

# SAFETY DATA SHEET

Creation Date 21-October-2009

Revision Date 28-March-2024

Revision Number 3

## 1. Identification

**Product Name** Hexamethylenetetramine

**Cat No. :** A17213

**CAS-No** 100-97-0  
**Synonyms** HMTA; Hexamine; Methenamine; Hexamethylenetetramine

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

### Details of the supplier of the safety data sheet

#### Company

##### **Importer/Distributor**

Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

#### **Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

## 2. Hazard(s) identification

### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

<b>Flammable solids</b>	Category 2
<b>Skin Sensitization</b>	Category 1
<b>Combustible Dusts</b>	Category 1

### Label Elements

#### **Signal Word**

Warning

#### **Hazard Statements**

Flammable solid  
May form combustible dust concentrations in air  
May cause an allergic skin reaction

**Precautionary Statements****Prevention**

Keep container tightly closed

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Ground/bond container and receiving equipment

Avoid breathing dust/fume/gas/mist/vapors/spray

Contaminated work clothing should not be allowed out of the workplace

Wear protective gloves/protective clothing/eye protection/face protection

**Response**

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion

IF ON SKIN: Wash with plenty of soap and water

If skin irritation or rash occurs: Get medical advice/attention

Wash contaminated clothing before reuse

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

**Storage**

Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	<=100

### 4. First-aid measures

<b>General Advice</b>	If symptoms persist, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
<b>Inhalation</b>	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
<b>Most important symptoms/effects</b>	None reasonably foreseeable. May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

**Suitable Extinguishing Media** Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

**Unsuitable Extinguishing Media** No information available

**Flash Point** 250 °C / 482 °F

**Method -** No information available

**Autoignition Temperature** 400 °C / 752 °F

**Explosion Limits**

**Upper** No data available

**Lower** No data available

**Sensitivity to Mechanical Impact** No information available

**Sensitivity to Static Discharge** No information available

**Specific Hazards Arising from the Chemical**

Flammable. Containers may explode when heated. Dust can form an explosive mixture with air. Fine dust dispersed in air may ignite.

**Hazardous Combustion Products**

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>). Ammonia. Formaldehyde.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

**Health**  
2

**Flammability**  
2

**Instability**  
1

**Physical hazards**  
N/A

## 6. Accidental release measures

**Personal Precautions** Use personal protective equipment as required. Avoid dust formation. Ensure adequate ventilation.

**Environmental Precautions** Should not be released into the environment.

**Methods for Containment and Clean Up** Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

**Handling** Wear personal protective equipment/face protection. Avoid ingestion and inhalation. Avoid dust formation. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.

**Storage.** Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Strong acids.

## 8. Exposure controls / personal protection

**Exposure Guidelines**

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane			STEL: 0.35 ppm STEL: 2 mg/m <sup>3</sup>		TWA: 1 mg/m <sup>3</sup>		

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

**Engineering Measures**

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### Hand Protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Natural rubber	See manufacturers	-	Splash protection only
Nitrile rubber	recommendations		
Neoprene			
PVC			

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

#### Respiratory Protection

The absence of published exposure limits does not mean that a substance poses no inhalation hazard. If inhalation exposure is likely or if irritation or other symptoms are experienced, wear a NIOSH/MSHA or European Standard EN 149 approved respirator.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Recommended Filter type:** Particulates filter conforming to EN 143

When RPE is used a face piece Fit Test should be conducted

### Environmental exposure controls

No information available.

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

## 9. Physical and chemical properties

<b>Physical State</b>	Solid
<b>Appearance</b>	White
<b>Odor</b>	Ammonia-like
<b>Odor Threshold</b>	No information available
<b>pH</b>	7 - 10 10% aq. solution
<b>Melting Point/Range</b>	No data available
<b>Boiling Point/Range</b>	No information available
<b>Flash Point</b>	250 °C / 482 °F
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	0.0035 hPa @ 20 °C
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	1.330
<b>Solubility</b>	Soluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available

Autoignition Temperature	400 °C / 752 °F
Decomposition Temperature	260 (sublimation) °C
Viscosity	Not applicable
Molecular Formula	C6 H12 N4
Molecular Weight	140.19

## 10. Stability and reactivity

<b>Reactive Hazard</b>	Yes
<b>Stability</b>	Stable under normal conditions. Moisture sensitive.
<b>Conditions to Avoid</b>	Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Excess heat. Exposure to moisture.
<b>Incompatible Materials</b>	Strong oxidizing agents, Strong acids
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Nitrogen oxides (NO <sub>x</sub> ), Ammonia, Formaldehyde
<b>Hazardous Polymerization</b>	No information available.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	9200 mg/kg ( Rat )	>2000 mg/kg ( Rat )	Not listed

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Irritation</b>	No information available
<b>Sensitization</b>	May cause sensitization by skin contact
<b>Carcinogenicity</b>	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	Not listed	Pimephales promelas: EC50=49.8 g/L/96h	Not listed	EC50 = 36 g/L/48h

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

Component	log Pow
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	-2.2

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

UN-No UN1328  
 Proper Shipping Name HEXAMETHYLENETETRAMINE  
 Hazard Class 4.1  
 Packing Group III

### TDG

UN-No UN1328  
 Proper Shipping Name HEXAMETHYLENETETRAMINE  
 Hazard Class 4.1  
 Packing Group III

### IATA

UN-No UN1328  
 Proper Shipping Name Hexamethylenetetramine  
 Hazard Class 4.1  
 Packing Group III

### IMDG/IMO

UN-No UN1328  
 Proper Shipping Name Hexamethylenetetramine  
 Hazard Class 4.1  
 Packing Group III

## 15. Regulatory information

**All of the components in the product are on the following Inventory lists:** China X = listed Australia U.S.A. (TSCA) Canada (DSL/NDSL) Europe (EINECS/ELINCS/NLP) Australia (AICS) Korea (KECL) China (IECSC) Japan (ENCS) Philippines (PICCS) Taiwan (TCSI) Japan (ISHL) New Zealand (NZIoC) Japan (ISHL)

### International Inventories

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP

1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	X	-	X	ACTIVE	202-905-8	-	-
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Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	X	KE-18615	X	X	X	X	X	X

**Legend:**

X - Listed '-' - Not Listed

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**IECSC** - Chinese Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**ENCS** - Japanese Existing and New Chemical Substances**AICS** - Australian Inventory of Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**Canada**

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances	Canada's Chemicals Management Plan (CEPA)
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	Part 4 Substance		

**Legend**

NPRI - National Pollutant Release Inventory

**Other International Regulations****Authorisation/Restrictions according to EU REACH**

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	-	Use restricted. See item 75. (see link for restriction details)	-

**REACH links**

<https://echa.europa.eu/substances-restricted-under-reach>

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	Listed	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane	100-97-0	Not applicable	Not applicable	Not applicable	Not applicable

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## 16. Other information

<b>Prepared By</b>	Product Safety Department Email: chem.techinfo@thermofisher.com www.thermofisher.com
<b>Creation Date</b>	21-October-2009
<b>Revision Date</b>	28-March-2024
<b>Print Date</b>	28-March-2024
<b>Revision Summary</b>	New emergency telephone response service provider.

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**