SAFETY DATA SHEET

D.E.H.® 804 Epoxy Hardener

Version	Revision Date:	SDS Number:	Date of last issue: 07-27-2016
6.0	04-15-2021	101218959	Date of first issue: 04-15-2021

BLUE CUBE OPERATIONS LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the pre-cautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1. IDENTIFICATION

Product name	:	D.E.H.® 804 Epoxy Hardener
Product code	:	000000001000000141

Manufacturer or supplier's details

Company name of supplier	:	BLUE CUBE OPERATIONS LLC
Address	:	190 CARONDELET PLAZA, SUITE 1530 CLAYTON MO 63105-3467
Telephone	:	(844) 238-3445
E-mail address	:	INFO@OLIN.COM
Emergency telephone	:	+1 800 424 9300
Local Emergency Contact	:	1-800-424-9300
Identified uses	:	Hardener for epoxy resin.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation	:	Category 2
Serious eye damage	:	Category 1
Skin sensitization	:	Category 1

GHS label elements

Hazard pictograms :

Signal Word	:	Danger
Hazard Statements	:	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage.

Precautionary Statements :

Prevention:

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer	1312024-88-6	>= 50 - 75
Water	7732-18-5	>= 25 - 35
Acetic acid	64-19-7	< 3
Triethylenetetramine mixture	112-24-3	>= 0.5 - < 1

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled : Move person to fresh air; if effects occur, consult a physician.

In case of skin contact : Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists.
Wash clothing before reuse.
Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.
Suitable emergency safety shower facility should be available

in work area.

In case of eye contact	:	Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
If swallowed	:	No emergency medical treatment necessary.
Most important symptoms and effects, both acute and delayed	:	Aside from the information found under Description of first aid measures(above)any additional important symptoms and effects are described in Section 11: Toxicology Information.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to physician	:	Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.
Specific hazards during fire fighting	:	This material will not burn until the water has evaporated. Residue can burn.
Hazardous combustion products	:	Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Carbon monoxide. Carbon dioxide.
Further information	:	Keep people away. Isolate fire and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.
Special protective equipment for fire-fighters	:	Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote

location.
For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.
Environmental precautions	:	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
Methods and materials for containment and cleaning up	:	Contain spilled material if possible. Absorb with materials such as: Sand. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not get in eyes. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.
Conditions for safe storage	:	Store in a cool, dry place.
Recommended storage temperature	:	32 - 77 °F / 0 - 25 °C
Storage period	:	24 Months

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type	Control parame-	Basis

		(Form of exposure)	ters / Permissible concentration	
Acetic acid	64-19-7	TWA	10 ppm	ACGIH
		STEL	15 ppm	ACGIH
		TWA	10 ppm 25 mg/m3	OSHA P0
		TWA	10 ppm 25 mg/m3	OSHA Z-1
Triethylenetetramine mixture	112-24-3	TWA	1 ppm	US WEEL

Engineering measures : Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.
Local exhaust ventilation may be necessary for some operations.

Personal protective equipment

Filter type : The following should be effective types of air-purifying respirators: Organic vapor cartridge.

Respiratory protection : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

Hand protection

Remarks : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ('EVAL'). Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ('nitrile' or 'NBR'). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Eye protection : Use chemical goggles.

Skin and body protection : Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid.
Color	:	yellow
Odor	:	Characteristic
Odor Threshold	:	No test data available
pH	:	8 - 11 Method: Calculated.
Melting point/range	:	Not applicable
Freezing point		No test data available
Boiling point/boiling range	:	> 212 °F / > 100 °C Method: Literature
Flash point	:	> 212 °F / > 100 °C Method: Literature, closed cup
Evaporation rate	:	No test data available
Flammability (solid, gas)	:	Not applicable to liquids
Upper explosion limit / Upper flammability limit	:	No test data available
Lower explosion limit / Lower flammability limit	:	No test data available
Vapor pressure	:	< 5 hPa (122 °F / 50 °C) Method: Literature
Relative vapor density	:	No test data available
Relative density	:	0.9 - 1.2 (68 °F / 20 °C) Method: Calculated.
Solubility(ies)		
Water solubility	:	Soluble
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No test data available
Decomposition temperature	:	No test data available
Viscosity		
Viscosity, dynamic	:	10,000 mPa,s (68 °F / 20 °C)

Method: Calculated.

