

Safety Data Sheet









Revision:08/21/2015

Printing date: 08/24/2015

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

- **1.1 Product identifier**
- Trade name: **602 TuffPatch V/S Part A**
- Application of the substance / the preparation: Modified Epoxy Resin
- **1.3 Details of the supplier of the Safety Data Sheet**
Manufacturer/Supplier:
 Tuff Industrial Products, Inc.
 2120 Roberts Dr.
 Broadview, IL 60155 USA
 Tel (800) 475-0068
- **1.4 Emergency contact: CHEMTREC® (800) 424-9300**

2 Hazards identification

- **2.1 Classification of the substance or mixture**
- Classification according to Regulation (EC) No 1272/2008
 -  **GHS07**
 Acute Toxicity, Oral 4; H302: Harmful if swallowed
 Acute Toxicity, Dermal 4; H312: Harmful in contact with skin
 Skin Irrit. 2; H315: Causes skin irritation.
 Eye Irrit. 2; H319: Causes serious eye irritation.
 Skin Sens. 1; H317: May cause an allergic skin reaction
 -  **GHS09 environment**
 Aquatic Chronic 2; H411: Toxic to aquatic life with long lasting effects.
- Classification according to Directive 67/548/EEC or Directive 1999/45/EC
 -  Xi; Irritant
 R36/38: Irritating to eyes and skin
 -  Xi; Sensitising
 R43: May cause sensitisation by skin contact.
 -  Xn; Harmful
 R22: Harmful if swallowed.
 -  N; Dangerous for the environment
 R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- **Information concerning particular hazards for human and environment:**
 The product has to be labeled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

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· **Classification system:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

· **2.2 Label elements**

Labeling according to Regulation (EC) No 1272/2008:

The product is classified and labeled according to the CLP regulation.

· **Hazard pictograms**



This pictogram only applicable for EU regulations. Not for use in the United States (OSHA GHS).



GHS07



GHS09

· **Signalword:** Danger Warning

· **Hazard-determining components of labeling:**

Bisphenol A , Epichlorohydrin resin

2-ethyl hexyl Glycidyl Ether

Reaction Product: Bisphenol F /

Epichlorohydrin / co-Formaldehyde

formaldehyde

1-chloro-2,3-epoxypropane

· **Hazard statements:**

H302 Harmful if swallowed

H312: Harmful in contact with skin

H315: Causes skin irritation

H317: May cause an allergic skin reaction

H319: Causes serious eye irritation

H412: Harmful to aquatic life with long lasting effects.

Contains epoxy constituents. May produce an allergic reaction.

0 percent of the mixture consists of ingredient(s) of unknown toxicity.

· **Precautionary statements:**

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P264: Wash hands thoroughly after handling

P270: Do not eat, drink or smoke when using this product.

P271: Use only 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.

P321: Specific treatment (see on this label).

P362: Take off contaminated clothing and wash before reuse.

P363: Wash contaminated clothing before reuse

P391: Collect spillage

P501: Dispose of contents/container in accordance with local/regional/national/international regulations

Response statements:

P305+P351+P338 **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P333+P313: If skin irritation or rash occurs: Get medical advice/attention.

P337+P313: If eye irritation persists: Get medical advice/attention.

P302+P352: **IF ON SKIN:** Wash with plenty of soap and water.

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- **Hazard description:**
- **WHMIS-symbols:**
D2B - Toxic material causing other toxic effects

Canadian WHMIS Classification:

This product is categorized as a Class D Division 2B Materials causing other toxic effects, as per the Controlled Product Regulations



- **NFPA ratings (scale 0 - 4)**



Health = 2
Fire = 1
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 2
Fire = 1
Reactivity = 0

- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
PBT: Not applicable.
vPvB: Not applicable

3 Composition/Information on Ingredients

- **3.1 Substances**

- **CAS No. Description**

28064-14-4 Reaction Product: Bisphenol F / Epichlorohydrin / co- Formaldehyde

- **Impurities and stabilising additives:**

CAS: 50-00-0 EINECS: 200-001-8 Index number: 605-001-00-5	formaldehyde T R23/24/25; C R34; R40; R43 Carc. Cat. 3 Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331 Carc. 2, H351 Skin Corr. 1B, H314 Skin Sens. 1, H317	25 -30%
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













