



This is a kit that contains the following components:

E3-FLOWABLE - PART A

E3-FLOWABLE - PART B



SAFETY DATA SHEET

1. Identification

Product identifier: E3-FLOWABLE - PART A
Product Code: 040F AB

Recommended use and restriction on use

Recommended use: Sealant
Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor Information

EUCLID CHEMICAL COMPANY
19218 REDWOOD ROAD
CLEVELAND OH 44110
US

Contact person: EH&S Department
Telephone: 216-531-9222
Emergency telephone number: 1-800-424-9300 (US); 1-613-996-6666 (Canada)

2. Hazard(s) identification

Hazard Classification

Health Hazards

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2A
Skin sensitizer	Category 1

Unknown toxicity - Health

Acute toxicity, oral	15.32 %
Acute toxicity, dermal	15.32 %
Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

Environmental Hazards

Acute hazards to the aquatic environment	Category 2
Chronic hazards to the aquatic environment	Category 2

Unknown toxicity - Environment

Acute hazards to the aquatic environment	15.32 %
Chronic hazards to the aquatic environment	15.32 %

**Label Elements****Hazard Symbol:****Signal Word:** Warning**Hazard Statement:** Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.**Precautionary Statements****Prevention:** Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment.**Response:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see on this label). Wash contaminated clothing before reuse. Collect spillage.**Disposal:** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.**Hazard(s) not otherwise classified (HNOC):** None.**3. Composition/information on ingredients****Mixtures**

Chemical Identity	CAS number	Content in percent (%)*
Bisphenol A Polyglycidyl Ether Resin	25068-38-6	50 - <100%
Neopentyl glycol diglycidyl ether	17557-23-2	10 - <20%

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

4. First-aid measures**Description of necessary first-aid measures**



Inhalation:	Move to fresh air.
Skin Contact:	Get medical attention. Destroy or thoroughly clean contaminated shoes. Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. If skin irritation or an allergic skin reaction develops, get medical attention.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
Ingestion:	Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
Personal Protection for First-aid Responders:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Most important symptoms/effects, acute and delayed

Symptoms:	Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping.
Hazards:	No data available.

Indication of immediate medical attention and special treatment needed

Treatment:	Symptoms may be delayed.
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5. Fire-fighting measures

General Fire Hazards:	No unusual fire or explosion hazards noted.
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Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical:	During fire, gases hazardous to health may be formed.
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Special protective equipment and precautions for fire-fighters

Special fire-fighting procedures:	No data available.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures



Personal precautions, protective equipment and emergency procedures:	See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away.
Accidental release measures:	In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.
Methods and material for containment and cleaning up:	Dam and absorb spillages with sand, earth or other non-combustible material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.
Environmental Precautions:	Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid release to the environment.

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation):	Observe good industrial hygiene practices. Observe occupational exposure limits and minimize the risk of inhalation of vapors and mist. Mechanical ventilation or local exhaust ventilation may be required.
Safe handling advice:	Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Wash hands thoroughly after handling. Avoid contact with eyes. Avoid contact with skin. Avoid contact with eyes, skin, and clothing.
Contact avoidance measures:	No data available.
Hygiene measures:	Observe good industrial hygiene practices. Avoid contact with eyes. Wash contaminated clothing before reuse. Avoid contact with skin. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace.

Storage

Safe storage conditions:	Store away from incompatible materials. Store in original tightly closed container.
Safe packaging materials:	No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.
None of the components have assigned exposure limits.
None of the components have assigned exposure limits.

Appropriate Engineering Controls

Observe good industrial hygiene practices. Observe occupational exposure limits and minimize the risk of inhalation of vapors and mist. Mechanical ventilation or local exhaust ventilation may be required.

Individual protection measures, such as personal protective equipment



Eye/face protection:	Wear safety glasses with side shields (or goggles).
Skin Protection	
Hand Protection:	Additional Information: Use suitable protective gloves if risk of skin contact.
Skin and Body Protection:	Wear suitable protective clothing. Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator. Seek advice from local supervisor.
Hygiene measures:	Observe good industrial hygiene practices. Avoid contact with eyes. Wash contaminated clothing before reuse. Avoid contact with skin. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	Clear colorless or nearly colorless
Odor:	Mild
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	No data available.
Initial boiling point and boiling range:	No data available.
Flash Point:	No data available.
Evaporation rate:	Slower than Ether
Flammability (solid, gas):	No
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper:	No data available.
Explosive limit - lower:	No data available.
Vapor pressure:	No data available.
Vapor density:	Vapors are heavier than air and may travel along the floor and in the bottom of containers.
Relative density:	1.14
Solubility(ies)	
Solubility in water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.



Viscosity: No data available.

10. Stability and reactivity

Reactivity:	No data available.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	Avoid heat or contamination.
Incompatible Materials:	No data available.
Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.
Skin Contact:	May be harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
Eye contact:	Causes serious eye irritation.
Ingestion:	May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	No data available.
Skin Contact:	No data available.
Eye contact:	No data available.
Ingestion:	No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral Product:	Not classified for acute toxicity based on available data.
Specified substance(s): Bisphenol A Polyglycidyl Ether Resin	LD 50 (Rat): > 2,000 mg/kg
Dermal Product:	Not classified for acute toxicity based on available data.



Specified substance(s):
Bisphenol A Polyglycidyl Ether Resin LD 50 (Rat): > 2,000 mg/kg

Inhalation
Product:

Specified substance(s):
Bisphenol A Polyglycidyl Ether Resin LC 50: > 20 mg/l
LC 50: > 5 mg/l

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: No data available.

Specified substance(s):
Bisphenol A Polyglycidyl Ether Resin in vivo (Rabbit): Moderately irritating , 24 h

Serious Eye Damage/Eye Irritation

Product: No data available.

Respiratory or Skin Sensitization

Product: No data available.

Carcinogenicity

Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended:

No carcinogenic components identified

**Germ Cell Mutagenicity**

In vitro
Product: No data available.

In vivo
Product: No data available.

Reproductive toxicity

Product: No data available.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Aspiration Hazard

Product: No data available.

Other effects: No data available.

12. Ecological information**Ecotoxicity:****Acute hazards to the aquatic environment:****Fish**

Product: No data available.

Specified substance(s):

Bisphenol A Polyglycidyl Ether Resin LC 50 (Oncorhynchus mykiss, 96 h): 1.5 mg/l Experimental result, Key study

Aquatic Invertebrates

Product: No data available.

Specified substance(s):

Bisphenol A Polyglycidyl Ether Resin EC 50 (Daphnia magna, 48 h): 1.1 mg/l experimental result Experimental result, Key study

Chronic hazards to the aquatic environment:**Fish**

Product: No data available.

**Aquatic Invertebrates****Product:** No data available.**Specified substance(s):**Bisphenol A Polyglycidyl Ether Resin
NOAEL (Daphnia magna): 0.3 mg/l experimental result Experimental result, Key study**Toxicity to Aquatic Plants****Product:** No data available.**Persistence and Degradability****Biodegradation****Product:** No data available.**Specified substance(s):**Bisphenol A Polyglycidyl Ether Resin
82 % Detected in water. Experimental result, Key study**BOD/COD Ratio****Product:** No data available.**Bioaccumulative potential****Bioconcentration Factor (BCF)****Product:** No data available.**Specified substance(s):**Bisphenol A Polyglycidyl Ether Resin
Bioconcentration Factor (BCF): 31 Aquatic sediment QSAR, Key study**Partition Coefficient n-octanol / water (log Kow)****Product:** No data available.**Specified substance(s):**Bisphenol A Polyglycidyl Ether Resin
Log Kow: 2.64 - 3.78 25 °C Yes Experimental result, Key study**Mobility in soil:** No data available.**Other adverse effects:** Toxic to aquatic life with long lasting effects.**13. Disposal considerations****Disposal methods:** Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.**Contaminated Packaging:** No data available.



14. Transport information

TDG:

Not Regulated

CFR / DOT:

Not Regulated

IMDG:

Not Regulated

Further Information:

The above shipping description may not be accurate for all container sizes and all modes of transportation. Please refer to Bill of Lading.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate (Acute) Health Hazards
Skin Corrosion or Irritation
Serious eye damage or eye irritation
Respiratory or Skin Sensitization

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

Not regulated.

