

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/21/2009

Reviewed on 05/21/2009

1 Identification of substance:**Product details:****Product name:** Terbium perchlorate, 50% in water**Stock number:** 40573**Manufacturer/Supplier:**

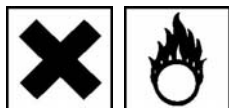
Alfa Aesar, A Johnson Matthey Company
 Johnson Matthey Catalog Company, Inc.
 30 Bond Street
 Ward Hill, MA 01835-8099
 Emergency Phone: (978) 521-6300
 CHEMTREC: (800) 424-9300
 Web Site: www.alfa.com

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#)**

terbium perchlorate (CAS# 14014-09-6); 50%
 water (CAS# 7732-18-5); 50%

Identification number(s):**EINECS Number:** 237-826-8**3 Hazards identification****Hazard description:**

Xi Irritant
 O Oxidizing

Information pertaining to particular dangers for man and environment

R 8 Contact with combustible material may cause fire.

R 36/37/38 Irritating to eyes, respiratory system and skin.

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

GHS label elements**Danger**

2.13/2 - May intensify fire; oxidizer.

**Warning**

3.2/2 - Causes skin irritation.

3.3/2A - Causes serious eye irritation.

3.8/3 - May cause respiratory irritation.

Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep/Store away from clothing/combustible materials.

Take any precaution to avoid mixing with combustibles.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

Response:

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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Call a POISON CENTER or doctor/physician if you feel unwell.
 Specific treatment (see label).
 If skin irritation occurs: Get medical advice/attention.
 If eye irritation persists: Get medical advice/attention.
 Take off contaminated clothing and wash before reuse.
 In case of fire: Use for extinction: CO₂, powder or water spray.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
 Store locked up.

Disposal:

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

4 First aid measures

General information Immediately remove any clothing soiled by the product.

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 Seek immediate medical advice.

5 Fire fighting measures**Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

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:

Dilute with plenty of water.
 Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Ensure adequate ventilation.
 Absorb with liquid-binding material.

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:**

Keep container tightly sealed.
 Store in cool, dry place in tightly closed containers.
 Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Substance/product can reduce the ignition temperature of flammable substances.

Storage

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility:

Store away from flammable substances.
 Store away from reducing agents.

Further information about storage conditions:

Keep container tightly sealed.
 Store in cool, dry conditions in well sealed containers.

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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: Not required.

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.

Avoid contact with the eyes and skin.

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:	Solution
Color:	Colorless
Odor:	Odorless

Change in condition

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined

Flash point: Not determined

Ignition temperature: Not determined

Decomposition temperature: Not determined

Explosion limits:

Lower:	Not determined
Upper:	Not determined

Vapor pressure: Not determined

Density: Not determined

Solubility in / Miscibility with

Water: Fully miscible

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:

Reducing agents, easily oxidized materials

Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.

Dangerous reactions

Reacts with reducing agents

Reacts with flammable substances

Dangerous products of decomposition: Hydrogen chloride (HCl)

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:

Lanthanons can cause delayed blood clotting leading to hemorrhages. Exposure may also lead to sensitivity to heat, itching, increased awareness of odor and taste, and liver damage.

Perchlorates are irritating to the skin and mucous membranes.

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Additional toxicological information:

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

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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

13 Disposal considerations**Product:**

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

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

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

14 Transport information**DOT regulations:**

Hazard class: 5.1
Identification number: UN3211
Packing group: II
Proper shipping name (technical name): PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
Label: 5.1

Land transport ADR/RID (cross-border)

ADR/RID class: 5.1 (01) Oxidizing substances
Danger code (Kemler): 50
UN-Number: 3211
Packaging group: II
Description of goods: 3211 PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (terbium perchlorate solution)

Maritime transport IMDG:

IMDG Class: 5.1
UN Number: 3211
Label: 5.1
Packaging group: II
Proper shipping name: PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 5.1
UN/ID Number: 3211
Label: 5.1

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Packaging group:	II
Proper shipping name:	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.

UN "Model Regulation": UN3211, PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S., 5.1, II

15 Regulations**Product related hazard informations:****Hazard symbols:**

Xi Irritant
O Oxidizing

Risk phrases:

8 Contact with combustible material may cause fire.
36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases:

17 Keep away from combustible material.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
27 Take off immediately all contaminated clothing.

National regulations

This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only.

Information about limitation of use: For use only by technically qualified individuals.

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: Zachariah Holt

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)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)

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