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MATERIAL SAFETY DATA SHEET

1 . PRODUCT AND MANUFACTURE

Product Name: Dimethyl Sulfoxide, Dimethyl sulphoxide
Chemical Name: Dimethyl Sulfoxide
Molecular Formula: (CH3)2SO
Molecular Weight: 78.13

2 . COMPOSITION INGREDIENTS

Materials: Dimethyl Sulfoxide
CAS No.: 67-68-5

3 . HAZARDS INDENTIFICATION

WARNING! COMBUSTIBLE LIQUD AND VAPOR
PHYSICAL APPEARANCE: Clear liquid
ODOR: Essentially odorless
EFFECTS OF OVEREXPOSURE:
General:
Dimethyl Sulfoxide has shown very few toxic symptoms in humans. The most common are nausea, skin rashes and an unusual garlic-onion-oyster smell on body and breath.
Inhalation:
High vapor concentrations may cause headache, dizziness, and sedation.
Eyes:
Low hazard for usual industrial handling or chemical handling by trained personel.
Skin:
Stinging and burning of the skin as well as rashes and vesicles have been seen. A heat reaction may occur if applied to wet skin. Avoid contact with DMSO solutions containing toxic material or materials whose toxicological properties are not known since DMSO may penetrate the skin under certain conditions and may carry such materials into the body.
Ingestion: Expected to be a low ingestion hazard.

4 . FIRST AID MEASURES

NOTE:
Never give fluids or induce vomiting if patient is unconscious or is having convulsions.
General Advice:
Remove contaminated clothing promptly (launder before reuse).
Skin Contact:
Wash contaminated skin with water. See a doctor if irritation persists.
Ingestion: Do not induce vomiting. Do following the doctor’s advise
Inhalation:
Remove the victim to fresh air. If breathing has stopped, provide artificial respiration. Keep the victim warm and take the patient to hospital.

5 . FIRE-RIGHTING MEASURES

Combustible Liquid
Flash Point and Method:
89℃(192℉) closed cup
95℃(203℉)open cup
Flammable Limits (% in air):
LEL: 3.0-3.5% by volume
UEL: 42-63% by volume

Auto ignition Temperature: 300-302℃(572-575℉)

Extinguishing Media: Foam, carbon dioxide, dry powder, water spray.

Special Protective Equipment for Fire-fighters: wear a self contained breathing apparatus.

Special Exposure Hazards:

Burning dimethyl sulfoxide produces poisonous gases (sulfur oxides). Wear gloves, self-contained breathing apparatus, and rubber suit.

Spill, Leak, or Release:

Note: Review sections 3, 4, and 5 of this MSDS before proceeding with clean up. Use appropriate personal protective equipment during clean up.

6 . ACCIDENTAL RELEASE MEASURES

Personal Precautions:

In case of mist formation use a respirator.

Environmental Precautions:

If a spill or leak occurs, immediately consult the environmental supervisor. Remove ignition sources. Ventilate the area. Do not breathe the vapor or

get liquid in eyes or on skin/clothing.

Spill Clean-up Methods: Waterways.

7 . HANDLING AND STORAGE

Usage/Handling Precautions:

Keep away from sources of ignition. Do not smoke. Do not breathe vapor or mist. Avoid contact with skin, eyes, or clothing.

Storage Precautions:

Keep container tightly closed in a well ventilate place. Freezes (solidifies) at 18.3℃(65℉).

8 . EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation:

Good general ventilation (typically 10 air changes per hour) should be matched to conditions. Use process enclosures, local exhaust ventilation,

or other engineering controls to maintain ventilation.

Respiratory Protection:

In case of mist formation use a respirator. Respirator type: organic vapor.

Eye Protection:

Tightly fitting safety goggles.

Recommended Decontamination Facilities:

Eye bath, washing facilities.

9 . PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: liquid

Color: colorless

Odor: essentially odorless

Odor Threshold: not available

Specific Gravity: 1.101 at 20℃(68℉)(water=1)

Vapor Pressure: 0.55 mbar (0.46 mmHg) @ 20℃(68℉)

Vapor Density (Air=1): 2.7

Evaporation Rate (n-butyl acetate=1): 0.026

Melting Point: 18.3℃(65℃)

Viscosity at 25℃ (77℉): 1.98CPS

Solubility in water at 20℃: miscible

Octanol/Water Partition Coefficient: logP=-1.35

Sensitivity to Static Discharge:

Material is unlikely to accumulate a static charge which could act as an

ignition source.