US. EPCRA (SARA Title III Section 313 Toxic Chemical Release Inventory (TRI) Reporting

Chemical Identity % by weight

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

None present or none present in regulated quantities.



Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient requiring a warning under CA Prop 65.

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

VOC: When appropriately mixed with the other part, product has a VOC less water and exempt solvent of:
0 g/l

Regulatory VOC (less water and exempt solvent) : 0 g/l

VOC Method 310 : 0.00 %

**Inventory Status:**

Australia AICS:	All components in this product are listed on or exempt from the Inventory.
Canada DSL Inventory List:	All components in this product are listed on or exempt from the Inventory.
EINECS, ELINCS or NLP:	All components in this product are listed on or exempt from the Inventory.
Japan (ENCS) List:	All components in this product are listed on or exempt from the Inventory.
China Inv. Existing Chemical Substances:	All components in this product are listed on or exempt from the Inventory.
Korea Existing Chemicals Inv. (KECI):	All components in this product are listed on or exempt from the Inventory.
Canada NDSL Inventory:	One or more components in this product are not listed on or exempt from the Inventory.
Philippines PICCS:	All components in this product are listed on or exempt from the Inventory.
US TSCA Inventory:	All components in this product are listed on or exempt from the Inventory.
New Zealand Inventory of Chemicals:	All components in this product are listed on or exempt from the Inventory.
Japan ISHL Listing:	All components in this product are listed on or exempt from the Inventory.
Japan Pharmacopoeia Listing:	One or more components in this product are not listed on or exempt from the Inventory.



16. Other information, including date of preparation or last revision

Revision Date: 11/17/2022

Version #: 8.1

Further Information: No data available.

Disclaimer: For Industrial Use Only. Keep out of Reach of Children. The hazard information herein is offered solely for the consideration of the user, subject to their own investigation of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.



SAFETY DATA SHEET

1. Identification

Product identifier: E3-FLOWABLE - PART B
Product Code: 040F AB

Recommended use and restriction on use

Recommended use: Sealant
Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor Information

EUCLID CHEMICAL COMPANY
19218 REDWOOD ROAD
CLEVELAND OH 44110
US

Contact person: EH&S Department
Telephone: 216-531-9222
Emergency telephone number: 1-800-424-9300 (US); 1-613-996-6666 (Canada)

2. Hazard(s) identification

Hazard Classification

Health Hazards

Skin Corrosion/Irritation	Category 1B
Serious Eye Damage/Eye Irritation	Category 1
Respiratory sensitizer	Category 1
Skin sensitizer	Category 1
Toxic to reproduction	Category 2

Unknown toxicity - Health

Acute toxicity, oral	40 %
Acute toxicity, dermal	0 %
Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

Environmental Hazards

Acute hazards to the aquatic environment	Category 3
Chronic hazards to the aquatic environment	Category 3

Unknown toxicity - Environment

Acute hazards to the aquatic environment	93.88 %
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Chronic hazards to the aquatic environment 53.88 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.
Harmful to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. [In case of inadequate ventilation] wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid release to the environment.

Response: IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. If skin irritation or rash occurs: Get medical advice/attention. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. Specific treatment (see on this label). Wash contaminated clothing before reuse.

Storage: Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

**Mixtures**

Chemical Identity	CAS number	Content in percent (%)*
Polyamide resin	68082-29-1	50 - <100%
Triethylenetetramine	112-24-3	25 - <50%
Triethanolamine	102-71-6	1 - <5%
Polyethylenepolyamines	68131-73-7	1 - <2.5%
Piperazine	110-85-0	1 - <3%
N-Aminoethylpiperazine	140-31-8	0.1 - <1%

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

4. First-aid measures**Description of necessary first-aid measures**

Inhalation:	Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. Move to fresh air. If breathing is difficult, give oxygen.
Skin Contact:	Call a physician or poison control center immediately. Destroy or thoroughly clean contaminated shoes. Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. If skin irritation or an allergic skin reaction develops, get medical attention.
Eye contact:	Remove contact lenses, if present and easy to do. Continue rinsing. Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately.
Ingestion:	Rinse mouth. Call a physician or poison control center immediately. Never give liquid to an unconscious person. Do not induce vomiting without advice from poison control center.
Personal Protection for First-aid Responders:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Most important symptoms/effects, acute and delayed

Symptoms: Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping. Extreme irritation of eyes and mucous membranes, including burning and tearing.

