	LD ₅₀
Phenol	OECD 402 Dermal	Rat	707 mg/kg	4 h	LD ₅₀
Phenol	OECD 403 Inhalation	Rat	>900 mg/m ³	8 h	LC ₅₀
Diethylenetriamine	OECD 401 Oral	Rat	>1,400 mg/kg	4 h	LD ₅₀
Diethylenetriamine	OECD 402 Dermal	Rabbit	>1,000 mg/kg	4 h	LD ₅₀
Diethylenetriamine	OECD 403 Inhalation	Rat	>0.03 mg/m ³	8 h	LC ₅₀
1,3-Bis(aminomethyl)benzene	OECD 401 Oral	Rat	>1,000 mg/kg	4 h	LD ₅₀
1,3-Bis(aminomethyl)benzene	OECD 402 Dermal	Rabbit	>2,000 mg/kg	4 h	LD ₅₀
1,3-Bis(aminomethyl)benzene	OECD 403 Inhalation	Rat	1,420 mg/m ³	8 h	LC ₅₀
4,4'-Diaminodicyclohexyl methane	OECD 401 Oral	Rat	>2,000 mg/kg	4 h	LD ₅₀
4,4'-Diaminodicyclohexyl methane	OECD 402 Dermal	Rabbit	2,110 mg/kg	4 h	LD ₅₀
4,4'-Diaminodicyclohexyl methane	OECD 403 Inhalation	Rat	>1,500 mg/m ³	8 h	LC ₅₀
Formaldehyde, polymer with benzenamine, hydrogenated	OECD 401 Oral	Rat	300 mg/kg	4 h	LD ₅₀
Formaldehyde, polymer with benzenamine, hydrogenated	OECD 402 Dermal	Rabbit	>2,000 mg/kg	4 h	LD ₅₀
Formaldehyde, polymer with benzenamine, hydrogenated	OECD 403 Inhalation	–	–	8 h	LC ₅₀

OECD: Organization for Economic Cooperation and Development.
OECD Test Method 401: Acute Oral Toxicity. (Following the OECD Council decision, the test 401 'Acute Oral Toxicity' was deleted on 12/07/2002.)
OECD Test Method 420: Acute Oral toxicity – fixed dose procedure.
OECD Test Method 402: Acute Dermal Toxicity.
OECD Test Method 403: Acute Inhalation Toxicity.
OECD Test Method 404: Acute Dermal Irritation/Corrosion.
OECD Test Method 405: Acute Eye Irritation/Corrosion.

Germ cell mutagenicity

No known significant effects or critical hazards on the product itself.

Component	Test	Result
4,4'-Isopropylidenediphenol	OECD 476	Negative
Phenol	OECD 471	Negative
Diethylenetriamine	In vitro	Negative
1,3-Bis(aminomethyl)benzene	OECD 471	Negative
4,4'-Diaminodicyclohexyl methane	In vivo	Negative
Formaldehyde, polymer with benzenamine, hydrogenated	OECD 476	Negative

OECD: Organization for Economic Cooperation and Development.
LOEL: "Lowest-observed-effect-level".
NOAEL: "No-observed-adverse-effect level".

Carcinogenicity

Component	Classification	Listing Body
4,4'-Isopropylidenediphenol	Not Listed	IARC
4,4'-Isopropylidenediphenol	Some evidence of carcinogenic activity.	NTP
Phenol	Group 3 – Not classifiable as to its carcinogenicity to humans.	IARC
Phenol	No evidence of carcinogenic activity.	NTP
Diethylenetriamine	Not Listed	IARC
Diethylenetriamine	Equivocal evidence of carcinogenic activity.	NTP
1,3-Bis(aminomethyl)benzene	No data available.	IARC
1,3-Bis(aminomethyl)benzene	No data available.	IARC
4,4'-Diaminodicyclohexyl methane	Not Listed	IARC
4,4'-Diaminodicyclohexyl methane	Not Listed	IARC
Formaldehyde, polymer with benzenamine, hydrogenated	Not Listed	IARC
Formaldehyde, polymer with benzenamine, hydrogenated	Not Listed	IARC

IARC: World Health Organization's (WHO) International Agency for Research on Cancer.
NTP: U.S. Department of Health and Human Services' (DHHS) National Toxicology Program.

