HEXAMETHYLPHOSPHORIC ACID TRIAMIDE CAS No 680-31-9	MATERIAL SAFETY DATA SHEET SDS/MSDS

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Hexamethylphosphoric Acid Triamide

CAS-No. : 680-31-9

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

Identified uses : Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet

Company : Central Drug House (P) Ltd
7/28 Vardaan House
New Delhi -110002
INDIA

Telephone : +91 11 49404040
Email : care@cdhfinechemical.com

1.4 Emergency telephone number

Emergency Phone # : +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1B), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008
Pictogram

GHS08

Signal word Danger

Hazard statement(s)
H340 May cause genetic defects.
H350 May cause cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Supplemental Hazard Statements	none

Restricted to professional users.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	HMPA Hexamethylphosphoric acid triamide Tris(dimethylamino)phosphine oxide
Formula	:	$[(CH_3)_2N]_3PO$
Molecular weight	:	179.20 g/mol
CAS-No.	:	680-31-9
EC-No.	:	211-653-8
Index-No.	:	015-106-00-2

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component		Classification	Concentration
Hexamethylphosphoric tri amide			
CAS-No.	680-31-9	Muta. 1B; Carc. 1B; H340, H350 Concentration limits: >= 0.01 %: Carc. 1B, H350;	<= 100 %
EC-No.	211-653-8		
Index-No.	015-106-00-2		

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Nitrogen oxides (NOx), Oxides of phosphorus, Thermal decomposition may produce toxic fumes of phosphorus oxides and/or phosphine

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid exposure - obtain special instructions before use.Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Air and moisture sensitive. Handle and store under inert gas.
Storage class (TRGS 510): Combustible liquids, toxic

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use (US) or type ABEK (EN 14387) respirator cartridges as a backup to enginee protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 7 °C - lit.
f)	Initial boiling point and boiling range	230 - 232 °C at 987 hPa - lit.
g)	Flash point	144 °C - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	6.19 - (Air = 1.0)
m)	Relative density	1.03 g/cm3 at 25 °C
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
Relative vapour density 6.19 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Strong acids

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Oxides of phosphorus, Thermal decomposition may produce toxic fumes of phosphorus oxides and/or phosphine
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2,650 mg/kg(Hexamethylphosphoric triamide)
Remarks: Behavioral:Convulsions or effect on seizure threshold. Kidney, Ureter, Bladder:Hematuria. Kidney, Ureter, Bladder:Incontinence.
LD50 Dermal - Rabbit - 2,600 mg/kg(Hexamethylphosphoric triamide)
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Dyspnea.

Skin corrosion/irritation
No data available(Hexamethylphosphoric triamide)

Serious eye damage/eye irritation
No data available(Hexamethylphosphoric triamide)

Respiratory or skin sensitisation
No data available(Hexamethylphosphoric triamide)

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.(Hexamethylphosphoric triamide)
In vivo tests showed mutagenic effects(Hexamethylphosphoric triamide)

Carcinogenicity
This product is or contains a component that has been reported to be proba EPA classification.(Hexamethylphosphoric triamide)
Possible human carcinogen(Hexamethylphosphoric triamide)
(Hexamethylphosphoric triamide)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Hexamethylphosphoric triamide)

Reproductive toxicity
No data available(Hexamethylphosphoric triamide)

Specific target organ toxicity - single exposure
No data available(Hexamethylphosphoric triamide)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available(Hexamethylphosphoric triamide)

Additional Information
RTECS: TD0875000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Hexamethylphosphoric triamide)

Liver - Irregularities - Based on Human Evidence(Hexamethylphosphoric triamide)

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 7,240 mg/l - 96 h(Hexamethylphosphoric triamide)
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 6,670 mg/l - 48 h(Hexamethylphosphoric triamide)

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinodon variegatus (sheepshead minnow) - 33 d - 40.4 mg/l(Hexamethylphosphoric triamide)
	Bioconcentration factor (BCF): 3.3

12.4 Mobility in soil

No data available(Hexamethylphosphoric triamide)

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

14.4 Packaging group

ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H340	May cause genetic defects.
H350	May cause cancer.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.