Hazards: No data available.

Indication of immediate medical attention and special treatment needed

Treatment: Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

**Suitable (and unsuitable) extinguishing media**

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for fire-fighters

Special fire-fighting procedures: No data available.

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away. Ventilate closed spaces before entering them. Evacuate area. Keep upwind.

Accidental release measures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Methods and material for containment and cleaning up: Dam and absorb spillages with sand, earth or other non-combustible material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid release to the environment.

7. Handling and storage**Handling**

Technical measures (e.g. Local and general ventilation): Observe good industrial hygiene practices. Observe occupational exposure limits and minimize the risk of inhalation of vapors and mist. Mechanical ventilation or local exhaust ventilation may be required.

Safe handling advice: Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. Do not get in eyes. Avoid contact with eyes. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, on clothing. Avoid contact with skin.

**Contact avoidance measures:** No data available.**Hygiene measures:** Avoid contact with skin. Observe good industrial hygiene practices. Do not get in eyes. Avoid contact with eyes. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wash contaminated clothing before reuse. Do not get this material in contact with skin. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace.**Storage****Safe storage conditions:** Store locked up.**Safe packaging materials:** No data available.**8. Exposure controls/personal protection****Control Parameters****Occupational Exposure Limits**

Chemical Identity	Type	Exposure Limit Values	Source
Triethanolamine	TWA	5 mg/m ³	US. ACGIH Threshold Limit Values, as amended (2008)
Piperazine - Inhalable fraction and vapor. - as piperazine	TWA	0.03 ppm	US. ACGIH Threshold Limit Values, as amended (03 2017)

Chemical name	Type	Exposure Limit Values	Source
Triethylenetetramine	TWA	0.5 ppm 3 mg/m ³	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents), as amended (11 2010)
Triethanolamine	TWA	5 mg/m ³	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2), as amended (07 2009)
Triethanolamine	TWA	5 mg/m ³	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Biological Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Triethanolamine	TWA	0.5 ppm 3.1 mg/m ³	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents), as amended (12 2007)
Triethanolamine	TWA	5 mg/m ³	Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety), as amended (09 2017)
Piperazine - Inhalable fraction and vapor. - as piperazine	TWA	0.03 ppm	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents), as amended (01 2020)
Piperazine - as piperazine	STEL	1 mg/m ³	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Biological Substances, Occupational Health and Safety Regulation 296/97, as amended) (05 2013)
	TWA	0.3 mg/m ³	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Biological Substances, Occupational Health and Safety Regulation 296/97, as amended) (05 2013)



Chemical name	Type	Exposure Limit Values	Source
Triethylenetetramine	TWA	0.5 ppm 3 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents), as amended (11 2010)
Triethanolamine	TWA	5 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2), as amended (07 2009)
Triethanolamine	TWA	5 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Biological Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Triethanolamine	TWA	0.5 ppm 3.1 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents), as amended (12 2007)
Triethanolamine	TWA	5 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety), as amended (09 2017)
Piperazine - Inhalable fraction and vapor. - as piperazine	TWA	0.03 ppm	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents), as amended (01 2020)
Piperazine - as piperazine	STEL	1 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Biological Substances, Occupational Health and Safety Regulation 296/97, as amended) (05 2013)
	TWA	0.3 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Biological Substances, Occupational Health and Safety Regulation 296/97, as amended) (05 2013)

Appropriate Engineering Controls

Observe good industrial hygiene practices. Observe occupational exposure limits and minimize the risk of inhalation of vapors and mist. Mechanical ventilation or local exhaust ventilation may be required.

Individual protection measures, such as personal protective equipment**Eye/face protection:**

Wear a full-face respirator, if needed. Wear safety glasses with side shields (or goggles) and a face shield.

Skin Protection**Hand Protection:**

Additional Information: Use suitable protective gloves if risk of skin contact.

Skin and Body Protection:

Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Respiratory Protection:

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.