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CAS: 106-89-8 EINECS: 203-439-8 Index number: 603-026-00-6	1-chloro-2,3-epoxypropane  T Carc. Cat. 2 R45-23/24/25;  C R34;  Xi R43 R10  Flam. Liq. 3, H226  Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331  Carc. 1B, H350  Skin Corr. 1B, H314  Skin Sens. 1, H317	25 -30%
CAS: 25068-38-6	Bisphenol A , Epichlorohydrin resin  Xi R21/22  R36  R38  Skin Irrit. 2, H315; Skin Sens. 1, H317  Acute Tox. 3, H302	15 -20%
CAS: 2461-15-6 EINECS: 219-553-6	2-ethyl hexyl Glycidyl Ether  Xi R38/43  Skin Irrit. 2, H315; Skin Sens. 1, H317	15 - 20%

4 First aid measures

4.1 Description of first aid measures

General information:

Take affected persons out of danger area and lay down.

After inhalation:

Rescuers should put on appropriate protective gear. Remove from area of exposure. Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.
Immediately remove any clothing soiled by the product.
Get medical attention if irritation develops or persists.
Launder contaminated clothing before re-use

After eye contact:

Remove contact lenses if worn.
Immediately flush eyes with water
Flush eyes with water for a minimum of 15 minutes, occasionally lifting and lowering upper lids
Rinse opened eye for several minutes under running water. Then consult a doctor

After swallowing:

Rinse out mouth.
Do not give liquids.
Do not induce vomiting; call for medical help immediately

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4.2 Most important symptoms and effects, both acute and delayed

Acute: This material may cause irritation to the respiratory tract and skin. Product may cause an allergic skin reaction and even dermatitis with long term exposure.

Allergic reactions

Nausea

Cramp

Breathing difficulty

Chronic: Prolonged or repeated skin contact may cause allergic reaction or dermatitis

Hazards:

Pre-existing skin or eye problems may be aggravated by exposure to this product. Danger of severe eye injury.

Danger of impaired breathing.

Danger of pulmonary edema.

Condition may deteriorate with alcohol consumption.

4.3 Indications of any immediate medical attention and special treatment

Treat skin and mucous membrane with antihistamine and corticoid preparations. Monitor circulation.

Treat symptoms and reduce over-exposure.

5 Firefighting Measures

5.1 Extinguishing media Suitable extinguishing agents:

Suitable extinguishing agents:

Use fire extinguishing methods suitable to surrounding conditions. Carbon Dioxide, Dry Chemical, Foam, Water Fog, Halon, Water Spray, Sand, Limestone Powder

5.2 Special hazards arising from the substance or mixture:

Formation of toxic gases is possible during heating or in case of fire. This product is not considered a fire hazard but will burn once ignited

5.3 Advice for firefighters

Protective equipment:

Wear self-contained respiratory protective device.

Wear fully protective suit.

Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

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6 Accidental Release Measures

· 6.1 Personal precautions, protective equipment and emergency procedures

Personnel should be trained for spill response operations.

Remove persons from danger area.

Use respiratory protective device against the effects of fumes/dust/aerosol. Wear protective equipment.

Keep unprotected persons away.

Ensure adequate ventilation

· 6.2 Environmental precautions: All work practices must be aimed at eliminating environmental contamination. Do not allow to enter sewers/ surface or ground water.

· 6.3 Methods and material for containment and cleaning up: Contain spill if safe to do so. Prevent entry into drains, sewers, and other waterways. Soak up with a non-combustible absorbent material and place in an appropriate container for disposal. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations).

· 6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and Storage

· 7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace. As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors/mists generated by this product. Remove contaminated clothing immediately.

Prevent formation of aerosols.

· 7.2 Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles:

Store between 10° and 50°C (45°-125°F) and avoid contact with skin and eyes. Do not store near acids or amines. Ground all transfer equipment. Good general housekeeping procedures should be followed. Store away from oxidizing agents. Prevent formation of aerosols. Do not eat, drink or smoke while using material.

· 7.3 Specific end use(s): No further relevant information available

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8 Exposure Controls/Personal Protection

Additional information about design of technical facilities:

Use with adequate ventilation to ensure exposure levels are maintained below the limits provided above. Use local exhaust ventilation to control airborne vapor. Ensure eyewash/safety shower stations are available near areas where this product is used.