Reproductive toxicity

No known significant effects or critical hazards on the product itself.

Component	Test	Result
4,4'-Isopropylidenediphenol	OECD 414	Negative
Phenol	OECD 416	Negative
Diethylenetriamine	OECD 414	Negative
1,3-Bis(aminomethyl)benzene	OECD 421	NOAEL 450 mg/kg
4,4'-Diaminodicyclohexyl methane	OECD 422	NOAEL 500 mg/kg
Formaldehyde, polymer with benzenamine, hydrogenated	OECD 421	NOAEL 280 mg/kg

OECD: Organization for Economic Cooperation and Development.
LOEL: "Lowest-observed-effect-level".
NOAEL: "No-observed-adverse-effect level".

Specific Target Organ Toxicity, Single Exposure (STOT-SE)

Respiratory Tract: This product contains a component that is toxic by inhalation when aerosolized or sprayed. Review the toxicity information in this section 11 against your intended use. If product is not being aerosolized or sprayed, the inhalation toxicity may not be applicable. Inhalation of vapors and/or aerosols in high concentration may cause irritation of the respiratory system. Inhalation of aerosol may cause irritation to the upper respiratory tract. May cause nose, throat, and lung irritation. Can cause severe eye, skin, and respiratory tract burns. Highly toxic by inhalation.

Central Nervous System: May cause drowsiness or dizziness with narcotic effect.

Specific Target Organ Toxicity, Repeated Exposure (STOT-RE)

Liver, Kidney, Central Nervous System: May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

Not classified as an aspiration hazard.

Potential chronic health effects

Skin corrosion / irritation

Severely irritating in contact with skin. May cause sensitization by skin contact

Serious eye damage / irritation

May cause irreversible eye damage.

Respiratory or skin sensitization

Once sensitized, a severe allergic skin reaction may occur when subsequently exposed to very low levels.

Chronic inhalation of a component or components of this product produced tumors in the nose and kidneys of laboratory animals. A component or components of this product was mutagenic in a cultured mammalian cell assay. In vitro tests have shown mutagenic effects on bacterial cultures. A component has been shown to cause reproductive/teratogenic effects in laboratory animals. Mixed polycycloaliphatic amines were tested in rats for systemic effects in a sub chronic (28-day) oral study at doses ranging from 15 to 300 mg/kg/day. Effects seen at 300 mg/kg/day included decreased survival, decreased body weight gain, increased liver, kidney, and adrenal weights and histological changes in the liver, kidney, adrenals and spleen. The No-Observed-Adverse-Effect-Level (NOAEL) was 15 mg/kg/day.

Component	Test	Endpoint	Species	Result
4,4'-Isopropylidenediphenol	OECD 403 (inhalation)	NOAEL	Rat	650 mg/m ³
4,4'-Isopropylidenediphenol	OECD 404 (dermal)	NOAEL	Rabbit	120 mg/kg
4,4'-Isopropylidenediphenol	OECD 408 (oral)	NOAEL	Rat	50 mg/kg
Phenol	OECD 403 (inhalation)	NOAEL	Rat	No Data
Phenol	OECD 404 (dermal)	NOAEL	Rabbit	276 mg/kg
Phenol	OECD 408 (oral)	NOAEL	Rat	487 mg/kg
Diethylenetriamine	OECD 403 (inhalation)	NOAEL	Rat	550 mg/m ³
Diethylenetriamine	OECD 404 (dermal)	LOEL	Mouse	400 mg/l
Diethylenetriamine	OECD 408 (oral)	NOAEL	Rat	240 mg/kg
1,3-Bis(aminomethyl)benzene	OECD 403 (inhalation)	NOAEL	Rat	No data available
1,3-Bis(aminomethyl)benzene	OECD 404 (dermal)	NOAEL	Rabbit	No data available
1,3-Bis(aminomethyl)benzene	OECD 408 (oral)	NOAEL	Rat	150 mg/kg
4,4'-Diaminodicyclohexyl methane	OECD 403 (inhalation)	NOAEL	Rat	96 mg/kg
4,4'-Diaminodicyclohexyl methane	OECD 404 (dermal)	NOAEL	Rabbit	No Data
4,4'-Diaminodicyclohexyl methane	OECD 408 (oral)	NOAEL	Rat	15 mg/kg
Formaldehyde, polymer with benzenamine, hydrogenated	OECD 403 (inhalation)	NOAEL	Rat	No data available
Formaldehyde, polymer with benzenamine, hydrogenated	OECD 404 (dermal)	NOAEL	Rabbit	No data available
Formaldehyde, polymer with benzenamine, hydrogenated	OECD 408 (oral)	NOAEL	Rat	15 mg/kg

