

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product identifier:

Trade name: Hexamine
EC number: 202-905-8
Index number: 612-101-00-2
Registration number: 01-2119474895-20-XXXX

Relevant identified uses of the substance or mixture and uses advised against:

Processing aid; polymer processing; moulding; intermediate; adhesives; consumer use in fuels, washing/cleaning products, cosmetics and personal care products.

Sector of use:

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites.
SU9: Manufacture of fine chemicals.
SU14: Manufacture of basic metals, including alloys.
SU15: Manufacture of fabricated metal products, except machinery and equipment.
SU16: Manufacture of computer, electronic and optical products, electrical equipment.
SU17: General manufacturing, e.g., machinery, equipment, vehicles, other transport equipment.
SU20: Health services.
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen).
SU24: Scientific research and development.
SU0: Other: Use for adhesives, lubrication, soldering, moulding or processing aids in various industry sectors.
SU0: Other: Testing.
SU0: Other: Toy steam engine.

Product category:

PC1: Adhesives sealants.
PC9b: Fillers, putties, plasters, modelling clay.
PC13: Fuels.
PC19: Intermediate.
PC20: Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents.
PC21: Laboratory chemicals.
PC32: Polymer preparations and compounds.
PC35: Washing and cleaning products (including solvent based products).
PC39: Cosmetics, personal care products.
PC0: Other: Use for adhesives, lubrication, soldering moulding or processing aids in various industry sectors.
PC0: Other: Mounting and testing in Metallography.

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Application of the substance/ the mixture: The product has many industrial, professional and consumer applications.

Used advised against: Processes involving extreme heat use advised against.
Processes involving the use of incompatible substances- refer to section 10.
Any use carrying a risk of direct contact with eyes/skin where workers are exposed without adequate personal protective equipment (PPE).

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification according to Regulation (EC) No 1272/2008:



GHS02 flame.

Flam. Sol. 2 H228 Flammable solid.



GHS07

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

Label elements:

Labelling according to Regulation (EC) No 1272/2008: The substance is classified and labelled according to the CLP regulation.

Hazard pictograms: GHS02, GHS07.

Signal word: Warning.

Hazard-determining components of labelling: Methenamine.

Hazard statements: H228: Flammable solid.
H317: May cause an allergic skin reaction.

[cont...]

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Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260: Do not breathe dust.

P280: Wear protective gloves/protective clothing/ eye protection/ face protection.

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.

P501: Dispose of contents/ container in accordance with local/regional/national/international regulations.

Other hazards:

Results of PBT and vPvB assessment:

PBT: Not applicable.

vPvB: Not applicable.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterisation:

Substances:

CAS No. Description: 100-97-0 Hexamethylenetetramine.

Identification number(s):

EC number: 202-905-8

Index number: 612-101-00-2

4. FIRST AID MEASURES

Description of first aid measures:

General information: Immediately remove any clothing soiled by the product.

After inhalation: Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably inside position for transportation.

After skin contact: DO NOT DELAY!
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.

After eye contact: Check for and remove and contact lenses.
Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing: Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.
If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Most important symptoms and effects, both acute and delayed:
No further relevant information available.

Information for doctor: Treat symptomatically and supportively.
If ingested, give a slurry of active charcoal in water to drink.
In the event of pulmonary irritation treat initially with dexamethasone metered-dose aerosol.
Under no circumstances provide vegetable oils, milk or alcohol to drink.

Indication of any immediate medical attention and special treatment needed: No further relevant information available.

[cont...]

5. FIRE-FIGHTING MEASURES**Extinguishing media:**

Suitable extinguishing agents: Water spray.
Alcohol resistant foam.

For safety reasons unsuitable extinguishing agents: Water with full jet.

Special hazards arising from the substance or mixture:

Under certain conditions, a dust cloud of the product can explode when ignited by a spark, flame or other ignition source.

Fire may produce: Hydrogen cyanide (HCN), Ammonia, Formaldehyde vapours, Nitrogen Oxides (NOx), Carbon monoxide and Carbon dioxide.

Flammable solid.

Can be ignited by the brief effects of exposure to sources of ignition and continues to burn when these are no longer present. The risk of ignition is greater the more finely the substance is spread.

Freely soluble in water.

Advice for firefighters:

Protective equipment: Wear self-contained respiratory protective device.
Wear fully protective suit.
Do not inhale explosion gases or combustion gases.

Additional information: Cool endangered receptacles with water spray.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures:**

Avoid formation of dust.

Wear protective equipment. Keep unprotected persons away.

Keep ignition sources away- no smoking.

Environmental precautions:

Do not allow to penetrate the ground/soil.

Do not allow product to reach sewage system or any water course in the undiluted form.

Methods and material for containment and cleaning up:

Ensure adequate ventilation.

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

Reference to other sections:

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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7. HANDLING AND STORAGE

Precautions for safe handling:

- Ensure good ventilation/ exhaustion at the workplace.
- Prevent formation of dust.
- Ensure high housekeeping standards to remove build of dust.
- Avoid direct contact (skin/eye contact, ingestion and/or inhalation of fume/mist/dust) with the product in the undiluted form.
- Safety showers and eye wash facilities should be available at the work area.
- Welding and other hot work operations in the work area must only be permitted under supervision.