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace: Currently, International exposure limits are not established for the components of this product. Please check with competent authority in each country for the most recent limits in place.

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.



Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.
Use suitable respiratory protective device when aerosol or mist is formed.
Maintain airborne contaminant concentrations below guidelines listed above, if applicable. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states.

Protection of hands: Use chemical resistant gloves to prevent skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada



Protective gloves

Material of gloves

Use chemical resistant gloves to prevent skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed

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· Eye protection:



Tightly sealed goggles

Safety glasses or chemical goggles as appropriate to prevent eye contact. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards

· Body Protection:



Use body protection appropriate to prevent contact (e.g. lab coat, overalls). If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards

9 Physical and Chemical Properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Color:	Water white-pale straw colored liquid
Odor:	Distinctive sweet odor
Odor threshold:	Mild

pH-value:	Not determined.
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Change in condition

Melting point/Melting range:	Undetermined
Boiling point/Boiling range:	392°F (200°C)

Flash point:	>200°F (>94°C)
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Flammability (solid, gaseous):	Not applicable
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Ignition temperature:	>150°C (> 302 °F)
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Decomposition temperature:	Not determined.
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Self-igniting:	Not determined
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Danger of explosion:	None known, handle as a combustible liquid
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Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

Vapour pressure:	<4 mmHg @25°C
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Density at 20°C:	1.162 g/cm ³
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Relative density:	Not determined
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Vapour density:	7.7 pounds per gallon @25°C
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Evaporation rate	Not determined
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Solubility in / Miscibility with water:	Miscible
Specific Gravity 20oC: (Water = 1):	No data available
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	13000 mPas
Dynamic @ 20°C:	No data available
Kinematic:	No data available
Solvent content:	No data available
Organic solvents:	No data available
VOC (EC)	No data available

· **9.2 Other information:** No further relevant information available

10 Stability and Reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
When heated to decomposition this product produces noxious gases such CO, CO₂, NO_x, amines, ammonia and others
- **10.3 Possibility of hazardous reactions**
Reacts with peroxides and other radical forming substances.
Reacts with oxidizing agents.
Reacts with amines.
Exothermic polymerization
- **10.4 Conditions to avoid:** Contact with incompatible materials.
- **10.5 Incompatible materials:** Oxidizing agents and amines. Avoid excess heat and sources of ignition
- **10.6 Hazardous decomposition products:**
Nitrogen oxides (NO_x)
Carbon monoxide and carbon dioxide

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11 Toxicological Information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values relevant for classification:**
 - LD50 Acute Dermal 2,500 mg/kg (rabbit)
 - LD50 Acute Oral 2,450 mg/kg (rat)
- **Primary irritant effect:**
- **On the skin:** Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material. Harmful if absorbed through skin.
- **On the eye:** Irritant to eyes
- **Sensitization:**
 - Sensitization possible through skin contact.
 - Sensitizing effect through inhalation is possible by prolonged exposure.
- **Additional toxicological information:**
 - None of the ingredients are found on the following lists: FEDERAL OSHA X LIST, NTP, CAL/OSHA, IARC and therefore is not considered to be, nor suspected to be a cancer causing agent by these agencies.
- **Reproductive Toxicity Information:** No information concerning the effects of this product and its components on the human reproductive system.

12 Ecological Information

- **12.1 Toxicity**
- **Aquatic toxicity:**
 - The product contains materials that are harmful and may cause long term damage to the environment.
 - Daphnia Magna EC50 10 mg/l
- **12.2 Persistence and degradability:** Moderately /partly biodegradable
- **12.3 Bioaccumulative potential:** No further relevant information available.
- **12.4 Mobility in soil:** No evidence is currently available on this products effects on plants or animals
- **Ecotoxicological effects:** Harmful to aquatic organisms
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**
 - Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water Do not allow product to reach ground water, water course or sewage system. Must not reach sewage water or drainage ditch undiluted or unneutralized. Danger to drinking water if even small quantities leak into the ground. Harmful to aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
 - PBT:** Not applicable.
 - vPvB:** Not applicable.
- **12.6 Other adverse effects:** No further relevant information available

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13 Disposal Considerations

· **13.1 Waste treatment methods**

· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system. Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations
Waste disposal must be in accordance with appropriate Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

RCRA Waste Code: Disposal must be made according to official regulations.

