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Revision Number 6

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

Product Name Dimethyl Sulfoxide (DMSO)
Product Code(s) 0231
Recommended Use For Further Manufacturing Use Only
Not for Human or Animal Drug Use
Synonyms A 10846 * DELTAN * DEMESO * DEMASORB * DEMAVET * DEMSODROX *DERMASORB * DIMETHYL 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 * SULFINYLBIS(METHANE) * SYNTEXAN * TOPSYM *

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2. HAZARDS IDENTIFICATION

GHS - Classification

Classification Skin Irritant 2 Eye Irritant 2 Flammable Liquid 4
Signal Word Warning



Hazard Statements H227 - Combustible liquid H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation

Precautionary Statements P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P352 - IF ON SKIN: Wash with plenty of soap and water P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No	Weight %	Classification
Dimethyl sulfoxide	EEC No. 200-664-3	Not available	67-68-5	95-100	-

4. FIRST AID MEASURES

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin Contact Readily permeates skin: substances mixed with DMSO may be quickly absorbed. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation Move to fresh air in case of accidental inhalation of vapors or decomposition products. Apply artificial respiration if victim is not breathing.

Ingestion Clean mouth with water and afterwards drink plenty of water.

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable Properties Combustible liquid.

Flash Point 89 °C / 192 °F

Suitable Extinguishing Media Dry chemical, CO2, water spray or regular foam.

Hazardous Combustion Products Carbon oxides, Sulfur oxides.

Explosion Data

Sensitivity to Mechanical Impact	Not sensitive.
Sensitivity to Static Discharge	Not sensitive.

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Avoid contact with skin, eyes and clothing. Use personal protective equipment. Ensure adequate ventilation.

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete. Use non-sparking tools and equipment.

7. HANDLING AND STORAGE

Handling Handle in accordance with good industrial hygiene and safety practice. Hygroscopic. Light Sensitive. Heat Sensitive.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Hygroscopic. Protect from light and moisture.

Incompatible Products Acid chlorides. Strong acids. Strong oxidizing agents. Strong reducing agents. Phosphorus halides.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Personal Protective Equipment

Eye/Face Protection

Safety glasses with side-shields.

Skin and Body Protection

Wear protective gloves/clothing.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear Colorless
Odor	No information available
Odor Threshold	No information available
Decomposition Temperature °C	No information available
Freezing Point	No information available
Initial Boiling Point	No information available
Physical State	Liquid
pH	No data available
Flash Point	192 °F / 89 °C
Flammable Properties	Combustible liquid.
Autoignition Temperature	301 °C
Boiling Point/Range	189 °C
Melting Point/Range	18 °C
Flammability Limits in Air	Upper No data available Lower No data available
Explosive Properties	No information available
Oxidizing Properties	No information available
Evaporation Rate	No data available
MMHG @ 37.8 C	No data available
Vapor Density	No data available
Specific Gravity	1.1
Density	2.7
Solubility	Soluble
Partition Coefficient (n-octanol/water)	No data available
Viscosity	No information available

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions.
Incompatible Products	Acid chlorides. Strong acids. Strong oxidizing agents. Strong reducing agents. Phosphorus halides.
Conditions to Avoid	Hygroscopic. Protect from heat and light.
Hazardous Decomposition Products	Carbon oxides. Sulfur oxides.
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information Irritating to eye, skin and respiratory system. Readily permeates skin: substances mixed with DMSO may be quickly absorbed.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Dimethyl sulfoxide	14500 mg/kg (Rat)	40 g/kg (Rat)	

Chronic Toxicity

Chronic Toxicity No known effect based on information supplied.

Target Organ Effects Eyes, Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Dimethyl sulfoxide	EC50 12350 - 25500 mg/L 96 h	LC50 33-37 g/L Oncorhynchus mykiss 96 h LC50= 41.7 g/L Cyprinus carpio 96 h LC50= 34 mg/L Pimephales promelas 96 h LC50> 40 g/L Lepomis macrochirus 96 h		EC50 = 7000 mg/L 24 h
Chemical Name Dimethyl sulfoxide			Log Pow = -2.03	

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method Dispose of material in accordance with all federal, state, and local regulations.

Contaminated Packaging Dispose of in accordance with all federal, state and local regulations.

14. TRANSPORT INFORMATION

IATA Not regulated

DOT Not regulated

15. REGULATORY INFORMATION

REACH Title VII Restrictions No information available.

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on the Label	Pollution Release and Transfer Registry (Class II):	Pollution Release and Transfer Registry (Class I):	Poison and Deleterious Substances Control Law:
Dimethyl sulfoxide	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Component	ISHA - Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA - Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) - Toxic Chemicals	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Dimethyl sulfoxide 67-68-5 (95-100)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

International Inventories

TSCA	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Does not Comply
PICCS	Complies
AICS	Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

CERCLA

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Dimethyl sulfoxide		X			

International Regulations

Mexico - Grade No information available.

Canada

WHMIS Hazard Class

B3 Combustible liquid

D2B Toxic materials



16. OTHER INFORMATION

Issuing Date 01-May-2009

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Revision Note
No information available

Recommended Restrictions No information available

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS