



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont
Material Safety Data Sheet

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AGENT 1
E1001709 Revised 31-MAY-2007

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Grade : RESEARCH & DEVELOPMENT USE ONLY

Tradenames and Synonyms

A 10846; DELTAN; DEMESO; DEMASORB; DEMAVET; DEMSODROX;
DIMETYL SULFOXIDE; DIMETHYL SULPHOXIDE; DIMEXIDE;
DIPIRARTRIL-TROPICO; DMS-70; DMS-90; DMSO; DOLICUR; DOMOSO;
DROMISOL; DURASORB; GAMASOL 90; HYADUR; INFILTRINA; M 176;
METHANE, SULFINYLBI-; METHYLSULFINYLMETHANE; NSC-763;
RIMSO-50; SOMIPRONT; SQ 9453; SULFINYLBI(METHANE); SYNTEXAN;
TOPSYM

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont/Qualicon Inc.
Experimental Station
Building 400
Rt.141 and Henry Clay Road
Wilmington, DE 19880

PHONE NUMBERS

Product Information : 1-(800)441-7515
Transport Emergency : CHEMTREC: 1-800-424-9300
Medical Emergency : 1-(800)441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
Dimethylsulfoxide	67-68-5	100

Components (Remarks)

This material is a RESEARCH AND DEVELOPMENT chemical and has not been tested to determine the physical, chemical, or toxicological properties. Therefore, this chemical should be treated as a hazardous material and this Material Safety Data Sheet is provided to assist the laboratory personnel in handling the substance safely.

HAZARDS IDENTIFICATION

Emergency Overview

Combustible. Readily absorbed through skin. Target organ(s): Eyes. Skin.

Potential Health Effects

Unknown. This sample is for RESEARCH AND DEVELOPMENT purposes only. As the chemical's physical and toxicological properties have not been fully tested, this material should be handled AS A HAZARDOUS CHEMICAL and only by technically qualified persons using good industrial hygiene practices to prevent ANY exposure.

Skin contact may initially include skin irritation with discomfort or rash. Skin permeation can occur in amounts capable of producing the effects of systemic toxicity. Readily absorbed through the skin.

Eye contact may cause eye irritation with discomfort, tearing, or blurring of vision.

Inhalation: may be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

Ingestion: may be harmful if swallowed.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

EYE CONTACT

(FIRST AID MEASURES - Continued)

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

Call a physician immediately.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : 87 C (189 F)
Method : Closed Cup.
Autoignition : 301 C (574 F)

Explosion Limits : 3.5% Lower
: 42% Upper

The fire and explosion potential has not been investigated. Therefore, handle the material as if it were a fire and explosion hazard.

Extinguishing Media

Alcohol Resistant Foam, Dry Chemical, CO2.

For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Fire Fighting Instructions

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

Initial Containment

Prevent material from entering sewers, waterways, or low areas.

(ACCIDENTAL RELEASE MEASURES - Continued)

Spill Clean Up

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

HANDLING AND STORAGE

Handling (Personnel)

Do not breathe vapor or mist. Do not get in eyes, on skin or clothing. Wash thoroughly after handling. Wash clothing after use. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

Avoid contact with DMSO solutions containing toxic materials or materials with unknown toxicological properties. DMSO is readily absorbed through the skin and may carry such materials into the body. Avoid prolonged or repeated exposure.

Storage

Store in a well ventilated place. Keep container tightly closed. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material. Store in a clean, dry place. Keep away from heat, sparks and flames.

SPECIAL REQUIREMENTS

Store under inert gas. Hygroscopic

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

Personal Protective Equipment

EYE/FACE PROTECTION: Wear safety glasses with side shields. Wear full face protection when handling in a non-enclosed system or when the possibility exists for eye and face contact.

RESPIRATORS: If this material is not used in a chemical fume hood, wear a NIOSH-approved air purifying respirator or positive pressure air-supplied respirator where there is a potential for inhalation exposure.

PROTECTIVE CLOTHING: Wear impervious clothing such as gloves, whole bodysuit, apron, or boots, as appropriate. Consult the site safety professional for additional guidance, as needed.