EU Waste Code: Solvent naphtha

14 Transport Information

14.1 UN-Number
DOT, IMDG, IATA
ADR

Not Regulated.
Not Regulated.

14.2 UN proper shipping name
DOT, IMDG, IATA
ADR

Not Regulated.
Not Regulated.

14.3 Transport hazard class(es)
DOT, ADR, IMDG, IATA

Not Regulated.

14.4 Packing group
DOT, ADR, IMDG, IATA

Not Regulated.

14.5 Environmental hazards:
Marine pollutant:

This product does not contain ingredients that are classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101. Appendix B)

14.6 Special precautions for user
Danger code (Kemler):
EMS Number:

Not Regulated.
Not Regulated.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable

· **Transport/Additional information:**

Tunnel restriction code
UN "Model Regulation":

No data available
No data available

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15 Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture United States (USA)

SARA:

Section 355 (extremely hazardous substances): Substance is not listed..

Section 313 (Specific toxic chemical listings): Substance is not listed.

TSCA (Toxic Substances Control Act): All ingredients are listed.

Proposition 65 (California):

Chemicals known to cause cancer or reproductive harm:

Chemicals known to cause cancer:

50-00-0 formaldehyde
106-89-8 1-chloro-2,3-epoxypropane

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: 106-89-8 1-chloro-2,3-epoxypropane

Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Carcinogenic Categories

EPA (Environmental Protection Agency): None of the ingredients is listed.

IARC (International Agency for Research on Cancer): Formaldehyde 50-00-0

TLV (Threshold Limit Value established by ACGIH): None of the ingredients is listed.

NIOSH-Ca(National Institute for Occupational Safety and Health):None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration): None of the ingredients is listed.

New Jersey Right-To-Know:

The following materials are non-hazardous, but are among the top five components in this product
No NJ Right-To-Know components exist in this product

Pennsylvania Right-To-Know:

The following non-hazardous ingredients are present in the product are at or greater than 3%.
No PA Right-To-Know components exist in this product

Canada

Canadian Domestic Substances List (DSL): All ingredients are listed.

Canadian Ingredient Disclosure list (limit 0.1%):

50-00-0 formaldehyde
106-89-8 1-chloro-2,3-epoxypropane

Canadian Ingredient Disclosure list (limit 1%): None of the ingredients are listed

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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16 Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H319: Causes serious eye irritation.
H411: Toxic to aquatic life with long lasting effects
H412: Harmful to aquatic life with long lasting effects
R38: Irritating to eyes
R43: May cause sensitization by skin contact

· Abbreviations and Acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk of his use of the material for either Component A and/or B or the combination of both components

Tuff Industrial Products is a registered Trademark of Tuff Industrial Products, Inc. Complies with Federal Standard No. 29 CFR 1910.1200

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Printing date: 10/05/2015

TUFF
 INDUSTRIAL PRODUCTS®

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

1.1 Product identifier

Trade name: **602 TuffPatch V/S Part B**

Application of the substance/the preparation: Blended epoxy curing agent

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer/Supplier:

Tuff Industrial Products, Inc.

2120 Roberts Dr.

Broadview, IL 60155 USA

Tel (800) 475-0068

1.4 Emergency contact: CHEMTREC® (800) 424-9300

2 Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:



GHS08 health hazard
Repr. 2; H361f: Suspected of damaging fertility.



GHS05 corrosion
Skin Corr. 1B; H314: Causes severe skin burns and eye damage.
Skin Corr. 1; H317: May cause an allergic skin reaction



GHS09 environment
Aquatic Chronic 3; H412: Harmful to aquatic life with long lasting effects.



GHS07
Acute Tox. 4; H302: Harmful if swallowed.
Acute Tox. 4; H332: Harmful if inhaled.
Skin Sens. 1; H317: May cause an allergic skin reaction.
STOT SE 3; H335: May cause respiratory irritation

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



C; Corrosive
R34: Causes burns.



N; Dangerous for the environment
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.



Xn; Harmful
R20/22: Harmful by inhalation and if swallowed



Xi; Sensitizing
R43: May cause sensitization by skin contact.



Xi; Irritant
R37: Irritating to respiratory system

Information concerning particular hazards for human and environment:

The product has to be labeled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

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· **Classification system:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

· **2.2 Label elements**

Labeling according to Regulation (EC) No 1272/2008:

The product is classified and labeled according to the CLP regulation.

