

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 06/16/2009

Reviewed on 01/13/2009

**1 Identification of substance:****Product details:****Product name:** 1,4-Dithio-DL-threitol**Stock number:**

A15797

L02165

**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#)**

1,4-Dithio-DL-threitol (CAS# 27565-41-9): 100%

**Identification number(s):****EINECS Number:** 248-531-9**3 Hazards identification****Hazard description:**

Xn Harmful

**Information pertaining to particular dangers for man and environment**

R 22 Harmful if swallowed.

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

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

HEALTH	2
FIRE	1
REACTIVITY	1

Health (acute effects) = 2

Flammability = 1

Reactivity = 1

**GHS label elements**

Danger

3.1/3 - Toxic if swallowed.

3.2/2 - Causes skin irritation.

3.3/2A - Causes serious eye irritation.

3.8/3 - May cause respiratory irritation.

**Prevention:**

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

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

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

**Response:**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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.

Call a POISON CENTER or doctor/physician if you feel unwell.

Specific treatment (see label).

Rinse mouth.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

(Contd. on page 2)

USA

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 06/16/2009

Reviewed on 01/13/2009

**Product name: 1,4-Dithio-DL-threitol**

(Contd. of page 1)

Take off contaminated clothing and wash before reuse.

**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****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**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Sulfur oxides (SOx)

Hydrogen sulfide

**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.

**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.

**Information about protection against explosions and fires:** Keep ignition sources away.**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from air.

Store away from oxidizing agents.

**Further information about storage conditions:**

Store under dry inert gas.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

This product is air sensitive.

Refrigerate

USA

(Contd. on page 3)

**Material Safety Data Sheet**

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Printing date 06/16/2009

Reviewed on 01/13/2009

Product name: 1,4-Dithio-DL-threitol

(Contd. of page 2)

**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.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Powder
<b>Color:</b>	White
<b>Odor:</b>	Unpleasant

**Change in condition**

<b>Melting point/Melting range:</b>	40-43°C (104-109°F)
<b>Boiling point/Boiling range:</b>	125-130°C (257-266°F)
<b>Sublimation temperature / start:</b>	Not determined

<b>Flash point:</b>	> 110°C (> 230°F)
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<b>Ignition temperature:</b>	Not determined
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<b>Decomposition temperature:</b>	Not determined
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<b>Danger of explosion:</b>	Product does not present an explosion hazard.
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**Explosion limits:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

<b>Vapor pressure:</b>	Not determined
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<b>Density:</b>	Not determined
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**Solubility in / Miscibility with**

<b>Water at 20°C (68°F):</b>	1500 g/l
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**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:**

Air

Oxidizing agents

**Dangerous reactions** No dangerous reactions known

**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Sulfur oxides (SO<sub>x</sub>)

Hydrogen sulfide

**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	400 mg/kg (rat)
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(Contd. on page 4)

USA

**Material Safety Data Sheet**

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**Product name: 1,4-Dithio-DL-threitol**

(Contd. of page 3)

**Primary irritant effect:****on the skin:** Irritant to skin and mucous membranes.**on the eye:** Irritating effect.**Sensitization:** No sensitizing effects known.**Other information (about experimental toxicology):**

Mutagenic effects have been observed on tests with laboratory animals.

**Subacute to chronic toxicity:****Subacute to chronic toxicity:**

Thiols/mercaptans are skin, eye and respiratory irritants. Inhalation can cause central nervous system effects. Strong penetrating odor acts to minimize inhalation exposure.

**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.**14 Transport information**

Not a hazardous material for transportation.

**DOT regulations:****Hazard class:** None**Land transport ADR/RID (cross-border)****ADR/RID class:** None**Maritime transport IMDG:****IMDG Class:** None**Air transport ICAO-TI and IATA-DGR:****ICAO/IATA Class:** None**Transport/Additional information:** Not dangerous according to the above specifications.**15 Regulations****Product related hazard informations:****Hazard symbols:**

Xn Harmful

**Risk phrases:**

22 Harmful if swallowed.

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

**Safety phrases:**

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

36/37 Wear suitable protective clothing and gloves.

**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.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

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

USA

(Contd. on page 5)

**Material Safety Data Sheet**

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(Contd. of page 4)

**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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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