Hygiene measures: Avoid contact with skin. Observe good industrial hygiene practices. Do not get in eyes. Avoid contact with eyes. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wash contaminated clothing before reuse. Do not get this material in contact with skin. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	Clear to light yellow
Odor:	Mild
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	No data available.
Initial boiling point and boiling range:	No data available.
Flash Point:	No data available.
Evaporation rate:	Slower than Ether
Flammability (solid, gas):	No
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper:	No data available.
Explosive limit - lower:	No data available.
Vapor pressure:	No data available.
Vapor density:	Vapors are heavier than air and may travel along the floor and in the bottom of containers.
Relative density:	0.965
Solubility(ies)	
Solubility in water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No data available.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	No data available.



Conditions to avoid:	Avoid heat or contamination.
Incompatible Materials:	No data available.
Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.
Skin Contact:	Harmful in contact with skin. Causes severe skin burns. May cause an allergic skin reaction.
Eye contact:	Causes serious eye damage.
Ingestion:	May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	No data available.
Skin Contact:	No data available.
Eye contact:	No data available.
Ingestion:	No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral Product:	ATEmix: 43,401.82 mg/kg
Dermal Product:	ATEmix: 2,554.87 mg/kg
Inhalation Product:	

Repeated dose toxicity Product:	No data available.
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Skin Corrosion/Irritation Product:	No data available.
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Specified substance(s):



Polyamide resin	In vitro (In vitro): Irritating In vitro (In vitro): Not Classified
Triethanolamine	in vivo (Rabbit): Not irritant , 24 - 72 h
Polyethylenepolyamine s	in vivo (Rabbit): Corrosive , 24 - 72 h
Piperazine	in vivo (Rabbit): Category 1A , 24 - 72 h
N-Aminoethylpiperazine	in vivo (Rabbit): Severe damage to the belly , 24 h

Serious Eye Damage/Eye Irritation**Product:** No data available.**Specified substance(s):**

Polyamide resin	In vitro: Not Classified
Polyethylenepolyamine s	Rabbit, 24 - 72 hrs: Corrosive

Respiratory or Skin Sensitization**Product:** May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause sensitization by inhalation.**Carcinogenicity****Product:** No data available.**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended:

No carcinogenic components identified

Germ Cell Mutagenicity**In vitro****Product:** No data available.**In vivo****Product:** No data available.**Reproductive toxicity****Product:** Suspected of damaging fertility or the unborn child.**Specific Target Organ Toxicity - Single Exposure****Product:** No data available.

**Specific Target Organ Toxicity - Repeated Exposure****Product:** No data available.**Aspiration Hazard****Product:** No data available.**Other effects:** No data available.**12. Ecological information****Ecotoxicity:****Acute hazards to the aquatic environment:****Fish****Product:** No data available.**Specified substance(s):**

Polyamide resin	LC 50 (Danio rerio, 96 h): 7.07 mg/l Experimental result, Key study
Triethanolamine	LC 50 (Pimephales promelas, 96 h): 11,800 mg/l Experimental result, Key study
Polyethylenepolyamines	LC 50 (Poecilia reticulata, 96 h): 100 mg/l Experimental result, Key study
N-Aminoethylpiperazine	LC 50 (Pimephales promelas, 96 h): 2,190 mg/l Experimental result, Key study

Aquatic Invertebrates**Product:** No data available.**Specified substance(s):**

Polyamide resin	EC 50 (Daphnia magna, 48 h): 7.07 mg/l experimental result Experimental result, Key study
Triethylenetetramine	LC 50 (Water flea (Daphnia magna), 48 h): 33.9 mg/l Intoxication
Triethanolamine	EC 50 (Ceriodaphnia dubia, 48 h): 609.88 mg/l experimental result Experimental result, Key study
Polyethylenepolyamines	EC 50 (Daphnia magna, 48 h): 2.2 mg/l experimental result Experimental result, Key study
Piperazine	EC 50 (Daphnia magna, 48 h): 21 mg/l experimental result Experimental result, Key study
N-Aminoethylpiperazine	EC 50 (Daphnia magna, 48 h): 58 mg/l experimental result Experimental result, Key study

