

081-4 DIMETHYL SULFOXIDE

000000011358

Version 2.5

Revision Date 08/12/2014

Print Date 02/25/2016

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Dimethyl Sulfoxide

MSDS Number : 000000011358

Product Use Description : Solvent

Manufacturer or supplier's details : Honeywell International Inc.
115 Tabor Road
Morris Plains, NJ 07950-2546

For more information call : 1-800-368-0050
+1-231-726-3171
(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : **Medical: 1-800-498-5701 or +1-303-389-1414**
: **Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
:
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid

Color : colourless

Odor : garlic/onion

Classification of the substance or mixture

Classification of the substance or mixture : Flammable liquids, Category 4

GHS Label elements, including precautionary statements

Signal word : Warning

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Hazard statements : Combustible liquid

Precautionary statements : **Prevention:**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Wear protective gloves/ eye protection/ face protection.

Response:
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:
Store in a well-ventilated place. Keep cool.

Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified : May cause eye and skin irritation.

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C₂H₆OS

Chemical nature : Substance

Chemical Name	CAS-No.	Concentration
Dimethyl sulfoxide	67-68-5	100.00 %

SECTION 4. FIRST AID MEASURES

Inhalation : Remove to fresh air. If not breathing, give artificial respiration.

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If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician if irritation develops or persists.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician if irritation develops or persists.

Ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician.

Notes to physician

Treatment : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Carbon dioxide (CO2)
Dry chemical
Foam
Cool closed containers exposed to fire with water spray.

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during firefighting : Combustible.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashback to vapor source.
In case of fire hazardous decomposition products may be produced such as:
Formaldehyde
Methyl mercaptan
Sulfur dioxide
Carbon dioxide (CO2)
Carbon monoxide

Special protective equipment : Wear self-contained breathing apparatus and protective suit.

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for firefighters

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : Wear personal protective equipment.
Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Ensure adequate ventilation.
Remove all sources of ignition.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
Prevent product from entering drains.
Discharge into the environment must be avoided.
Do not flush into surface water or sanitary sewer system.
Do not allow run-off from fire fighting to enter drains or water courses.
- Methods for cleaning up : Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

- Handling : Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Do not smoke.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.
- Advice on protection against fire and explosion : Keep away from fire, sparks and heated surfaces.
Take precautionary measures against static discharges.

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Ensure all equipment is electrically grounded before beginning transfer operations.

Use explosion-proof equipment.

Keep product and empty container away from heat and sources of ignition.

No sparking tools should be used.

No smoking.

Storage

Requirements for storage areas and containers : Store in area designed for storage of flammable liquids.
Protect from physical damage.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep away from heat and sources of ignition.
Keep away from direct sunlight.
Store away from incompatible substances.
Container hazardous when empty.
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Engineering measures : Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during and after use.

Eye protection : Do not wear contact lenses.
Wear as appropriate:
Safety glasses with side-shields
If splashes are likely to occur, wear:
Goggles or face shield, giving complete protection to eyes

Hand protection : Solvent-resistant gloves
Gloves must be inspected prior to use.
Replace when worn.

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- Skin and body protection : Wear as appropriate:
Solvent-resistant apron
Flame retardant antistatic protective clothing
If splashes are likely to occur, wear:
Protective suit
- Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.
Use NIOSH approved respiratory protection.
- Hygiene measures : When using, do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
Keep working clothes separately.
Remove and wash contaminated clothing before re-use.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Dimethyl sulfoxide	67-68-5	TWA : time weighted average	(250 ppm)	2007	WEEL:US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state : liquid
- Color : colourless
- Odor : garlic/onion
- pH : Note: not applicable
- Melting point/freezing point : 18.5 °C

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Boiling point/boiling range : 189 °C

Flash point : 190 °F (88 °C)
Method: closed cup

Lower explosion limit : 2 %(V)

Upper explosion limit : 42 %(V)

Vapor pressure : 0.61 hPa
at 20 °C(68 °F)

Vapor density : 2.7

Density : 1.1004 g/cm³ at 20 °C
1.0954 g/cm³ at 25 °C

Water solubility : Note: soluble

Ignition temperature : 215 °C

Molecular weight : 78.13 g/mol

SECTION 10. STABILITY AND REACTIVITY

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous : Hazardous polymerisation does not occur.

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reactions

Incompatible materials to
avoid

: Oxidizing agents
Strong acids
Reducing agents
Alkali metals
Boron compounds
Plastics
Metal salts of oxoacids
Acyl halides
Aryl halides
Non metal halides
Methyl bromide
Non-metallic chlorides
Active halogen compounds

Hazardous decomposition
products

: Hazardous decomposition products due to incomplete
combustion
Formaldehyde
Sulphur dioxide
Methyl mercaptan
Carbon dioxide (CO₂)
Carbon monoxide

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

: LD₅₀: 14,500 mg/kg
Species: rat

Acute inhalation toxicity

: LC₀: > 5,330 mg/m³
Exposure time: 4 h
Species: rat
Note: No deaths

Acute dermal toxicity

: LD₅₀: 40,000 mg/kg
Species: rat

Skin irritation

: Species: rabbit
Result: slight irritation
Method: OECD Test Guideline 404

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Exposure time: 4 h

Eye irritation : Species: rabbit
Result: slight irritation
Method: OECD Test Guideline 405

Sensitisation : Maximisation Test
Species: guinea pig
Result: Did not cause sensitisation on laboratory animals.

Repeated dose toxicity : Species: rat, male
Application Route: Inhalation
Exposure time: 2 Weeks
No observed adverse effect level: 1100 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Toxicity to fish : flow-through test
LC50: 34,000 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)
Note: static test

: static test
LC50: 40,000 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)
Note: static test

Toxicity to daphnia and other aquatic invertebrates : static test
LC50: 24,600 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

SAFETY DATA SHEET

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Further information on ecology**SECTION 13. DISPOSAL CONSIDERATIONS**

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT UN/ID No. : NA 1993
Proper shipping name : Combustible liquid, n.o.s.
(Dimethyl sulfoxide)
Class CBL
Packing group III
Hazard Labels NONE
Required only for US-DOT Bulk Shipments

TDG Not dangerous goods

IATA Not dangerous goods

IMDG Not dangerous goods

SECTION 15. REGULATORY INFORMATION**Inventories**

US. Toxic Substances : On TSCA Inventory
Control Act

Australia. Industrial : On the inventory, or in compliance with the inventory
Chemical (Notification and
Assessment) Act

Canada. Canadian : All components of this product are on the Canadian DSL.
Environmental Protection
Act (CEPA). Domestic
Substances List (DSL)

Japan. Industrial Safety & : On the inventory, or in compliance with the inventory

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Health Law (ISHL) List

Korea. Toxic Chemical Control Law (TCCL) List : On the inventory, or in compliance with the inventory

Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

SARA 302 Components : SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

California Prop. 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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WHMIS Classification

: B3: Combustible Liquid

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 1	2
Flammability	: 2	2
Physical Hazard	: 0	
Instability	:	0

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group