DIETHYL SULFATE

0570
March 1999

CAS No: 64-67-5
RTECS No: WS7875000
UN No: 1594
EC No: 016-027-00-6

Sulfuric acid diethyl ester
DES
$C_4H_{10}O_4S$ / $(C_2H_5)_2SO_4$
Molecular mass: 154.2

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
FIRE	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames.	Powder, water spray, foam, carbon dioxide.
EXPLOSION			
EXPOSURE		**AVOID ALL CONTACT!**	**IN ALL CASES CONSULT A DOCTOR!**
Inhalation	Cough. Laboured breathing. Shortness of breath. Sore throat. Symptoms may be delayed (see Notes).	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Half-upright position. Refer for medical attention.
Skin	Redness. Serious skin burns. Pain.	Protective gloves. Protective clothing.	First rinse with plenty of water, then remove contaminated clothes and rinse again. Refer for medical attention.
Eyes	Redness. Pain. Blurred vision. Severe deep burns.	Face shield, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion	Abdominal pain. Burning sensation. Nausea. Sore throat.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Do NOT induce vomiting. Give nothing to drink. Refer for medical attention.

SPILLAGE DISPOSAL

Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: complete protective clothing including self-contained breathing apparatus).

PACKAGING & LABELLING

EU classification
T Symbol
R: 45-46-20/21/22-34
S: 53-45
Note: E
UN classification
UN Hazard Class: 6.1
UN Pack Group: II

Do not transport with food and feedstuffs.

EMERGENCY RESPONSE

Transport Emergency Card: TEC (R)-61G16b
NFPA Code: H3; F1; R1

SAFE STORAGE

Separated from food and feedstuffs. Dry. Well closed. Keep in a well-ventilated room.

IPCS
International Programme on Chemical Safety

Prepared in the context of cooperation between the International Programme on Chemical Safety and the European Commission

SEE IMPORTANT INFORMATION ON THE BACK.

IMPORTANT DATA

Physical State; Appearance
OILY COLOURLESS LIQUID, WITH CHARACTERISTIC ODOUR. TURNS BROWN ON EXPOSURE TO AIR.

Chemical dangers
The substance decomposes on heating producing flammable and toxic fumes.

Occupational exposure limits
TLV not established.
MAK: Carcinogen category: 2; Germ cell mutagen group: 2 (DFG 2006).

Routes of exposure
The substance can be absorbed into the body by inhalation, and by ingestion.

Inhalation risk
Evaporation at 20/C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

Effects of short-term exposure
The substance irritates the eyes, the skin and the respiratory tract. Inhalation of the aerosol may cause lung oedema (see Notes). The effects may be delayed. Medical observation is indicated.

Effects of long-term or repeated exposure
This substance is probably carcinogenic to humans. May cause heritable genetic damage in humans.

PHYSICAL PROPERTIES

Boiling point (decomposes): 209/C
Melting point: -25/C
Relative density (water = 1): 1.2
Solubility in water, g/100 ml at 25/C: 0.7 (poor)
Vapour pressure, Pa at 20/C: 20
Relative vapour density (air = 1): 5.3
Relative density of the vapour/air-mixture at 20/C (air = 1): 1.001
Flash point: 104/C c.c.
Auto-ignition temperature: 436/C
Explosive limits, vol% in air: 4.1-?
Octanol/water partition coefficient as log Pow: 1.14

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms.

NOTES

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential.
Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.
Rinse contaminated clothes (fire hazard) with plenty of water.
Card has been partially updated in August 2007: see Occupational Exposure Limits.

ADDITIONAL INFORMATION