Viscosity, kinematic	:	No test data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

Note: These are the Reference Points for these Physical Properties listed above, unless otherwise noted in their respective Physical Property value information: Boiling Point at 760 mmHg; Evaporation Rate Butyl Acetate = 1; Relative Vapor Density Air = 1; and Relative Density Water = 1.
NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No data available
Chemical stability	:	Stable under recommended storage conditions. See Storage, Section 7.
Possibility of hazardous reactions	:	Polymerization will not occur.
Conditions to avoid	:	Some components of this product can decompose at elevated temperatures.
Incompatible materials	:	Avoid contact with: Acids. Halogenated hydrocarbons. Oxidizers.
Hazardous decomposition products	:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aromatic compounds. Amines. Hydrocarbons. Phenolics.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Remarks: As product: Single dose oral LD50 has not been determined. LD50 (Rat): > 5,000 mg/kg

Method: Estimated.
Remarks: Based on information for component(s):

Acute inhalation toxicity : Remarks: At room temperature, exposure to vapor is minimal due to low volatility; vapor from heated material may cause respiratory irritation.

Remarks: As product:
The LC50 has not been determined.

Acute dermal toxicity : Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Remarks: As product:
The dermal LD50 has not been determined.

LD50 (Rabbit): > 5,000 mg/kg
Method: Estimated.
Remarks: Based on information for component(s):

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Acute oral toxicity : Remarks: Single dose oral LD50 has not been determined.

Acute inhalation toxicity : Remarks: The LC50 has not been determined.

Acute dermal toxicity : Remarks: The dermal LD50 has not been determined.

Acetic acid:

Acute oral toxicity : Remarks: Swallowing may result in irritation or burns of the mouth, throat, and gastrointestinal tract.
In humans, effects have been reported on the following organs:
Kidney.
Liver.

LD50 (Rat): > 3,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 11.4 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): 1,060 mg/kg

Triethylenetetramine mixture:

Acute oral toxicity : LD50 (Rat, male and female): 1,716 mg/kg

Acute inhalation toxicity : Remarks: The LC50 has not been determined.

Acute dermal toxicity : LD50 (Rabbit): 1,465 mg/kg

Skin corrosion/irritation

Product:

Remarks : Brief contact may cause skin irritation with local redness.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Result : Skin irritation
Remarks : Brief contact may cause skin irritation with local redness.

Acetic acid:

Result : Causes severe burns.
Remarks : Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Triethylenetetramine mixture:

Result : Causes burns.
Remarks : Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.

Remarks : Classified as corrosive to the skin according to DOT guidelines.

Serious eye damage/eye irritation

Product:

Remarks : May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Result : Corrosive
Remarks : May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Acetic acid:

Result : Corrosive
Remarks : May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Triethylenetetramine mixture:

Result : Corrosive
Remarks : May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Respiratory or skin sensitization

Product:

Remarks : A component in this mixture has caused allergic skin reactions in humans.

Remarks : For respiratory sensitization:
No relevant data found.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Remarks : For skin sensitization:
No relevant data found.

Remarks : For respiratory sensitization:
No relevant data found.

Acetic acid:

Remarks : For skin sensitization:
No relevant data found.

Remarks : For respiratory sensitization:
No relevant data found.

Triethylenetetramine mixture:

Assessment : May cause sensitization by skin contact.
Remarks : Has caused allergic skin reactions in humans.
Has demonstrated the potential for contact allergy in mice.
Has caused allergic skin reactions when tested in guinea pigs.
Individuals having an allergic skin reaction to this product may have an allergic skin reaction to similar material(s).
The similar material(s) is/are:
Ethylenediamine (EDA).
Diethylenetriamine.
Piperazine.
Aminoethylethanolamine (AEEA).

