

SAFETY DATA SHEET

FlexaTram™-BHM-150

Section 1. Identification

GHS product identifier	: FlexaTram™-BHM-150
Chemical name	: Hexanedinitrile, hydrogenated, high-boiling fraction
Other means of identification	: Not available.
Product type	: Solid.

Please Note - the material may be in a liquid state during the normal course of transportation.

Supplier's details	: Ascend Performance Materials Inc. 1010 Travis Street, Suite 900 Houston, TX 77002 USA 1-713-315-5700
Emergency telephone number (with hours of operation)	: Emergency phone: CHEMTREC Toll Free Within USA: 800-424-9300 or +1-703-527-3887 (USA) or +(44)-870-8200418 (UK) or 800-101-2201/ +(65)-31581349 (Singapore) or +(61)-290372994 (Australia)

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 AQUATIC HAZARD (LONG-TERM) Category 3
Hazards not otherwise classified	: None known.

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Harmful if swallowed or in contact with skin.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause respiratory irritation.
Harmful to aquatic life with long lasting effects.

Precautionary statements

General

: Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Section 2. Hazards identification

- Prevention** : Wear protective gloves: > 8 hours (breakthrough time): neoprene. Wear eye or face protection: Recommended: chemical splash goggles and/or face shield.. Wear protective clothing. Use only outdoors or in a well-ventilated area. Avoid breathing dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment.
- Response** : **IF INHALED:** Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician.
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 or physician.
- Storage** : Store locked up. Store in accordance with all local, regional, national and international regulations.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 3. Composition/information on ingredients

- Substance/mixture** : Multi-constituent substance
- Chemical name** : Hexanedinitrile, hydrogenated, high-boiling fraction
- CAS number** : 68411-90-5
- Other means of identification** : Not available.

Ingredient name	%	CAS number
Component name		
1,6-Hexanediamine, N1-(6-aminohexyl)- [BHMT]	Trade secret.	143-23-7
Hexamethylenediamine	Trade secret.	124-09-4
The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.		

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention if symptoms appear. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

Over-exposure signs/symptoms

- Eye contact** : CAUSES SEVERE EYE BURNS. Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : CAUSES SEVERE SKIN BURNS. Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : CAUSES DIGESTIVE TRACT BURNS. Adverse symptoms may include the following:
stomach pains

Section 4. First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire. In case of fire, use water spray (fog), foam or dry chemical.
- Unsuitable extinguishing media** : Carbon dioxide (CO₂). (risk of violent reaction)
Do not use water jet.

- Specific hazards arising from the chemical** : No specific fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
Ammonia.
hydrogen cyanide

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

- Small spill** : Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits. Hexamethylenediamine	ACGIH TLV (United States, 3/2017). TWA: 0.5 ppm 8 hours. TWA: 2.3 mg/m³ 8 hours. AIHA WEEL (United States, 10/2011). TWA: 1 ppm 8 hours.

- Appropriate engineering controls** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Section 8. Exposure controls/personal protection

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Recommended: chemical splash goggles and/or face shield.

Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

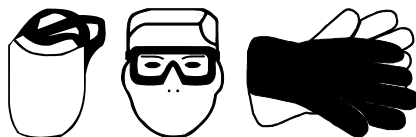
> 8 hours (breakthrough time): neoprene

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Personal protective equipment (Pictograms)



Section 9. Physical and chemical properties

Appearance

- Physical state** : Solid. [Normally solid at room temperature; Solid or liquid in bulk transport.]
- Color** : Various- Tan. to Black. [Dark]
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : >12.5 [Conc. (% w/w): 10%]
- Melting point** : 30 to 34°C (86 to 93.2°F)
- Boiling point** : 250°C (482°F)

Section 9. Physical and chemical properties

Flash point	: Closed cup: 112°C (233.6°F)
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Relative density	: 0.93 to 0.97
Solubility in water	: 437 to 637 g/l
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Dynamic (40 °C) : 25 mPa·s (25 cP) Kinematic (room temperature): Not applicable. Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid	: No specific data.
Incompatible materials	: Incompatible with copper alloys. acids oxidizing agents
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Hexanedinitrile, hydrogenated, high-boiling fraction	LC50 Inhalation Vapor	Rat - Male, Female	>3.1 mg/l	8 hours
	LD50 Dermal	Rat - Male, Female	>1010 mg/kg	-
	LD50 Oral	Rat - Male, Female	450 mg/kg	-
1,6-Hexanediamine, N1-(6-aminohexyl)- [BHMT]	LD50 Dermal	Rat - Male, Female	1200 mg/kg	-
	LD50 Oral	Rat	1170 mg/kg	-
Hexamethylenediamine	LCLo Inhalation Vapor	Rat - Male, Female	>0.95 mg/l	4 hours

