



Safety Data Sheet

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

Product identifier:

Product name: Hexamethylenetetramine

SDS No. : 3673E-3

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

e-mail address: kagakuhinanzenkanri@kishida.co.jp

2. Hazards identification

GHS classification and label elements of the product**Classification of the substance or mixture****PHYSICAL AND CHEMICAL HAZARDS**

Flammable solids: Category 2

HEALTH HAZARDS

Skin sensitization: Category 1

Reproductive toxicity: Category 2

Specific target organ toxicity – repeated exposure: Category 1 (urinary bladder; kidney; systemic toxicity)

Label elements

Signal word: Danger

HAZARD STATEMENT

Flammable solid

May cause an allergic skin reaction

Suspected of damaging fertility or the unborn child

Causes damage to organs through prolonged or repeated exposure (urinary bladder; kidney; systemic toxicity)

PRECAUTIONARY STATEMENT**Prevention**

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

Ground and bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash contaminated parts thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

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

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

Response

In case of fire: Use appropriate media other than water to extinguish.

Get medical advice/attention if you feel unwell.



IF exposed or concerned: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.

Disposal

Dispose of contents/container in accordance with local/national regulation.

Specific Physical and Chemical hazards

Flammable solid. Vapor/air mixture may explode.

3. Composition/information on ingredients**Mixture/Substance selection:****Substance**

Ingredient name:Hexamethylenetetramine

Content (%):99(min)

Chemical formula:(CH₂)₆N₄

Chemicals No, Japan:5-1155

CAS No.:100-97-0

MW:140.19

ECNO:202-905-8

Note : The figures shown above are not the specifications of the product.

4. First-aid measures**Descriptions of first-aid measures****General measures**

Get medical advice/attention if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

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

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

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

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 SWALLOWED

Rinse mouth.

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

5. Fire-fighting measures**Extinguishing media****Suitable extinguishing media**

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters**Specific fire-fighting measures**



Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

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

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Avoid raising dust.

Methods and materials for containment and cleaning up

Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

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

Ground and bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

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

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

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

Contaminated work clothing should not be allowed out of the workplace.

Take off contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Container and packaging materials for safe handling

Glass

Polyethylene



8. Exposure controls/personal protection

Control parameters

Adopted value

(Hexamethylenetetramine)

ACGIH(2020) TWA: 1mg/m³(IFV) (Dermal sens)

Notation

(Hexamethylenetetramine)

DSEN

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Crystals or crystalline powder

Color: Colorless or white

Odor: Odorless

Melting point/Freezing point data is not available.

Boiling point or initial boiling point: (Hexamethylenetetramine)(sublimation) ca. 260°C

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point: (Hexamethylenetetramine)(C.C.) 250°C

Auto-ignition temperature: (Hexamethylenetetramine)390°C

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Good

n-Octanol/water partition coefficient: log Pow-2.84

Vapor pressure data is not available.

Density and/or relative density: 1.33 g/cm³

Relative vapor density (Air=1): 4.9

Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air.



Decomposes on heating and on burning. This produces toxic and corrosive gases including formaldehyde, ammonia, hydrogen cyanide and nitrogen oxides. The solution in water is a weak base. Reacts with strong oxidants and strong acids. Attacks aluminium and zinc. (ICSC 1228)

Conditions to avoid

- Contact with incompatible materials.
- Contact with fire source.

Incompatible materials

Strong acids, Strong oxidizing agents

Hazardous decomposition products

Nitrogen oxides, Formaldehyde, Ammonia, Hydrogen cyanide

11. Toxicological Information**Information on toxicological effects**

Acute toxicity data is not available.

Irritant properties

- Skin corrosion/irritation data is not available.
- Serious eye damage/irritation data is not available.

Sensitization**Skin sensitization**

- [GHS Cat. Japan, base data]
(Hexamethylenetetramine)
cat. 1; EU-RAR, 2008

Mutagenic effects data is not available.

Carcinogenicity

- [ACGIH]
(Hexamethylenetetramine)
A4(2020) : Not Classifiable as a Human Carcinogen

Reproductive toxicity

- [GHS Cat. Japan, base data]
(Hexamethylenetetramine)
cat. 2; EU-RAR, 2008

STOT

STOT-single exposure data is not available.

STOT-repeated exposure

[cat.1]

- [GHS Cat. Japan, base data]
(Hexamethylenetetramine)
urinary bladder; kidney; systemic toxicity (EU-RAR, 2008; HSDB, 2015)

Aspiration hazard data is not available.

Information on other hazards

- May cause lung disorders by massive inhalation of powdered substance.
-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

12. Ecological Information**Ecotoxicity****Aquatic toxicity**

Hazardous to the aquatic environment (Acute)

- [GHS Cat. Japan, base data]
(Hexamethylenetetramine)
Crustacea (Daphnia magna) EC50 >100mg/L/48hr (MOE Japan, 2002)

**Hazardous to the aquatic environment (Long-term)**

[GHS Cat. Japan, base data]

(Hexamethylenetetramine)

Crustacea (Daphnia magna) NOEC >99mg/L/21days (MOE Japan, 2002)

Water solubility

(Hexamethylenetetramine)

44.9 g/100ml (PHYSPROP_DB, 2005)

Persistence and degradability

(Hexamethylenetetramine)

Not degrade rapidly (BOD_Degradation : 22%/14 days; TOC_Degradation: 45%/14 days;

HPLC_Degradation: 48%/14 days (MITI official bulletin))

Bioaccumulative potential

(Hexamethylenetetramine)

log Pow=-2.84 (ICSC, 2002)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

UN No. or ID No.: 1328

UN Proper Shipping Name :

HEXAMETHYLENETETRAMINE

Class or division (Transport hazard class) : 4.1

Packing group : III

ERG GUIDE No.: 133

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 1328

Proper Shipping Name :

HEXAMETHYLENETETRAMINE

Class or division : 4.1

Packing group : III

IATA Dangerous Goods Regulations

UN No.: 1328

Proper Shipping Name :

HEXAMETHYLENETETRAMINE

Class or division : 4.1

Hazard labels : Flamm.solid

Packing group : III

Special provisions No.: A803

Environmental hazards**MARPOL Annex III – Prevention of pollution by harmful substances**

Marine pollutants (yes/no) : no

MARPOL Annex V – Prevention of pollution by garbage discharge

Specific target organ toxicity – repeated exposure: cat.1

Hexamethylenetetramine



15. Regulatory Information

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

Chemicals listed in TSCA Inventory

Hexamethylenetetramine

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling

Flam. Sol. 2: H228 Flammable solid

Skin Sens. 1: H317 May cause an allergic skin reaction

Repr. 2: H361 Suspected of damaging fertility or the unborn child

STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure

Reference Book

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2021 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2020).