OECD: Organization for Economic Cooperation and Development.
 LOEL: "Lowest-observed-effect-level".
 NOAEL: "No-observed-adverse-effect level".

SECTION 12: ECOLOGICAL INFORMATION

Environmental affects

No data on the product itself. May be harmful to the environment if released in large quantities. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Ecotoxicity

Aquatic Toxicity

Toxicity to fish

Product/ingredient name	Test	Species	Dose	Exposure
4,4'-Isopropylidenediphenol	LC ₅₀	Cyprinodon variegatus (sheepshead minnow)	>10 mg/l	96 h
Phenol	LC ₅₀	Oncorhynchus mykiss (rainbow trout)	5.02 mg/l	96 h
Diethylenetriamine	LC ₅₀	Poecillia reticulata (guppy)	>1,000 mg/l	96 h
1,3-Bis(aminomethyl)benzene	LC ₅₀	Leuciscus idus (Golden orfe)	75 mg/l	96 h
4,4'-Diaminodicyclohexyl methane	LC ₅₀	Leuciscus idus (Golden orfe)	67.8 mg/l	96 h
Formaldehyde, polymer with benzenamine, hydrogenated	LC ₅₀	Poecillia reticulata (guppy)	140 mg/l	96 h

Toxicity to aquatic invertebrates

Product/ingredient name	Test	Species	Dose	Exposure
4,4'-Isopropylidenediphenol	EC ₅₀	Daphnia magna (water flea)	>10 mg/l	48 h
Phenol	EC ₅₀	Daphnia magna (water flea)	0.46 mg/l	48 h
Diethylenetriamine	EC ₅₀	Daphnia magna (water flea)	17 mg/l	48 h
1,3-Bis(aminomethyl)benzene	EC ₅₀	Daphnia magna (water flea)	16 mg/l	48 h
4,4'-Diaminodicyclohexyl methane	EC ₅₀	Daphnia magna (water flea)	6.8 mg/l	48 h
Formaldehyde, polymer with benzenamine, hydrogenated	EC ₅₀	Daphnia magna (water flea)	18.6 mg/l	48 h

Toxicity to aquatic algae and cyanobacteria

Product/ingredient name	Test	Species	Dose	Exposure
4,4'-Isopropylidenediphenol	EC ₅₀	Raphidocelis subcapitata (microalgae)	2.7 mg/l	96 h
Phenol	ErC ₅₀	Selenastrum capricornutum (green algae)	61.1 mg/l	96 h
Diethylenetriamine	EC ₅₀	Scenedesmus subspicatus (green algae)	17 mg/l	72 h
1,3-Bis(aminomethyl)benzene	EC ₅₀	Scenedesmus subspicatus (green algae)	20.03 mg/l	72 h
4,4'-Diaminodicyclohexyl methane	EC ₅₀	Scenedesmus subspicatus (green algae)	141.4 mg/l	72 h
Formaldehyde, polymer with benzenamine, hydrogenated	EC ₅₀	Scenedesmus subspicatus (green algae)	43.9 mg/l	72 h

Persistence and degradability

Product/ingredient name	Test	Concentration	Result
4,4'-Isopropylidenediphenol	Aerobic, 28 d	89%	Readily biodegradable
Phenol	Aerobic, 14 d	85%	Readily biodegradable
Diethylenetriamine	Anaerobic, 28 d	70%	Readily biodegradable
1,3-Bis(aminomethyl)benzene	Aerobic, 28 d	49%	Not readily biodegradable
4,4'-Diaminodicyclohexyl methane	Aerobic, 28 d	<10%	Not readily biodegradable
Formaldehyde, polymer with benzenamine, hydrogenated	Aerobic 28 d	0.40%	Not readily biodegradable