Section 11. Toxicological information

	LD50 Dermal	Rabbit - Female	1110 mg/kg	-
	LD50 Dermal	Rat - Male, Female	1900 mg/kg	-
	LD50 Oral	Rat - Male, Female	1160 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Hexanedinitrile, hydrogenated, high-boiling fraction	Skin - Visible necrosis	Rabbit	-	24 hours	72 hours
hexamethylenediamine	Eyes - Visible necrosis	Rabbit	-	24 hours	72 hours
	Skin - Visible necrosis	Rabbit	-	4 hours Pure Product (As Is)	24 to 72 hours
	Eyes - Visible necrosis	Rabbit	-	4 hours Pure Product (As Is)	24 to 72 hours
	Respiratory - Irritant	Rat	-	90 hours	90 days

Conclusion/Summary

- Skin** : Corrosive to the skin.
Eyes : Corrosive to eyes.
Respiratory : Material is irritating to mucous membranes and upper respiratory tract.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Hexanedinitrile, hydrogenated, high-boiling fraction	skin	Guinea pig	Sensitizing

Conclusion/Summary

- Skin** : Sensitizing material

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Hexanedinitrile, hydrogenated, high-boiling fraction	-	Experiment: In vitro Subject: Bacteria	Negative
hexamethylenediamine	-	Experiment: In vitro Subject: Mammalian-Animal	Negative
	-	Experiment: In vivo Subject: Mammalian-Animal	Negative
	NTP 471 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	NTP 473 473 <i>In vitro</i> Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
	NTP 479 479 Genetic Toxicology: <i>In vitro</i> Sister Chromatid Exchange Assay in Mammalian Cells	Experiment: In vitro Subject: Mammalian-Animal	Negative
	NTP 482 Genetic Toxicology: DNA	Experiment: In vitro Subject: Mammalian-Animal	Negative

Section 11. Toxicological information

	Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells <i>in vitro</i>		
--	--	--	--

Carcinogenicity

Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Hexamethylenediamine	Negative	Negative	Negative	Rat - Male, Female	Oral: 500 mg/kg NOAEL	56 days; 7 days per week Continuous

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Hexanedinitrile, hydrogenated, high-boiling fraction	Negative - Oral	Rat - Female	250 mg/kg	-
hexamethylenediamine	Negative - Oral	Rat - Female	300 mg/kg LOAEL	22 days
	Negative - Oral	Rat - Female	184 mg/kg NOAEL	22 days

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Hexanedinitrile, hydrogenated, high-boiling fraction	Category 3	Not applicable.	Respiratory tract irritation
hexamethylenediamine	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : CAUSES SEVERE EYE BURNS. Adverse symptoms may include the following:
pain
watering
redness

Section 11. Toxicological information

- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : CAUSES SEVERE SKIN BURNS. Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : CAUSES DIGESTIVE TRACT BURNS. Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Sensitization

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Hexanedinitrile, hydrogenated, high-boiling fraction	Chronic NOAEL Oral	Rat	50 mg/kg	13 weeks
	Chronic LOAEL Oral	Rat	120 mg/kg	13 weeks
Hexamethylenediamine	Chronic NOAEL Inhalation Vapor	Rat	10 mg/m ³	13 weeks
	Sub-chronic NOEL Oral	Rat - Male, Female	335 mg/kg Continuous	24 hours per day
	Sub-chronic NOEL Oral	Mouse - Male, Female	347 mg/kg Continuous	24 hours per day
	Sub-chronic NOAEL Inhalation Dusts and mists	Rat - Male, Female	10 mg/m ³	13 weeks; 6 hours per day 5 workdays/week.
	Sub-chronic NOAEL Inhalation Dusts and mists	Mouse - Male, Female	10 mg/m ³	13 weeks; 6 hours per day 5 workdays/week.
	Sub-chronic NOAEL Inhalation Dusts and mists	Rat - Male, Female	12.8 mg/m ³	90 days; 6 hours per day
	Sub-chronic LOAEL Inhalation Dusts and mists	Rat - Male, Female	12.8 mg/m ³	90 days; 6 hours per day

