

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 04/12/2010

Reviewed on 04/09/2010

**1 Identification of substance:****Product details:****Product name:** Divinyl sulfone**Stock number:** L12827**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#)**

Divinyl sulfone (CAS# 77-77-0)

**Identification number(s):****EINECS Number:** 201-057-6**3 Hazards identification****Hazard description:**

T+ Very toxic

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

R 25 Toxic if swallowed.

R 27 Very toxic in contact with skin.

R 34 Causes burns.

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

HEALTH	4
FIRE	1
REACTIVITY	1

Health (acute effects) = 4

Flammability = 1

Reactivity = 1

**GHS label elements****Danger**

3.1/2 - Fatal if swallowed.

3.1/1 - Fatal in contact with skin.

**Danger**

3.2/1B - Causes severe skin burns and eye damage.

**Prevention:**

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

Do not get in eyes, on skin, or on clothing.

**Response:**

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

IF exposed or if you feel unwell:

Immediately call a POISON CENTER or doctor/physician.

**4 First aid measures****General information**

Immediately remove any clothing soiled by the product.

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**

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)

Danger of containers bursting upon heating.

**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:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

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:**

Keep container tightly sealed.

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:** Refrigerate

**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Do not store together with acids.

Store in the dark.

Protect from heat.

**Further information about storage conditions:**

Keep container tightly sealed.

Protect from exposure to light.

Refrigerate

**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

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**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.

Avoid contact with the eyes and skin.

**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

Tightly sealed goggles

Full face protection

**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Liquid
<b>Color:</b>	Colorless Yellow
<b>Odor:</b>	Not determined

**Change in condition**

<b>Melting point/Melting range:</b>	-26°C (-15°F)
<b>Boiling point/Boiling range:</b>	233-234°C (451-453°F)
<b>Sublimation temperature / start:</b>	Not determined

**Flash point:** 102°C (216°F)**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:**

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

**Vapor pressure:** Not determined**Density at 20°C (68°F):** 1.177 g/cm<sup>3</sup>**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.

Danger of containers bursting upon heating.

**Stable until:** Depletion of inhibitor.**Materials to be avoided:**

Oxidizing agents

Ultraviolet radiation

Free radical initiators

Acids

**Dangerous reactions**

Danger of polymerization

Spontaneous polymerization can be caused in unstabilized product e.g. by ambient heat

**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

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

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**Additional information:**

Unless inhibited, the product can polymerize resulting in a temperature and pressure increase that may rupture the container.

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

Oral	LD50	32 mg/kg (rat)
Dermal	LD50	26 mg/kg (rabbit)
Inhalative	LCLo/10M	990 mg/m3 (mouse)
Irritation of skin	severe	2 mg/24H (rabbit)
Irritation of eyes	severe	5 mg/24H (rabbit)

**Primary irritant effect:**

**on the skin:** Corrosive effect on skin and mucous membranes.

**on the eye:** Strong corrosive effect.

**Sensitization:** No sensitizing effects known.

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

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Skin and Appendages - primary irritation (after topical exposure).

Behavioral - somnolence (general depressed activity).

Behavioral - tremor.

**Subacute to chronic toxicity:**

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

**Additional toxicological information:**

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

Danger through skin absorption.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

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

**12 Ecological information:****Additional ecological information:****General notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

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:**

6.1

**Identification number:**

UN2927

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**Product name:** Divinyl sulfone

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**Packing group:** I  
**Proper shipping name (technical name):** TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Divinyl sulfone)  
**Label** 6.1+8

**Land transport ADR/RID (cross-border)**

**ADR/RID class:** 6.1 (TC1) Toxic substances  
**Danger code (Kemler):** 668  
**UN-Number:** 2927  
**Packaging group:** I  
**Description of goods:** 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Divinyl sulfone)

**Maritime transport IMDG:**

**IMDG Class:** 6.1  
**UN Number:** 2927  
**Label** 6.1+8  
**Packaging group:** I  
**Marine pollutant:** No  
**Proper shipping name:** TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Divinyl sulfone)

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 6.1  
**UN/ID Number:** 2927  
**Label** 6.1+8  
**Packaging group:** I  
**Proper shipping name:** TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Divinyl sulfone)

**UN "Model Regulation":** UN2927, TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S., 6.1 (8), I

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

T+ Very toxic

**Risk phrases:**

25 Toxic if swallowed.

27 Very toxic in contact with skin.

34 Causes burns.

**Safety phrases:**

20 When using do not eat or drink.

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

27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

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

**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.

Some or all of the components of this product are not listed on the Canadian Domestic Substances List (DSL) or the Canadian Non-Domestic Substances List (NDSL).

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**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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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