Remarks : For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Remarks: Contains component(s) which were negative in

some in vitro genetic toxicity studies and positive in others.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Genotoxicity in vitro : Remarks: No relevant data found.

Acetic acid:

Genotoxicity in vitro : Remarks: In vitro genetic toxicity studies were negative.

Triethylenetetramine mixture:

Genotoxicity in vitro : Remarks: In vitro genetic toxicity studies were negative in some cases and positive in other cases.
Animal genetic toxicity studies were negative.

Carcinogenicity

Product:

Remarks : No relevant data found.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Remarks : No relevant data found.

Acetic acid:

Remarks : Did not cause cancer in laboratory animals.

Triethylenetetramine mixture:

Remarks : Did not cause cancer in laboratory animals.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Product:

Effects on fertility : Remarks: No relevant data found.

Effects on fetal development : Remarks: Laboratory animals that were fed exaggerated doses of Triethylenetetraamine(TETA) showed adverse fetal effects that were believed to be associated with an observed

copper deficiency.
Exposures having no effect on the mother should have no effect on the fetus.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Effects on fertility : Remarks: No relevant data found.

Effects on fetal development : Remarks: No relevant data found.

Acetic acid:

Effects on fertility : Remarks: No relevant data found.

Effects on fetal development : Remarks: Did not cause birth defects in laboratory animals.

Triethylenetetramine mixture:

Effects on fertility : Remarks: No relevant data found.

Effects on fetal development : Remarks: Laboratory animals that were fed exaggerated doses of Triethylenetetraamine(TETA) showed adverse fetal effects that were believed to be associated with an observed copper deficiency.
Exposures having no effect on the mother should have no effect on the fetus.

STOT-single exposure

Product:

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Assessment : Available data are inadequate to determine single exposure specific target organ toxicity.

Acetic acid:

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Triethylenetetramine mixture:

Assessment : Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.

Repeated dose toxicity

Product:

Remarks : Contains component(s) which have been reported to cause effects on the following organs in humans:
Respiratory tract.
Gastrointestinal tract.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Remarks : No relevant data found.

Acetic acid:

Remarks : In humans, effects have been reported on the following organs:
Respiratory tract.
Gastrointestinal tract.

Triethylenetetramine mixture:

Remarks : In animals, effects have been reported on the following organs:
Lung.

Aspiration toxicity

Product:

Based on physical properties, not likely to be an aspiration hazard.

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Based on available information, aspiration hazard could not be determined.

Acetic acid:

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Triethylenetetramine mixture:

Based on physical properties, not likely to be an aspiration hazard.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Toxicity to fish : Remarks: No relevant data found.

Acetic acid:

Toxicity to fish : Remarks: Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
May decrease pH of aquatic systems to < pH 5 which may be toxic to aquatic organisms.

LC50 (Lepomis macrochirus (Bluegill sunfish)): 75 mg/l
Exposure time: 96 h
Test Type: Static

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 47 - 52.9 mg/l
Exposure time: 24 h
Test Type: static test
Method: Method Not Specified.

Toxicity to algae/aquatic plants : ErC50 (blue-green alga Anabaena flos-aquae): 55.22 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: Static
Method: OECD Test Guideline 201

EbC50 (blue-green alga Anabaena flos-aquae): 29.23 mg/l
End point: Biomass
Exposure time: 72 h
Test Type: Static
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (Pseudomonas putida): 1,150 mg/l
Exposure time: 16 h
Test Type: Static

Triethylenetetramine mixture:

Toxicity to fish : Remarks: Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.

LC50 (Pimephales promelas (fathead minnow)): 330 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 31.1 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 or Equivalent
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 20 mg/l End point: Growth rate inhibition Exposure time: 72 h Test Type: semi-static test Method: OECD Test Guideline 201 or Equivalent
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.9 mg/l End point: number of offspring Exposure time: 21 d Test Type: semi-static test Method: OECD Test Guideline 211 or Equivalent
Toxicity to microorganisms	:	EC50 (Bacteria): 680 mg/l Exposure time: 16 h

Persistence and degradability

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Biodegradability	:	Remarks: No relevant data found.