Information about fire- and explosion protection: Keep ignition sources away- Do not smoke.

- Protect against electrostatic charges.
- Protect from heat.

Conditions for safe storage, including any incompatibilities:

Storage:

Requirements to be met by storerooms and receptacles:

- Store in a cool location.
- Prevent any seepage into the ground.

Information about storage in one common storage facility:

- Store away from foodstuffs.
- Store away from oxidising agents.
- Do not store together with acids.

Further information about storage conditions:

- Store in a bunded area.
- Store in cool, dry conditions in well-sealed receptacles.
- Protect from heat and direct sunlight.

Specific end use(s): No further relevant information available.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Additional information about design of technical facilities: No further data; see item 7.

Controls parameters:

Ingredients with limit values that require monitoring at the workplace: Not required.

DNELs:

WORKERS: Acute/ short-term exposure- Systemic effects.

Dermal DN(M)EL: DNEL (Derived No Effect Level): 229 mg/kg bw/day.

Inhalation DN(M)EL: DNEL (Derived No Effect Level): 1400 mg/m³.

Long-term exposure- Systemic effects.

Dermal DN(M)EL: DNEL (Derived No Effect Level): 8.8 mg/kg bw/day.

Inhalation DN(M)EL: DNEL (Derived No Effect Level): 31 mg/m³.

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GENERAL POPULATION:	Acute/ short-term exposure- Systemic effects.
Dermal DN(M)EL:	DNEL (Derived No Effect Level): 22.9 mg/kg bw/day.
Inhalation DN(M)EL:	DNEL (Derived No Effect Level): 140 mg/m ³ .
Oral DN(M)EL:	DNEL (Derived No Effect Level): 20 mg/kg bw/day.
	Long-term exposure- Systemic effects.
Dermal DN(M)EL:	DNEL (Derived No Effect Level): 1.9 mg/kg bw/day
Inhalation DN(M)EL:	DNEL (Derived No Effect Level): 6.7 mg/m ³ .
Oral DN(M)EL:	DNEL (Derived No Effect Level): 0.95 mg/kg bw/day.
PNECs:	PNEC aqua (freshwater): 3 mg/L PNEC aqua (marine water): 0.5 mg/L PNEC aqua (intermittent releases): 30 mg/L PNEC STP: 100 mg/L PNEC sediment (freshwater): 11 mg/kg sediment dw PNEC sediment (marine water): 1.84 mg/kg sediment dw PNEC soil: 0.58 mg/kg soil dw PNEC oral: 0.05 g/kg food

Additional information: The lists valid during the making were used as basis.

Exposure controls:

Personal protective equipment: Select PPE appropriate for the operations taking into account the product properties.

General protective and hygienic measures: Do not inhale dust/ smoke/ mist.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Do not eat, drink, smoke or sniff while working.

Do not breath dust.

Ensure that eyewash stations and safety showers are close to the workstation location.

Depending on the degree of exposure, periodic medical examination is suggested.

Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

If respiratory protection is required, institute a complete respiratory program including selection, fit testing, training, maintenance and inspection.

Protection of hands:



Protective gloves.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

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- Material of gloves:** The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- Hand protection:** Glove material specification (make/type, thickness, permeation time/life, wetting resistance): Butyl latex, 0.7mm, 480mm, 60min, i.e., Protective glove made by www.kcl.de. This recommendation refers exclusively to the chemical compatibility and the lab test conforming to EN 374 carried out under lab conditions. Requirements can vary as a function of the use. Therefore, it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves.
- Penetration time of glove material:** The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:



Tightly sealed goggles.

- Body protection:** Impervious protective clothing.
Body protection must be chosen depending on product properties, activity and possible exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

General information:

Appearance:

Form: Powder

Colour: White

Odour: Mild

pH-value (50 g/l) at 20°C: 8.4

Change in condition:

Melting point/ freezing point: 280, Subl. °C

Initial boiling point and boiling range: Undetermined

Flash point: 130 (smoulder) °C

Flammability (solid, gas): Highly flammable.

Ignition temperature: 410°C

Explosive properties: Product is not explosive. However, formation of explosive air/dust mixtures are possible.

Vapour pressure at 20°C: 0.13 Pa

Density at 20°C: 1.33 g/cm³

Solubility in/ Miscibility with water at 13°C: 490 g/l

Partition coefficient: n-octanol/water at 20°C: -2.18 log POW

Other information:

Note: The physical data presented above are typical values and should not be construed as a specification.

[cont...]

10. STABILITY AND REACTIVITY

Reactivity: No further relevant information available.

Chemical stability:

Thermal decomposition/ conditions to be avoided: Flammable solid.

Can be ignited by the brief effects of exposure to sources of ignition and continues to burn when these are no longer present.

The risk of ignition is greater the more finely the substance is spread.