Bioaccumulative potential

Product/ingredient name	Log K _{ow}	BCF	Potential
4,4'-Isopropylidenediphenol	3.6	–	Low
Phenol	1.47	17.5	Low
Diethylenetriamine	-1.32	2.8	Moderate
1,3-Bis(aminomethyl)benzene	0.18	2.7	Low
4,4'-Diaminodicyclohexyl methane	<3	3.2	Low
Formaldehyde, polymer with benzenamine, hydrogenated	2.7	1.4	Low

Mobility in soil

Product/ingredient name	
4,4'-Isopropylidenediphenol	Slight mobility
Phenol	Slight mobility
Diethylenetriamine	High mobility
1,3-Bis(aminomethyl)benzene	Low mobility
4,4'-Diaminodicyclohexyl methane	Slight mobility
Formaldehyde, polymer with benzenamine, hydrogenated	Moderate mobility

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method


EMPTY CONTAINERS RETAIN PRODUCT RESIDUE AND CAN BE HAZARDOUS. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE SAFETY DATA SHEET (SDS) MUST BE OBSERVED. Consult local, state, and federal hazardous waste regulators before disposing of waste materials. The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers. **DISPOSE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS ONLY.**

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

Proper Shipping Name	Diethylenetriamine solution
Hazard Class	8
ID Number	UN2079
Packing Group	II
Emergency phone	+1-352-323-3500 (US Toll Free: 800-535-5053)

	NFPA Rating	
	HMIS	
	3*	Health
	1	Flammability
0	Physical Hazard	
I	Personal Protection	



TRANSPORT CANADA

Proper Shipping Name	Diethylenetriamine solution
Hazard Class	8
ID Number	UN2079
Packing Group	II
Emergency phone	+1-352-323-3500 (US Toll Free: 800-535-5053)

IMO/IMDG

Proper Shipping Name	Diethylenetriamine solution
Hazard Class	8
ID Number	UN2079
Packing Group	II
Emergency phone	+1-352-323-3500 (US Toll Free: 800-535-5053)
Stowage and segregation	Category A. Clear of living quarters. "Separated from" acids.
EmS Fire / EmS Spill	F-A / S-B

IATA/DGR

Proper Shipping Name	Diethylenetriamine solution	
Hazard Class	8	
ID Number	UN2079	
Packing Group	II	
Emergency phone	+1-352-323-3500 (US Toll Free: 800-535-5053)	
Passenger and Cargo Aircraft	Quantity limitation:	0.26 US-Gal (1 L)
	Packaging instruction:	851
	Special Provision:	None
	ERG Code:	8L
	Quantity limitation:	7.93 US-Gal (30 L)
Cargo Aircraft Only (CAO)	Packaging instruction:	855
	Special Provision:	None
	ERG Code:	8L

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Nombre propio del transporte	solución dietilentriamina
Clase de peligro	8
Número de identificación del	UN2079
Grupo de embalaje	II
teléfono de emergencia	+1-352-323-3500 (US Toll Free: 800-535-5053)

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.

SECTION 15: REGULATORY INFORMATION**U.S. FEDERAL REGULATIONS****U.S. Department of Labor, Occupational Safety & Health Administration (OSHA)**

Hazard Communication Standard (HCS) Classification: See Section 2 above

Effective 26 March 2012, OSHA modified its Hazard Communication Standard (HCS), **29 CFR Parts 1910, 1915, and 1926**, to conform to the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Emergency Planning and Community Right-to-Know Act (EPCRA)

42 U.S. Code, Chapter 116

Sections: 302/304 Extremely Hazardous Substances (EHS):

Extremely Hazardous Substances (EHSs), (40 CFR Part 302, Table 302.4)

<u>Ingredient(s)</u>	<u>CAS No.</u>	<u>Statutory Code(s)</u>	<u>RCA Waste No.</u>	<u>Final Reportable Quantity</u>
Phenol	108-95-2	1, 2, 3, 4	U188	1,000 Lbs. (454 Kg.)