Acetic acid:

Biodegradability	:	Result: Readily biodegradable. Remarks: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is expected to be readily biodegradable. Biodegradation: 95 % Exposure time: 5 d Method: OECD Test Guideline 302B Remarks: Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
Biochemical Oxygen Demand (BOD)	:	64.100 % Incubation time: 5 d 67.900 % Incubation time: 10 d 86.700 % Incubation time: 20 d
ThOD	:	1.06 mg/mg
Photodegradation	:	Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals
Rate constant: 6.22E-13 cm3/s
Method: Estimated.

Triethylenetetramine mixture:

Biodegradability : Remarks: Biodegradation under aerobic static laboratory conditions is moderate (BOD20 or BOD28/ThOD between 10 and 40%).

Result: Not biodegradable.
Biodegradation: 0 %
Exposure time: 20 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Fail

Biochemical Oxygen Demand (BOD) : 5.000 %
Incubation time: 5 d

2.5 - 11 %
Incubation time: 20 d

Chemical Oxygen Demand (COD) : 1.94 mg/mg

ThOD : 3.40 mg/mg

Bioaccumulative potential

Components:

Triethylenetetramine, 2,2'-Iminodi(ethylamine), Butanediol, Methylphenol, Phenol, Bisphenol-A, Epichlorohydrin Formaldehyde Amine Functional Copolymer**:**

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

Acetic acid:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 3
Method: Estimated.

Partition coefficient: n-octanol/water : log Pow: -0.17
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Triethylenetetramine mixture:

Partition coefficient: n-octanol/water : log Pow: -2.65
Method: Estimated.
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil

Components:

Acetic acid:

Distribution among environmental compartments : Koc: < 1
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Triethylenetetramine mixture:

Distribution among environmental compartments : Koc: 4.1 - 310
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Other adverse effects

Components:

Acetic acid:

Results of PBT and vPvB assessment : This substance is readily biodegradable and thus is not considered persistent or very persistent (P or vP). This substance has a low potential to bioaccumulate due to low affinity for octanol and high water solubility so is not considered bioaccumulative or very bioaccumulative (B or vB).

Triethylenetetramine mixture:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL.
THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information.
All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations.
Regulations may vary in different locations.
Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.
DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER.
FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted:

Incinerator or other thermal destruction device.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Pennsylvania Right To Know

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Prop. 65
This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

International Regulations

Montreal Protocol (Ozone Depleting Substances) : Not applicable

Rotterdam Convention (Prior Informed Consent) : Not applicable

Stockholm Convention (Persistent Organic Pollutants) : Not applicable

The ingredients of this product are reported in the following inventories:

TCSI	:	not determined
TSCA	:	All substances listed as active on the TSCA Inventory or are not required to be listed.
AICS	:	not determined
DSL	:	All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.
KECI	:	not determined
PICCS	:	not determined
IECSC	:	The product contains an intentional component that is subject to a restriction. Production and/or use is limited by the conditions of the restriction., Additional information on this product may be obtained by calling your sales or customer service contact.
NZIoC	:	not determined
CH INV	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.

TSCA list

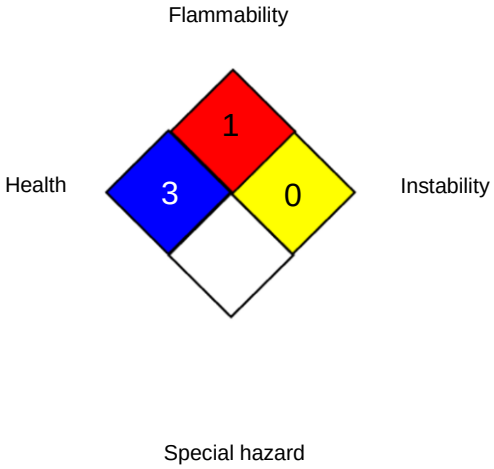
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
OSHA P0	:	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
OSHA P0 / TWA	:	8-hour time weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average
US WEEL / TWA	:	8-hr TWA

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office

of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 04-15-2021

BLUE CUBE OPERATIONS LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given.Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US / Z8