· **Hazard pictograms**



This pictogram only applicable for EU regulations. Not for use in the United States (OSHA GHS).



GHS05

GHS07

GHS08

GHS09

· **Signalword:** Danger Warning

· **Hazard-determining components of labeling:**

Polyamido Amine

2,2'-iminodiethylamine

bisphenol A

3,6,9-triazaundecamethylenediamine

2,2'-iminodi(ethylamine) (DETA)

Phenol

4,4'-(1-methylethylidene) bis

2-ethyl hexyl Glycidyl Ether

n-Aminoethylpiperazine

· **Hazard statements:**

H302+H332: Harmful if swallowed or inhaled

H312: Harmful in contact with skin

H314: Causes severe skin burns and eye damage

H315: Causes skin irritation

H317: May cause an allergic skin reaction

H318: Causes serious eye damage

H335: May cause respiratory irritation

H361f: Suspected of damaging fertility

H412: Harmful to aquatic life with long lasting effects.

Contains Polyamido Amine, 3,6,9-triazaundecamethylenediamine, 2-piperazin-1-ylethylamine, bisphenol A, 2,2'-iminodiethylamine. May produce an allergic reaction.

· **Precautionary statements:**

P202: Do not handle until all safety precautions have been read and understood.

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P264: Wash thoroughly after handling.

P270: Do not eat, drink or smoke when using this product

P271: Use only in well ventilated area

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P273: Avoid release to the environment

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P281: Use personal protective equipment as required.

- **Response Statements**

P235+ P403: Store in a well-ventilated place. Keep container tightly closed.

P301+P312+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell

P302+P303+P361+P352+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

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+P313: IF exposed or concerned: Get medical advice/attention

P310: Immediately call a POISON CENTER or doctor/physician.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P313+P333: If skin irritation or rash occurs: Get medical advice/attention.

P321: Specific treatment (see on this label).

P330: Rinse mouth.

P391: Collect spillage.

P405: Store locked up.

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Hazard description:**

- **WHMIS-symbols:**

D2A - Very toxic material causing other toxic effects

D2B - Toxic material causing other toxic effects

E - Corrosive material

- **Canadian WHMIS Classification:**

This product is categorized as a Class D Division 2A, Class D Division 2B Materials causing other toxic effects, Class E Corrosive as per the Controlled Product Regulations



- **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 1

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 1

Reactivity = 0

- **2.3 Other hazards**

No known

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










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3 Composition/Information on Ingredients

3.2 Mixture

Description: Mixture of substances listed below .

CAS: 111-40-0 EINECS: 203-865-4	2,2'-iminodiethylamine  C R34;  Xn R21/22;  Xi R43  Skin Corr. 1B, H314  Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317	>70%
CAS: 80-05-7 EINECS: 201-245-8	bisphenol A  Xn R62;  Xi R37-41;  Xi R43 R52 Repr. Cat. 3  Repr. 2, H361f  Eye Dam. 1, H318  Skin Sens. 1, H317; STOT SE 3, H335	>5%
CAS: 140-31-8 EINECS: 205-411-0	2-piperazin-1-ylethylamine  C R34;  Xn R21/22;  Xi R43  N R52/53  Skin Corr. 1B, H314  Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317  Aquatic Chronic 3, H412	>20%
CAS: 112-57-2 EINECS: 203-986-2	3,6,9-triazaundecamethylenediamine  C R34;  Xn R21/22;  Xi R43  N R51/53  Skin Corr. 1B, H314  Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317  Aquatic Chronic 2, H411	>10%
CAS: 68953-36-6 EINECS: 273-201-6	Polyamido Amine  Xn R20/22;  Xi R36/37/38;  Xi R43  Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	>10%
CAS: 2461-15-6 EINECS: 219-553-6	2-ethyl hexyl Glycidyl Ether  Xi R38/43  Skin Irrit. 2, H315; Skin Sens. 1, H317	>20%
CAS: 80-05-7 EINECS: 201-245-8	Phenol, 4,4'-(1 -methylethylidene) bis  Xi R37;  Xi R41;  Xi R43;  Xn R52 Repr. Cat. 3  Resp Irrit 3, H335; Eye Dam. 1, H318; Skin Sens. 1, H317  Acute Aquatic 3, H402	>20%

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4 First aid measures

4.1 Description of first aid measures

· **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

If breathing becomes difficult supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly. If skin irritation continues, consult a doctor. Remove contaminated clothing. Launder contaminated clothing before re-use.