311/312 Hazard Categories

Extremely Hazardous Substances (EHSs), (40 CFR Part 355, Appendix A and Appendix B)

Category A:	Immediate (Acute) Health Hazard:	Yes
Category D:	Delayed (Chronic) Health Hazard:	Yes
Category F:	Fire Hazard:	No
Category R:	Reactive Hazard:	No
Category S:	Sudden Release of Pressure Hazard:	No

<u>Ingredient(s)</u>	<u>CAS No.</u>	<u>Category</u>	<u>TPQ (lbs.)</u>
4,4'-Isopropylidenediphenol	80-05-7	A, D	
Phenol	108-95-2	A, D	500/10,000
Diethylenetriamine	111-40-0	A, D	
1,3-Bis(aminomethyl)benzene	1477-55-0	A	
4,4'-Diaminodicyclohexyl methane	1761-71-3	A	
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	A	

***Note: The information above is provided for informational purposes only.**

Phenol (CAS 108-95-2) is the only individual chemical in the listing above that appears in 40 CFR Part 355, Appendix A or Appendix B.

Section: 313 Toxics Release Inventory (TRI) Reportable Ingredients:

Extremely Hazardous Substances (EHSs), (40 CFR Part 372, Subpart D)

<u>Ingredient(s)</u>	<u>CAS No.</u>	<u>Effective Date</u>
4,4'-Isopropylidenediphenol	80-05-7	01/01/1987
Phenol	108-95-2	01/01/1987

Clean Air Act

42 U.S. Code, Chapter 85

Section 111 Volatile Organic Compound (VOC) Content Limits:

40 CFR Part 59, Subpart D, Table 1

Volatile Organic Compounds (VOC): 0.00 g/l, (0.00 lb/gal)

Section 112(b) Hazardous Air Pollutants (HAPs):

42 U.S. Code § 7412 - Hazardous air pollutants

<u>Ingredient(s)</u>	<u>CAS No.</u>
-	-

Ozone Depleting Substances (ODS):

42 U.S. Code § 7671a - Listing of class I and class II substances

<u>Ingredient(s)</u>	<u>CAS No.</u>
-	-

State Regulations

USA, CALIFORNIA STATE SAFE DRINKING & TOXIC ENFORCEMENT ACT (PROPOSITION 65): This product contains the following chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm.

<u>Ingredient(s)</u>	<u>CAS No.</u>
4,4'-Isopropylidenediphenol	80-05-7

USA, Louisiana Right-to-Know Hazardous Substance List (RTKHSL) Components:

<u>Ingredient(s)</u>	<u>CAS No.</u>
Phenol	108-95-2

USA, Massachusetts Environmental Policy Act (MEPA), 301 CMR 41.00 components:

<u>Ingredient(s)</u>	<u>CAS No.</u>
-	-

USA, Michigan Critical Materials Register (CMR) Components:

<u>Ingredient(s)</u>	<u>CAS No.</u>
-	-

USA, New Jersey Right to Know Hazardous Substance List (RTKHSL) Components:

<u>Ingredient(s)</u>	<u>CAS No.</u>
4,4'-Isopropylidenediphenol	80-05-7
Phenol	108-95-2
Diethylenetriamine	111-40-0
1,3-Bis(aminomethyl)benzene	1477-55-0

USA, Pennsylvania Right-to-Know Hazardous Substance List (RTKHSL) Components:

<u>Ingredient(s)</u>	<u>CAS No.</u>
4,4'-Isopropylidenediphenol	80-05-7
Diethylenetriamine	111-40-0
1,3-Bis(aminomethyl)benzene	1477-55-0

PRODUCT SPECIFIC HEALTH AND SAFETY DATA IN OTHER SECTIONS OF THIS SAFETY DATA SHEET (SDS) MAY ALSO BE APPLICABLE FOR STATE REQUIREMENTS. FOR DETAILS ON YOUR REGULATORY REQUIREMENTS YOU SHOULD CONTACT THE APPROPRIATE AGENCY IN YOUR STATE.

SECTION 16: OTHER INFORMATION

Preparation Information

This Safety Data Sheet (SDS) has been prepared by CORCHEM[®] Corporation.

Revision: 2-03072016, Product Code: C238-A-0C0

DISCLAIMER: All information contained herein is based upon data obtained from CORCHEM's suppliers and/or recognized technical sources.

The data in this Safety Data Sheet (SDS) relates only to the specific material designated herein and does not relate to its use in combination with any other material or in any other process.

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