Chronic hazards to the aquatic environment:

**Fish****Product:** No data available.**Aquatic Invertebrates****Product:** No data available.**Specified substance(s):**

Triethanolamine NOAEL (Daphnia magna): 125 mg/l experimental result Experimental result, Key study

Piperazine NOAEL (Daphnia magna): 12.5 mg/l experimental result Experimental result, Key study

Toxicity to Aquatic Plants**Product:** No data available.**Persistence and Degradability****Biodegradation****Product:** No data available.**Specified substance(s):**

Triethanolamine 100 % (35 d) Sediment Experimental result, Key study

Polyethylenepolyamines 16 % (84 d) Detected in water. Experimental result, Key study

Piperazine 70.2 % (28 d) Detected in water. Experimental result, Key study

BOD/COD Ratio**Product:** No data available.**Bioaccumulative potential****Bioconcentration Factor (BCF)****Product:** No data available.**Specified substance(s):**

Polyamide resin Bioconcentration Factor (BCF): 77.4 Aquatic sediment QSAR, Key study

Triethanolamine Cyprinus carpio, Bioconcentration Factor (BCF): < 3.9 Aquatic sediment Experimental result, Key study

Partition Coefficient n-octanol / water (log Kow)**Product:** No data available.**Specified substance(s):**Triethanolamine Log Kow: -1.00
Log Kow: -1.75 - -1.32 No Estimated by calculation, Weight of Evidence study

Piperazine Log Kow: -1.50



N-Aminoethylpiperazine Log Kow: -1.57

Mobility in soil: No data available.

Other adverse effects: Harmful to aquatic life with long lasting effects.

13. Disposal considerations

Disposal methods: Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Contaminated Packaging: No data available.

14. Transport information

TDG:

UN1760, CORROSIVE LIQUID, N.O.S., 8, PG II

CFR / DOT:

UN1760, Corrosive liquids, n.o.s., 8, PG II

IMDG:

UN1760, CORROSIVE LIQUID, N.O.S., 8, PG II

Further Information:

The above shipping description may not be accurate for all container sizes and all modes of transportation. Please refer to Bill of Lading.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate (Acute) Health Hazards



Delayed (Chronic) Health Hazard
Skin Corrosion or Irritation
Serious eye damage or eye irritation
Respiratory or Skin Sensitization
Reproductive toxicity

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

Not regulated.

US. EPCRA (SARA Title III Section 313 Toxic Chemical Release Inventory (TRI) Reporting

<u>Chemical Identity</u>	<u>% by weight</u>
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Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient requiring a warning under CA Prop 65.

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

VOC: When appropriately mixed with the other part, product has a VOC less water and exempt solvent of:
0 g/l

Regulatory VOC (less water and exempt solvent) : 0 g/l

VOC Method 310 : 0.00 %

**Inventory Status:**

Australia AICS:	All components in this product are listed on or exempt from the Inventory.
Canada DSL Inventory List:	All components in this product are listed on or exempt from the Inventory.
EINECS, ELINCS or NLP:	All components in this product are listed on or exempt from the Inventory.
Japan (ENCS) List:	One or more components in this product are not listed on or exempt from the Inventory.
China Inv. Existing Chemical Substances:	All components in this product are listed on or exempt from the Inventory.
Korea Existing Chemicals Inv. (KECI):	All components in this product are listed on or exempt from the Inventory.
Canada NDSL Inventory:	One or more components in this product are not listed on or exempt from the Inventory.
Philippines PICCS:	All components in this product are listed on or exempt from the Inventory.
US TSCA Inventory:	All components in this product are listed on or exempt from the Inventory.
New Zealand Inventory of Chemicals:	All components in this product are listed on or exempt from the Inventory.
Japan ISHL Listing:	One or more components in this product are not listed on or exempt from the Inventory.
Japan Pharmacopoeia Listing:	One or more components in this product are not listed on or exempt from the Inventory.



16. Other information, including date of preparation or last revision

Revision Date: 11/17/2022

Version #: 8.1

Further Information: No data available.

Disclaimer: For Industrial Use Only. Keep out of Reach of Children. The hazard information herein is offered solely for the consideration of the user, subject to their own investigation of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.