

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 04/29/2008

Reviewed on 03/12/2008

1 Identification of substance:

Product details:

Product name: Toluene-2,6-diisocyanate

Stock number: L12745

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#)

Toluene-2,6-diisocyanate (CAS# 91-08-7): 100%

Identification number(s):

EINECS Number: 202-039-0

EU Number: 615-006-00-4

3 Hazards identification

Hazard description:



T+ Very toxic

Information pertaining to particular dangers for man and environment

R 26 Very toxic by inhalation.
 R 36/37/38 Irritating to eyes, respiratory system and skin.
 R 40 Limited evidence of a carcinogenic effect.
 R 42/43 May cause sensitization by inhalation and skin contact.
 R 52/53 Harmful 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	3
FIRE	1
REACTIVITY	1

Health (acute effects) = 3

Flammability = 1

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.

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

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

Nitrogen oxides (NOx)

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).

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.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

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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 oxidizing agents.

Further information about storage conditions:

Keep container tightly sealed.

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:

Toluene-2,6-diisocyanate

ACHIH TLV	0.005 ppm, 0.02 ppm-STEL
Norway TWA	0.005 ppm
Poland TWA	0.005 ppm, 0.01 ppm-STEL
Switzerland MAK-W	0.005 ppm, 0.01 ppm-KZG
Netherlands MAC-TGG	0.04 mg/kg
Austria MAK	0.005 ppm
Denmark TWA	0.005 ppm

Components with limit values that require monitoring at the workplace:**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.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Protection of hands:

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

Impervious gloves

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.

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9 Physical and chemical properties:

General Information	
Form:	Liquid
Color:	Colorless Pale yellow
Odor:	Not determined
Change in condition	
Melting point/Melting range:	13°C (55°F)
Boiling point/Boiling range:	246-247°C (475-477°F)
Sublimation temperature / start:	Not determined
Flash point:	> 110°C (> 230°F)
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):	1.226 g/cm ³
Solubility in / Miscibility with Water:	Hydrolyzes

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

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition:

Carbon monoxide and carbon dioxide

Nitrogen oxides

11 Toxicological information

Acute toxicity:

Primary irritant effect:

on the skin: Irritant to skin and mucous membranes.

on the eye:

Irritating effect.

Lachrymatory effect.

Sensitization:

Sensitization possible through inhalation.

Sensitization possible through skin contact.

Other information (about experimental toxicology):

Mutagenic effects have been observed on tests with bacteria.

Mutagenic effects have been observed on tests with laboratory animals.

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

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

Sense Organs and Special Senses (Olfaction) - effect, not otherwise specified.

Sense Organs and Special Senses (Eye) - effect, not otherwise specified.

Lungs, Thorax, or Respiration - other changes.

Additional toxicological information:

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

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

12 Ecological information:**Ecotoxicological effects:**

Remark: Harmful to fish

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.

Harmful to aquatic organisms

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**DOT regulations:****Hazard class:**

6.1

Identification number:

UN2078

Packing group:

II

Proper shipping name (technical name):

TOLUENE DIISOCYANATE

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Label 6.1**Land transport ADR/RID (cross-border)**

ADR/RID class: 6.1 (T1) Toxic substances
Danger code (Kemler): 60
UN-Number: 2078
Packaging group: II
Description of goods: 2078 TOLUENE DIISOCYANATE

Maritime transport IMDG:

IMDG Class: 6.1
UN Number: 2078
Label 6.1
Packaging group: II
Proper shipping name: TOLUENE DIISOCYANATE

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 6.1
UN/ID Number: 2078
Label 6.1
Packaging group: II
Proper shipping name: TOLUENE DIISOCYANATE

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

T+ Very toxic

Risk phrases:

26 Very toxic by inhalation.
 36/37/38 Irritating to eyes, respiratory system and skin.
 40 Limited evidence of a carcinogenic effect.
 42/43 May cause sensitization by inhalation and skin contact.
 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

23 Do not breathe gas
 36/37 Wear suitable protective clothing and gloves.

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- 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.

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.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

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: Paul V. Connolly