· **After eye contact:**

If product enters eyes, remove contact lenses if worn, open eyes while under gentle running water for at least 15 minutes. Seek medical attention if irritation develops.

· **After swallowing:**

If product is swallowed, call physician or poison control center for most current information. If professional advice is not available, DO NOT induce vomiting. Never induce vomiting or give diluents to someone who is unconscious, having convulsions or who cannot swallow. Seek medical advice. Take a copy of label and/or SDS with victim to health professional.

· **4.2 Most important symptoms and effects, both acute and delayed**

Acute: This material may cause severe irritation or burns to skin and eyes. Harmful if swallowed. Product may cause an allergic skin reaction. Harmful if inhaled and may cause delayed lung injury.

Symptoms of overexposure may include:

Headache

Vomiting

Dizziness

Breathing difficulty

Gastric or intestinal disorders.

Caustic effect on skin and mucous membranes.

Chronic: Prolonged or repeated skin contact or inhalation may cause allergic reaction or respiratory sensitization in humans

Hazards:

Pre-existing skin or respiratory system problems may be aggravated by exposure to this product.

Danger of severe eye injury.

Danger of impaired breathing.

Danger of pulmonary edema.

Condition may deteriorate with alcohol consumption.

· **4.3 Indications of any immediate medical attention and special treatment**

Treat skin and mucous membrane with antihistamine and corticoid preparations. Monitor circulation

Treat symptoms and recuse over-exposure.

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5 Firefighting Measures

· **5.1 Extinguishing media Suitable extinguishing agents:**

Suitable extinguishing agents:

Use fire extinguishing methods suitable to surrounding conditions. Carbon dioxide, foam, dry chemical, halon, water spray, sand, limestone powder.

· **5.2 Special hazards arising from the substance or mixture:**

Formation of toxic gases is possible during heating or in case of fire. This product is flammable above flash point indicated above

· **5.3 Advice for firefighters**

Protective equipment:

Wear self-contained respiratory protective device.

Wear fully protective suit.

Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

6 Accidental Release Measures

· **6.1 Personal precautions, protective equipment and emergency procedures**

Personnel should be trained for spill response operations.

Remove persons from danger area.

Use respiratory protective device against the effects of fumes/dust/aerosol. Wear protective equipment.

Keep unprotected persons away.

Ensure adequate ventilation

· **6.2 Environmental precautions:** All work practices must be aimed at eliminating environmental contamination. Do not allow to enter sewers/ surface or ground water.

· **6.3 Methods and material for containment and cleaning up:** Contain spill if safe to do so. Prevent entry into drains, sewers, and other waterways. Soak up with a non-combustible absorbent material and place in an appropriate container for disposal. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations).

· **6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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7 Handling and Storage

7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace. As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors/mists generated by this product. Remove contaminated clothing immediately

7.2 Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles:

Store between 5 and 50°C and avoid contact with skin and eyes. Do not store near acids or amines. Ground all transfer equipment. Hold bulk storage under a nitrogen blanket. This product should not come in contact with copper or copper-bearing alloys. Containers of this product must be properly labeled. Do not eat, drink or smoke while using material.

7.3 Specific end use(s): No information

8 Exposure Controls/Personal Protection

Additional information about design of technical facilities:

Use with adequate ventilation to ensure exposure levels are maintained below the limits provided above. Use local exhaust ventilation to control airborne vapor. Ensure eyewash/safety shower stations are available near areas where this product is used.

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

111-40-0 2,2'-iminodiethylamine	
REL (USA)	4 mg/m ³ , 1 ppm Skin
TLV (USA)	4,2 mg/m ³ , 1 ppm Skin
EL (Canada)	1 ppm Skin; S
EV (Canada)	4 mg/m ³ , 1 ppm Skin
112-57-2 3,6,9-triazaundecamethylenediamine	
WEEL (USA)	5 mg/m ³ Skin; DSEN

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· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/ eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.

· **Respiratory protection:**

Use suitable respiratory protective device in case of insufficient ventilation. Use suitable respiratory protective device when aerosol or mist is formed.

