

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/28/2006

Reviewed on 08/28/2006

1 Identification of substance:**Product details:****Product name:** Uranium (IV) oxide**Stock number:** 12108**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company
 Johnson Matthey Catalog Company, Inc.
 30 Bond Street
 Ward Hill, MA 01835-8099
 Emergency Phone: (978) 521-6300
 CHEMTREC: (800) 424-9300
 Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department.
 After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:**Chemical characterization:****Description: (CAS#)**

Uranium (IV) oxide (CAS# 1344-57-6); 100%

Identification number(s):**EINECS Number:** 215-700-3**EU Number:** 092-002-00-3**3 Hazards identification****Hazard description:**

T+ Very toxic

N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 26/28 Very toxic by inhalation and if swallowed.

R 33 Danger of cumulative effects.

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Classification system**HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	1
FIRE	0
REACTIVITY	1

Health (acute effects) = 1

Flammability = 0

Reactivity = 1

4 First aid measures**General information**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

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After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

5 Fire fighting measures**Suitable extinguishing agents**

Extinguishing powder. Do not use water.

Sand. Do not use water.

For safety reasons unsuitable extinguishing agents Water

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Information for safe handling:**

Handle under dry protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires:

No special measures required.

Storage**Requirements to be met by storerooms and receptacles:**

No special requirements.

Information about storage in one common storage facility: Not required.

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Further information about storage conditions:

Store under dry inert gas.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:Uranium (natural), soluble and insoluble compounds, as U
mg/m3

ACGIH TLV 0.2; 0.6-STEL, A1

Belgium TWA 0.2; 0.5-STEL

Denmark TWA 0.2

Finland TWA 0.2

Germany MAK 0.25

Ireland TWA 0.2; 0.6-STEL

Netherlands MAC-TGG 0.2

Norway TWA 0.2

Poland TWA 0.015; 0.12-STEL

Russia 0.015-STEL

Switzerland MAK-W 0.2

United Kingdom TWA 0.2; 0.6-STEL

Additional information: No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

Form:	Crystalline
Color:	Dark brown
Odor:	Odorless

Change in condition

Melting point/Melting range:	2868-2878°C (5194-5212°F)
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined

Flash point:	Not applicable
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Flammability (solid, gaseous)	Fine powder: flammable
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density at 20°C (68°F):	10.96 g/cm ³
Solubility in / Miscibility with Water:	Insoluble

10 Stability and reactivity**Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Oxidizing agents

Air

Dangerous reactions Reacts with strong oxidizing agents

Dangerous products of decomposition: Metal oxide fume

11 Toxicological information**Acute toxicity:****Primary irritant effect:**

on the skin: Irritant to skin and mucous membranes.

on the eye: Irritating effect.

Sensitization: No sensitizing effects known.

Subacute to chronic toxicity:

Uranium compounds may cause skin, eye or lung irritation. Cancers of the liver, kidney, lymphatic and blood forming tissues are possible.

Necrotic arterial lesions are possible.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.

12 Ecological information:**Ecotoxicological effects:**

Remark: Toxic for fish

General notes:

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

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Toxic for aquatic organisms

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13 Disposal considerations**Product:****Recommendation**

Consult state, local or national regulations to ensure proper disposal.

Not a solid waste by RCRA exclusion, see 40CFR261.4.(a).(4).

See 10CFR part 40 for disposal.

Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**14 Transport information****DOT regulations:****Hazard class:** 7**Identification number:** UN2910**Proper shipping name (technical name):** RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL**Land transport ADR/RID (cross-border)****ADR/RID class:** 7 (-) Radioactive material**UN-Number:** 2910**Packaging group:** -**Description of goods:** 2910 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL**Maritime transport IMDG:****IMDG Class:** 7**UN Number:** 2910**Proper shipping name:** RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL**Air transport ICAO-TI and IATA-DGR:****ICAO/IATA Class:** 7**UN/ID Number:** 2910**Proper shipping name:** RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL**15 Regulations****Product related hazard informations:****Hazard symbols:**

T+ Very toxic

N Dangerous for the environment

Risk phrases:

26/28 Very toxic by inhalation and if swallowed.

33 Danger of cumulative effects.

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51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

20/21 When using do not eat, drink or smoke.

45 In case of accident or if you feel unwell, seek medical advice immediately.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

Information about limitation of use:

For use only by technically qualified individuals.

The radioactive content of uranium and uranium containing material is defined as it's specific activity. The specific activity of depleted uranium is 0.0000005 curie/gram (18,500 Bq/gram) of contained uranium. This formula assumes a weight percent of 0.45% U235.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact: Darrell R. Sanders