- General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 11. Toxicological information

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Hexanedinitrile, hydrogenated, high-boiling fraction	Acute EC10 1 mg/l Fresh water	Algae - Pseudokirchnerella subcapitata	72 hours
	Acute EC10 10 mg/l Fresh water	Daphnia	48 hours
	Acute EC50 9.3 mg/l Fresh water	Algae - Pseudokirchnerella subcapitata	72 hours
	Acute EC50 17 mg/l Fresh water	Daphnia	48 hours
	Acute EC50 46 mg/l Fresh water	Daphnia	48 hours
	Acute LOAEL 0.13 mg/l Fresh water	Algae - Pseudokirchnerella subcapitata	72 hours
	Acute NOEC 0.01 mg/l Fresh water	Algae - Pseudokirchnerella subcapitata	72 hours
Hexamethylenediamine	Acute EC10 18.3 mg/l (biomass) Fresh water	Algae - Pseudokirchnerella subcapitata	72 hours
	Acute EC10 118 mg/l (growth rate) Fresh water	Algae - Pseudokirchnerella subcapitata	72 hours
	Acute EC10 37.5 mg/l pH-Basic. Fresh water	Micro-organism - Pseudomonas putida	20 hours
	Acute EC10 12500 mg/l pH-Neutral. Fresh water	Micro-organism - Pseudomonas putida	20 hours
	Acute LC50 50 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1825 mg/l	Fish - Pimephales promelas	96 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Hexanedinitrile, hydrogenated, high-boiling fraction	-	100 % - Readily - 28 days	-	-
Hexamethylenediamine	-	82 % - Readily - 28 days	-	-
	301D Ready Biodegradability - Closed Bottle Test	82 % - Readily - 28 days	6.7 mg/l	Activated sludge

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Hexanedinitrile, hydrogenated, high-boiling fraction	-	-	Readily
hexamethylenediamine	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Hexamethylenediamine	0.4	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. For more detailed information, please refer to the regulation. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
For more detailed information, please refer to the regulation.

Section 14. Transport information

	Transport information
UN number	UN3259
UN proper shipping name	AMINES, SOLID, CORROSIVE, N.O.S. (bis-hexamethylenetriamine, Hexamethylenediamine)
Transport hazard class(es)	8 
Packing group	II
Environmental hazards	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : **Proper shipping name** : Not available.
Ship type : Not available.
Pollution category : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined

United States inventory (TSCA 8b) : All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

Section 15. Regulatory information

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (dermal) - Category 4
SKIN CORROSION - Category 1A
SERIOUS EYE DAMAGE - Category 1
SKIN SENSITIZATION - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Composition/information on ingredients

Name	%	Classification
Hexanedinitrile, hydrogenated, high-boiling fraction	100	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
bis-hexamethylenetriamine	Trade secret.	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Hexamethylenediamine	Trade secret.	FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

State regulations

Massachusetts : The following components are listed: HEXAMETHYLENEDIAMINE

New York : None of the components are listed.

New Jersey : The following components are listed: HEXAMETHYLENE DIAMINE; 1, 6-HEXANEDIAMINE

Pennsylvania : None of the components are listed.

California Prop. 65

None of the components are listed.

International regulations

Canadian lists

Canadian NPRI : None of the components are listed.

Section 15. Regulatory information

CEPA Toxic substances : None of the components are listed.

Canada inventory : Listed in DSL

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: Not REACH Registered
Japan	: Japan inventory (ENCS) : All components are listed or exempted. Japan inventory (ISHL) : All components are listed or exempted.
Malaysia	: Not determined.
New Zealand	: At least one component is not listed.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: All components are listed or exempted.
Turkey	: Not determined.
Viet Nam	: All components are listed or exempted.

Section 16. Other information

National Fire Protection Association (U.S.A.)

Product as-supplied

Health	3
Flammability	1
Instability/Reactivity	1
Special	

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Section 16. Other information

History

Date of printing : 9/25/2019

Date of issue/Date of revision : 9/25/2019

Date of previous issue : 9/25/2019

Version : 3

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.