Maintain airborne contaminant concentrations below guidelines listed above, if applicable. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states

- **Protection of hands:** Use chemical resistant gloves to prevent skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada



Protective gloves

· **Material of gloves**

Use chemical resistant gloves to prevent skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed

· **Eye protection:**



Tightly sealed goggles

Safety glasses or chemical goggles as appropriate to prevent eye contact. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards

· **Body Protection:**

Use body protection appropriate to prevent contact (e.g. lab coat, overalls). If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards

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9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
 Color: Water white-pale straw colored liquid

Odor: Ammoniacal-amine odor

Odor threshold: Mild

pH-value:	Alkaline
Change in condition	
Freezing Point:	Not Available
Boiling point/Boiling range:	469°F (>243°C)
Flash point:	217°F (103 °C)
Flammability (solid, gaseous):	No data available
Ignition temperature:	315°C (599 °F)
Decomposition temperature:	No data available
Self-igniting:	No data available
Danger of explosion:	This product is flammable above flash point indicated above
Explosion limits:	
Lower:	1.9%
Upper:	11.6%
Vapour Pressure (mmHg):	<1 mmHg @ 20°C
Density at 25°C:.	8.4 pounds per gallon @ 25°C
Relative density	Not determined.
Vapour density	7.7pounds per gallon @25°C
Evaporation rate	No data available
Solubility in / Miscibility with water:	Fully miscible
Specific Gravity 20oC: (Water = 1):	No data available
Partition coefficient (n-octanol/water):	Not determined
Viscosity:	
Dynamic:	No data available
Kinematic:	No data available
Solvent content:	
Organic solvents:	No data available
VOC (EC)	No data available

9.2 Other information: No data available

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10 Stability and Reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
When heated to decomposition this product produces noxious gases such CO, CO₂, NO_x, amines, ammonia and others
- **10.3 Possibility of hazardous reactions**
Reacts with peroxides and other radical forming substances.
Reacts with oxidizing agents.
Reacts with acids.
- **10.4 Conditions to avoid:** Contact with incompatible materials.
- **10.5 Incompatible materials:** Oxidizing agents and isocyanates and polyurethanes should be avoided as these will cause exothermic polymerization. Avoid extreme heat. DO NOT USE WITH NITRIES AS CANCER CAUSING NITROSAMINES CAN BE FORMED.
- **10.6 Hazardous decomposition products:**
Nitrogen oxides (NO_x)
Ammonia
Carbon monoxide and carbon dioxide

11 Toxicological Information

- **11.1 Information on toxicological effects**

Acute toxicity:

LD/LC50 values relevant for classification:

111-40-0 2,2'-iminodiethylamine

Oral LD50 1080 mg/kg (rat)

Dermal LD50 1090 mg/kg (rabbit)

112-57-2 3,6,9-triazaundecamethylenediamine

Dermal LD50 660 mg/kg (rabbit)

140-31-8 2-piperazin-1-ylethylamine

Oral LD50 2140 mg/kg (rat)

Dermal LD50 880 mg/kg (rabbit)

80-05-7 bisphenol A

Oral LD50 3250 mg/kg (rat)

Dermal LD50 3000 mg/kg (rabbit)

- **Primary irritant effect:**

On the skin: Caustic effect on skin and mucous membranes.

On the eye: Strong caustic effect.

Sensitization: This product is considered a skin sensitizer and respiratory sensitizer.

Additional toxicological information:

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Harmful - Corrosive - Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Reproductive Toxicity Information: No information concerning the effects of this product and its components on the human reproductive system.

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12 Ecological Information

- **12.1 Toxicity**
- **Aquatic toxicity:**
 - Component Information: 2,2'-iminodi(ethylamine) (DETA) 111-40-0
 - BOD 28 days < 60% Closed bottle test (OECD 301D)
 - Biodegradation 18% 90 days
 - LC50 96 hr 175 -332 mg/l Pimephales promelas (fathead minnow)
 - EC50 48 hr 16-65 mg/l Daphnia Magna
 - LC50 48 hr 11-54 mg/l Daphnia Magna
 - EC50 96 hr 346 mg/l Selenastrum Capricornutum
 - EC50 16 hr > 5000 mg/l bacteria growth inhibition
 - LC50 96 hr 100 mg/l Oncorhynchus mykiss
 - EC50 72 hr > 400 mg/l algae
- **12.2 Persistence and degradability: Moderately /partly biodegradable**
- **12.3 Bioaccumulative potential: No further relevant information available.**
- **12.4 Mobility in soil: No further relevant information available.**
- **Ecotoxic effects:** Harmful to aquatic organisms
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**
 - Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
 - Do not allow product to reach ground water, water course or sewage system.
 - Must not reach sewage water or drainage ditch undiluted or unneutralized.
 - Danger to drinking water if even small quantities leak into the ground.
 - Harmful to aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects:** No further relevant information available