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

Exposure Guidelines

Applicable Exposure Limits

Dimethylsulfoxide

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 10 ppm, 8 Hr. TWA, Skin
WEEL (AIHA)	: 250 ppm, 8 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Form	: Liquid.
Color	: Colorless.
Boiling Point	: 189 C (372 F)
Melting Point	: 18.4 C (65.1 F)
Specific Gravity	: 1.1 g/cm ³
Vapor Density	: 0.42 mm Hg 20 C (68 F)
Vapor Density	: 2.7 g/L

Viscosity	: 0.002 Pas 20 C
Solubility in H ₂ O	: Miscible
Other Solvents	: Alcohols, Ethyl Ethers
Partition Coefficient Log Kow	: -2.030

STABILITY AND REACTIVITY

Decomposition

Decomposition temperature: >190 C (>374 F)

Other Hazards

The hazardous reactivity of this material is unknown. DO NOT mix with other materials unless specifically instructed to do so under the guidance of a trained chemist. DO NOT expose to heat, flame, or extreme temperatures.

TOXICOLOGICAL INFORMATION

Animal Data

Inhalation LC50: 40,250 ppm in rats
Skin absorption LD50: > 5000 mg/kg in rabbits
Oral LD50: 3300 mg/kg in rats

The compound is a mild skin irritant, a slight eye irritant, but is not a skin sensitizer in animals.

Inhalation: Toxic effects described in animals from single inhalation exposures include slight eye and nose irritation, pulmonary edema, and alteration of serum clinical chemical parameters. Repeated inhalation exposures to higher concentrations demonstrated no adverse changes.

Skin: Toxicity described in animals from single dermal exposure include an alteration of a serum enzyme, while repeated exposures resulted in other changes in clinical chemical parameters, dry scaly skin, and ocular changes. Longer term studies also resulted in ocular changes.

Ingestion: Single exposure by oral administration resulted in increased serum blood sugar. Repeated and long term oral administration caused liver changes and decreased body and organ weights; ocular effects were observed in rodents but no ocular effects were observed in studies on monkeys and humans. Long term oral administration also caused some kidney changes.

Tests in animals demonstrate no carcinogenic activity. Tests in some animals indicate that the compound may have developmental toxicity at very high doses.

In female mice administered up to 10,000 mg/kg/day of DMSO while being paired with untreated male mice, only about half became pregnant versus 100% pregnancy in controls. The difference in pregnancy rate might be explained by the "garlic odor" associated with the DMSO-treated mice. The authors speculate that the odor may interfere in the sexual attractiveness of the DMSO-treated female mice. Limited information available indicates it does not affect fertility.

In a few cell cultures systems, the compound has produced some chromosomal abnormalities. Currently available animal data indicate that this compound does not cause permanent genetic damage in reproductive cells of mammals (does not cause heritable genetic damage).

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity

96 hour LC50 - Fathead minnows: 34,000 mg/L

96 hour LC50 - Rainbow trout: 35,000 mg/L

EC50 - Daphnia pulex: 27,500 mg/L

96 hour EC50 - Algae: > 400,000 mg/L
-----DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

-----TRANSPORTATION INFORMATION

Shipping Information

DOT

Proper Shipping Name : Combustible Liquid, n.o.s.

Hazard Class : COMBUSTIBLE LIQUID

I.D. No. (UN/NA) : NA1993

Packing Group : III

IATA

Non-hazardous for Air Transport: Non-hazardous for Air Transport
-----OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health : 0

Flammability : 2

Reactivity : 1

NPCA-HMIS Rating

Health : 0

Flammability : 2

Reactivity : 1

(Continued)

Additional Information

This material is for RESEARCH AND DEVELOPMENT USE ONLY. It is being supplied under the exemption for research and development under the Toxic Substances Control Act (TSCA) and/or the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Commercial use of this material is a violation of Federal law.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : Product Safety Coordinator
Address : Experimental Station, Bldg. 400
Rt. 141 and Henry Clay Road
Wilmington, DE 19880
Telephone : 302-695-5300

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS