THORIUM NITRATE
CAS NO 14767-04-5

MATERIAL SAFETY DATA SHEET
SDS/MSDS

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

1.1 Product identifiers
   Product name : Thorium Nitrate
   CAS-No. : 14767-04-5

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 Varadaan 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
   Oxidizing solids (Category 2), H272
   Acute toxicity, Oral (Category 4), H302
   Skin irritation (Category 2), H315
   Eye irritation (Category 2), H319
   Specific target organ toxicity - single exposure (Category 3), H335
   Specific target organ toxicity - repeated exposure (Category 2), H373
   Chronic aquatic toxicity (Category 2), H411

   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

   Signal word
   Danger

   Hazard statement(s)
   H272 : May intensify fire; oxidizer.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P220 Keep/Store away from clothing/ combustible materials.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements
none

2.3 Other hazards
Radioactive.

SECTION 3: Composition/information on ingredients

3.1 Substances
Formula: \( \text{N}_4\text{O}_{12}\text{Th} \cdot 5\text{H}_2\text{O} \)
Molecular weight: 570.13 g/mol
CAS-No.: 14767-04-5
EC-No.: 237-514-1

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thorium tetranitrate hydrate</strong></td>
<td>Ox. Sol. 2; Acute Tox. 4; Skin</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>14767-04-5</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>237-514-1</td>
<td></td>
</tr>
<tr>
<td>Irrit. 2; Eye Irrit. 2; STOT SE 3; STOT RE 2; Aquatic Chronic 2; H272, H302, H315, H319, H335, H373, H411</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

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 extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture
   Nitrogen oxides (NOx), Metal oxides

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

5.4 Further information
   Use water spray to cool unopened containers. The product itself does not burn.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
   Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
   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. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
   Sweep up and shovel.\20 Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). 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 contact with skin and eyes. Avoid formation of dust and aerosols.
   Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.Keep away from heat and sources of ignition.
   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.
   Storage class (TRGS 510): Oxidizing Solids

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 (EN 143) respirator cartridges as a backup to engineering controls. If th 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. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance  Form: solid
b) Odour  No data available
c) Odour Threshold  No data available
d) pH  No data available
e) Melting point/freezing point  No data available
f) Initial boiling point and boiling range  No data available
g) Flash point  Not applicable
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  No data available
m) Relative density  No data available
n) Water solubility  soluble
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  The substance or mixture is classified as oxidizing with the category 2.

9.2 Other safety information
No data available
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

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NOx), Metal oxides
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 - Mouse - 1,760 mg/kg(Thorium tetranitrate hydrate)
Remarks: Gastrointestinal: Ulceration or bleeding from small intestine.
Inhalation: No data available(Thorium tetranitrate hydrate)

Skin corrosion/irritation
No data available(Thorium tetranitrate hydrate)

Serious eye damage/eye irritation
No data available(Thorium tetranitrate hydrate)

Respiratory or skin sensitisation
No data available(Thorium tetranitrate hydrate)

Germ cell mutagenicity
No data available(Thorium tetranitrate hydrate)

Carcinogenicity
Contains a radioactive isotope which may produce cancer and genetic mutation.(Thorium tetranitrate hydrate)
IARC: 2A - Group 2A: Probably carcinogenic to humans (Thorium tetranitrate hydrate)

Reproductive toxicity

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.(Thorium tetranitrate hydrate)

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available(Thorium tetranitrate hydrate)

Additional Information
RTECS: XO6825000

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

SECTION 12: Ecological information

12.1 Toxicity
No data available
12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation Oncorhynchus mykiss (rainbow trout) - 27 d
- 0.001 µg/l(Thorium tetrinitrate hydrate)
Bioconcentration factor (BCF): 465

12.4 Mobility in soil
No data available(Thorium tetrinitrate hydrate)

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. After use follow local
procedures for radioactive waste. Consult local, state, and federal regulations on the disposal of
radioactive waste. Observe all federal, state, and local environmental regulations.

Contaminated packaging
Dispose of as special waste in compliance with local and national regulations.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 1477  IMDG: 1477  IATA: 1477

14.2 UN proper shipping name
ADR/RID: NITRATES, INORGANIC, N.O.S.
IMDG: NITRATES, INORGANIC, N.O.S.
IATA: Nitrates, inorganic, n.o.s.

14.3 Transport hazard class(es)
ADR/RID: 5.1  IMDG: 5.1  IATA: 5.1

14.4 Packaging group
ADR/RID: II  IMDG: II  IATA: II

14.5 Environmental hazards
ADR/RID: no  IMDG Marine pollutant: no  IATA: no

14.6 Special precautions for user

Further information
Radioactive material, excepted package - limited quantity of material

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.

H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

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.