13 Disposal Considerations

- **13.1 Waste treatment methods**
- **Recommendation**
 - Must not be disposed together with household garbage. Do not allow product to reach sewage system.
 - Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations
 - Waste disposal must be in accordance with appropriate Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.
- **RCRA Waste Code:** D002
- **EU Waste Code:** Not Listed

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14 Transport Information

· 14.1 UN-Number DOT, IMDG, IATA ADR	UN2735 UN2735
· 14.2 UN proper shipping name DOT, IMDG, IATA ADR	Amines, Liquid, Corrosive, n.o.s.(Diethylenetriamine) 2735 Amines, Liquid, Corrosive, n.o.s.(Diethylenetriamine)
· 14.3 Transport hazard class(es) DOT, ADR, IMDG, IATA  Class Corrosive Label	Class 8 8
· 14.4 Packing group DOT, ADR, IMDG, IATA	III
· 14.5 Environmental hazards: Marine pollutant:	This product contains ingredients that are classified as Dangerous Goods by the International Maritime Organization, EmS F-A, S-B)
· 14.6 Special precautions for user Danger code (Kemler): EMS Number:	Warning: Corrosive substances. 80 F-A,S-B
· 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	No data available
· Transport/Additional information:	
· ADR Tunnel restriction code	E
· UN "Model Regulation":	UN2735, Amines, Liquid, Corrosive, n.o.s. (Diethylenetriamine), 8, III

15 Regulatory Information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture United States (USA)**

SARA: This product is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows:

Section 355 (extremely hazardous substances): None of the ingredients are listed.

Section 313 (Specific toxic chemical listings): 80-05-7 / bisphenol A, Phenol, 4,4'-(1-methylethylidene)bis- 80-05-7 40 %

TSCA (Toxic Substances Control Act): All ingredients are listed.

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Proposition 65 (California):
Chemicals known to cause cancer or reproductive harm:

Chemicals known to cause cancer: None of the ingredients are listed.
Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.
Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.
Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Carcinogenic Categories

EPA (Environmental Protection Agency): None of the ingredients is listed.
TLV (Threshold Limit Value established by ACGIH): None of the ingredients is listed.
NIOSH-Ca(National Institute for Occupational Safety and Health): None of the ingredients is listed.
OSHA-Ca (Occupational Safety & Health Administration): None of the ingredients is listed.

Canada

Canadian Domestic Substances List (DSL): All ingredients are listed.
Canadian Ingredient Disclosure list (limit 0.1%): 111-40-0 2,2'-iminodiethylamine

Canadian Ingredient Disclosure list (limit 1%)
 Ingredients are listed as required.

112-57-2	3,6,9-triazaundecamethylenediamine
140-31-8	2-piperazin-1-ylethylamine
80-05-7	bisphenol A

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases

- H302: Harmful if swallowed.
- H312: Harmful in contact with skin.
- H314: Causes severe skin burns and eye damage.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H319: Causes serious eye irritation.
- H332: Harmful if inhaled.
- H335: May cause respiratory irritation.
- H361f: Suspected of damaging fertility.
- H411: Toxic to aquatic life with long lasting effects.
- H412: Harmful to aquatic life with long lasting effects

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R20/22: Harmful by inhalation and if swallowed.

R21/22: Harmful in contact with skin and if swallowed.

R34: Causes burns.

R36/37/38: Irritating to eyes, respiratory system and skin.

R37: Irritating to respiratory system.

R41: Risk of serious damage to eyes.

R43: May cause sensitisation by skin contact.

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R52: Harmful to aquatic organisms.

R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R62: Possible risk of impaired fertility.

Abbreviations and Acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk of his use of the material for either Component A and/or B or the combination of both components

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