Flash point and method:

89℃ (192℉) closed cup

95℃ (203℉) open cup

Flammable Limits (in air):

LEL: 3.0-3.5 % by volume

UEL: 42-63 % by volume

Auto-ignition Temperature: 300-302℃ (572-575℉)

10. STABILITY AND REACTIVITY

Stability: Stable

Conditions to avoid: Prolonged heating above 150℃

Materials to avoid:

Organic and inorganic acid chlorides, strong oxidizing agents, alkali metals, hydrobromic acid, acidic solutions of alkali bromides.

Hazardous Decomposition Products:

Sulfur dioxide, formaldehyde, methyl mercaptan, dimethyl sulfide, dimethyl disulfide.

Hazardous Polymerization: will not occur.

11. TOXICOLOGICAL INFORMATION

Data for Dimethyl Sulfoxide:

Acute Toxicity Data:

Oral LD-50 (male rat): 14,500-28,300 mg/kg

Inhalation (rat): No mortality rate @ 2,900 mg/m3(900ppm)/24hrs

Dermal LD-50 (rat): 40,000 mg/kg

Skin Irritation (human): Mild

Repeated Skin Application (human): Slight irritation

Subchronic Toxicity Data:

Oral Study (13 weeks, rat):

LOEL (lowest observed effect level)=8,800 mg/kg/day

Minor target organ effects: liver

Reduced body weight gain: NOEL (no observed effect level)=1,100 mg/kg/day

Inhalation Study (6 weeks, rat): NOEL=60ppm

12. ECOLOGICAL INFORMATION

Introduction:

This environmental effect summary is written to assist in addressing emergencies created by an accidental spill which might occur during shipment or handling of this material. It is not meant to address discharges to sanitary sewers or publicly owned treatment works.

Aquatic Toxicity:

The LC50 (96 hrs) for ten species of fish range from 32,500 to 43,000 ppm. The LC50 for two species of protozoans is 32,000 and 38,000 ppm. The concentration required to inhibit growth (EC50) for five species of blue-green algae and one green algae species ranged from 0.4 to 4.0%. DMSO is non-bio-accumulating since the log of the octanol/water partition coefficient is –1.35.

Phytotoxicity:

Soaking tomato, cucumber, and bean seeds for 18hrs in up to 8% DMSO solutions had no effect on germination rate. DMSO has no effect on the growth rate of corn when sprayed on at rates up to 136L/acre. When diluted with a large amount of water, release of DMSO, directly or indirectly, to the environment is not expected to have significant effect.

Biological Oxygen Demand:

Theoretical Oxygen Demand at 10ppm: 123mg oxygen

Chemical Oxygen Demand at 10ppm: 107mg/l

Biological Oxygen Demand-5 at 10ppm: <1.0mg/l

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Water Disposal:

Dilute and flush to an approved wastewater treatment system. Bacterial decomposition of dimethyl sulfoxide during wastewater treatment can result in the release of dimethyl sulfide (a volatile substance with a strong disagreeable odor). Waste DMSO can also be incinerated in an approved furnace where permitted. Consult the center or local authorities for proper disposal procedures. Should be transported/delivered using a registered waste carrier for recycling or waste disposal in accordance with local regulations.

14. TRANSPORT INFORMATION

Bulk (20.5MTS/container)
Proper Shipping Name: None
Hazards Class: None
I.D. No.: None
Packing Group: None
Report Quantity: N/A
Label(s): None
Quantity Limitations: None
Drum (≤18.4MTS per container, 80 drums/container; 200kg/drum, or 225kg/drum, or 230kg/drum)
Proper Shipping Name: Dimethyl Sulfoxide
Hazard Class: None
I.D. No.: None
Packing Group: None

ICAO-International Civil Aviation Organization Status: unregulated
IATA-International Air Transport Agency Status: unregulated
IMDG-International Marine Dangerous Goods Status: unregulated

15. REGULATORY INFORMATION

WHMIS (Canada) Ingredient Disclosure List: Listed
WHMIS9 (Canada) Status: Regulated
WHMIS (Canada) Hazard Classification: None
IARC-International Agency for Research on Cancer Carcinogenicity Classification (Components present at 0.1% or more): Not listed
ATP-American Toxicology Program: Listed
TSCA-US Toxic Substance Control Act: Listed
EINEC-European Inventory of Existing Commercial Chemical Substances: Listed
AIC-Australian Inventory of Chemical Substances: Listed
Japanese Handbook of Existing and New Chemical Substances: Listed

16. OTHER INFORMATION

REFERENCE：NOT AVAILABLE
OTHER SPECIAL CONSIDERATION： NOT AVAILABLE
We believe that the information contained herein is current as of the date of this material safety data sheet,since the use of this information and of these opinions and the conditions of the use of the product are not within the control of Beijing Jp international,it is the user's obligation to determine the conditions of safe use of the product. Under IMO standard, DMSO is indentified as NON/Dangerous goods.