With an average combustion-speed of 34.5 s/100 mm methenamine is determined to be highly flammable (combustion-speed < 45 s/100 mm).

Burning level= 6: very quick combustion under flame-occurrence.

The substance decomposes on heating or on burning producing toxic and corrosive gases.

Possibility of hazardous reactions: The solution in water is a weak base. Reacts with strong oxidants and strong acids producing toxic and corrosive gases. Attacks aluminium and zinc.

Freely soluble in water.

Hygroscopic.

Sensitive to moisture.

Slightly volatile.

Risk of explosion in contact with: Nitric acid, iodine/heat, iodoform/heat, sodium peroxide, acetic anhydride, nitric acid/acetic anhydride, halogenated hydrocarbons.

The substance can react dangerously with: Oxidising agents, acids.

The formation of explosive dust-air mixtures is possible.

Conditions to avoid: No further relevant information available.

Incompatible materials: Substances specifically listed in section 10.3 as incompatible.

Strong acids and oxidising agents.

Nitric acid, iodine/heat, iodoform/heat, sodium peroxide, acetic anhydride, nitric acid/acetic anhydride, halogenated hydrocarbons.

Hazardous decomposition products: Fire may produce: Hydrogen cyanide (HCN), Ammonia, Formaldehyde vapours, Nitrogen oxides (NOx), Carbon monoxide and Carbon dioxide.

Additional information: Under certain conditions, a dust cloud of the material can explode when ignited by a spark, flame or other ignition source.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Acute toxicity: Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification:

100-97-0 Methenamine

Oral LD50: >20000 mg/kg (mouse)

Dermal LD50: >20000 mg/kg (rabbit)

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Primary irritant effect:

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/irritation: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation: May cause an allergic skin reaction.

Additional toxicological information:

Routes of exposure: The substance can be absorbed into the body by inhalation of its solution aerosol, dust and by ingestion.

The substance may release formaldehyde. Anyone who has shown symptoms of asthma due to this substance should avoid all further contact/ the symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure: Based on available data, the classification criteria are not met.

STOT-repeated exposure: Based on available data, the classification criteria are not met.

Aspiration hazard: Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION

Toxicity:

Aquatic toxicity: No further relevant information available.

Persistence and degradability: Product is not expected to bioaccumulate.

Mobility in soil: No further relevant information available.

Additional ecological information:

General notes: Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Results of PBT and vPvB assessment:

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Recommendation:

Recommended Hierarchy of Controls: Minimise waste.

Reuse if not contaminated.

Recycle, if possible.

Safe disposal.

[cont...]

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Must not be disposed together with household rubbish. Do not allow product to reach sewage system.

Contact waste processors for recycling information.

Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.

European waste catalogue:

Waste key numbers in accordance with the European Waste Catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier. The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.

Uncleaned packaging:

Recommendation:

Disposal must be made according to official regulations.

Container remains hazardous when empty. Continue to observe all precautions.

Containers, even those that are "empty", may contain residues that can develop flammable vapours upon heating. Do not cut, drill, grind, weld or perform similar operations on or near empty containers.

Recommended cleansing agents: Water, if necessary, together with cleansing agents.

14. TRANSPORT INFORMATION

UN number:

ADR, IMDG, IATA: 1328

UN proper shipping name:

ADR: 1328 HEXAMETHYLENETETRAMINE

IMDG, IATA: HEXAMETHYLENETETRAMINE

Transport hazard class(es):

ADR, IMDG, IATA:



Class: 4.1 Flammable solids, self-reactive substances and solid desensitised explosives.

Label: 4.1

Packing group:

ADR, IMDG, IATA: III

Environmental hazards:

Marine pollutant: No

[cont...]

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Special precautions for user: Warning: Flammable solid, self-reactive substances and solid desensitised explosives.
Danger code (Kelmer): 40
EMS number: F-A, S-G

Transport in bulk according to Annex II of Marpol and the IBC Code: Not applicable.

Transport/Additional information:

ADR:

Tunnel restriction code: E

UN "Model Regulation": UN1328, HEXAMETHYLENETETRAMINE, 4.1, III

15. REGULATORY INFORMATION

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

Regulation (EC) No 1907/2006 Annex XVII: Conditions of restriction: 40

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road).
IMDG: International Maritime Code for Dangerous Goods.
IATA: International Air Transport Association.
GHS: Globally Harmonised System of Classification and Labelling of Chemicals.
EINECS: European Inventory of Existing Commercial Substances.
CAS: Chemical Abstracts Service (division of the American Chemical Society).
DNEL: Derived No-Effect Level (REACH).
PNEC: Predicted No-Effect Concentration (REACH).
LC50: Lethal concentration, 50 percent.
LD50: Lethal dose, 50 percent.
PBT: Persistent, Bioaccumulative and Toxic.
vPvB: very Persistent and very Bioaccumulative.
Flam. Sol. 2: Flammable Solids- Category 2.
Skin Sens. 1: Skin Sensitisation- Category 1.

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

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