

Safety Data Sheet

Product :

Tungsten hexafluoride

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MSDS Nr : 330-00-0009BOC(A)

Version : 1.03

Date : 16/07/2004

Replaces version dated : 29/07/1994

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

| | |
|-------------------------|---------------------------|
| Product name | Tungsten hexafluoride |
| Chemical formula | WF ₆ |
| Company identification | see heading and/or footer |
| Emergency phone numbers | see heading and/or footer |

2 COMPOSITION/INFORMATION ON INGREDIENTS

| | |
|-----------------------|--|
| Substance/Preparation | Substance. |
| Components/Impurities | Contains no other components or impurities which will influence the classification of the product. |
| CAS Nr | 7783-82-6 |
| EC Nr (from EINECS) | 232-029-1 |

3 HAZARDS IDENTIFICATION

| | |
|------------------------|--|
| Hazards identification | Very toxic by inhalation. Very corrosive to eyes, respiratory system and skin. Liquefied gas |
|------------------------|--|

4 FIRST AID MEASURES

| | |
|------------------|---|
| Inhalation | Very toxic by inhalation. Prolonged exposure to small concentrations may result in pulmonary oedema. May cause headache, nausea and irritation of respiratory tract. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Delayed adverse effects possible. |
| Skin/eye contact | May cause severe chemical burns to skin and cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product. Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contaminated clothing. Drench affected area with water for at least 15 minutes In case of skin contact, wearing rubber gloves rub 2.5% calcium gluconate gel continuously into the affected area for 1.5 hours or until further medical care is available. Obtain medical assistance |
| Ingestion | Ingestion is not considered a potential route of exposure. |

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5 FIRE FIGHTING MEASURES

| | |
|--|--|
| Specific hazards | Non flammable Exposure to fire may cause containers to rupture/explode. |
| Hazardous combustion products | If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Hydrogen fluoride Tungsten and its oxides |
| Suitable extinguishing media | All known extinguishants can be used. |
| Specific methods | If possible, stop flow of product. Specialist clean-up methods may be required. Use of water may result in the formation of very toxic aqueous solutions. Move away from the container and cool with water from a protected position. |
| Special protective equipment for fire fighters | Use self-contained breathing apparatus and chemically protective clothing. |

6 ACCIDENTAL RELEASE MEASURES

| | |
|---------------------------|--|
| Personal precautions | Evacuate area. Use self-contained breathing apparatus and chemically protective clothing. Ensure adequate air ventilation. |
| Environmental precautions | Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Reduce vapour with fog or fine water spray. |
| Clean up methods | Ventilate area. Hose down area with water. Wash contaminated equipment or sites of leaks with copious quantities of water. |

7 HANDLING AND STORAGE

| | |
|----------------------|---|
| Handling and storage | Keep container below 50°C in a well ventilated place. Segregate from flammable gases and other flammable materials in store. Use no oil or grease. Passivate all equipment and pipework before introducing gas. Contact supplier for passivation procedure. Refer to supplier's container handling instructions. Use only properly specified equipment which is suitable for this product, its supply pressure and |
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temperature. Contact your gas supplier if in doubt.
Do not allow backfeed into the container.
Suck back of water into the container must be prevented.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value for country

UK: LTEL: 1mg/m³; STEL: 3mg/m³ (EH40/2002)

Personal protection

Keep suitable chemically resistant protective clothing readily available for emergency use.

Keep self contained breathing apparatus readily available for emergency use.

Protect eyes, face and skin from liquid splashes.

Do not smoke while handling product.

Ensure adequate ventilation.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight

298

Melting point

2.3 °C

Boiling point

17 °C

Critical temperature

170 °C

Relative density, gas

10.3 (air=1)

Relative density, liquid

3.4 (water=1)

Vapour Pressure 20°C

1.1 bar

Solubility mg/l water

No reliable data available.

Appearance/Colour

Colourless liquid

Gives off white fumes in moist air

Odour

Pungent

Flammability range

Non flammable.

Other data

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity

May react violently with combustible materials

May react violently with reducing agents.

Violently oxidises organic material.

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11 TOXICOLOGICAL INFORMATION

General

Severe corrosion to skin, eyes and respiratory tract at high concentrations.

Delayed fatal pulmonary oedema possible.

Absorption of excessive F- can result in acute systemic fluorosis with hypocalcemia, interference with various metabolic functions and organ damage (heart, liver, kidneys).

LC50/1h (ppm)

160 ppm

12 ECOLOGICAL INFORMATION

General

May cause pH changes in aqueous ecological systems.

Endangering to drinking water.

13 DISPOSAL CONSIDERATIONS

General

Do not discharge into any place where its accumulation could be dangerous.

Avoid discharge to atmosphere.

Gas may be scrubbed in alkaline solution under controlled conditions to avoid violent reaction.

Contact supplier if guidance is required.

14 TRANSPORT INFORMATION

UN Nr

2196

Class

2

Subsidiary risk

8

ADR/RID Classification code

2TC

Packing group

None

Labelling ADR

Label 2.3: toxic substance.

Label 8: corrosive substance.

IMDG EmS codes

F-C, S-U

IMDG Marine pollutant

No

IATA passenger packing instruction

Forbidden

IATA passenger max. quantity/pack

Forbidden

IATA cargo packing instruction

Forbidden

IATA cargo max. quantity/pack

Forbidden

Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment.

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of

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an accident or an emergency.

Before transporting product containers ensure that they are firmly secured and:

- cylinder valve is closed and not leaking
- valve outlet cap nut or plug (where provided) is correctly fitted
- valve protection device (where provided) is correctly fitted
- there is adequate ventilation.
- compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548

Not included in Annex I.

EC Classification

T+;R26(C);R35

-Symbols

T+: Very toxic

C: Corrosive

Labelling of cylinders

-Symbols

Label 2.3: toxic substance.

Label 8: corrosive substance.

-Risk phrases

R26 Very toxic by inhalation.

R35 Cause severe burns (eyes, respiratory system and skin).

-Safety phrases

S1 Keep locked up.

S9 Keep container in well ventilated place.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36 Wear suitable protective clothing.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Ensure operators understand the toxicity hazard.

Users of breathing apparatus must be trained.

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

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