GORYO CHEMICAL, INC.

February 04, 2015

Material Safety Data Sheet

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

Product name	Dimethylsulfoxide
Product code	IM118B
Company name	Goryo Chemical, Inc.
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2. HAZARDS IDENTIFICATION

GHS classification	WARNING
Hazardous/Non-hazardous Components	
Nocuous	Slightly irritating to the eyes and skin.
Effect on environment	No known significant effects or critical hazards.
Physically and chemical hazards	The product contains no substances which at their given concentration, are considered to be hazardous to health. We recommend handling all chemicals with caution.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Single or mixture	Single product
Compound name	Dimethylsulfoxide
Component	Single component
Chemical formula	$(CH_3)_2SO$
CAS Registry Number	67-68-5

4. FIRST AID MEASURES

Skin contact

・Wash off immediately with plenty of water. If symptoms persist, call a physician.

・If skin stimulates or rash appears, call a physician.

Eye contact

・Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, consult a physician.

・Take off your contact lens when wash with water.

Inhalation

・Move to fresh air. If symptoms persist, consult a physician.

・If feeling bad, call a physician.

Ingestion

・Rinse mouth and throat.

・Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Notes to physician

・Treat symptomatically.

Protection of first-aiders

・A rescuer should wear personal protective equipment, such as rubber gloves and airtight goggles.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Water spray, Alcohol resistance, Powder, Carbon dioxide
Specifically dangerous hazards	May emit hazardous nitrogen oxides and halogen compounds.
Extinguishing method	Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the

surroundings: Remove movable containers if safe to do so.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

- Use personal protective equipment. Keep people away from and upwind of spill/leak.
- Remove ignition source around product.

Environmental precautions

- Prevent product from entering drains.

Methods and materials for containment and cleaning up

- Do not touch spilled material without suitable protection. After material is completely picked up, wash the spill site with soap and water and ventilate the area. Put all wastes in a plastic bag for disposal and seal it tightly. Remove, clean, or dispose of contaminated clothing.

7. HANDLING AND STORAGE

Handling

Technical measures

- Handling is performed in a well-ventilated place.
- Avoid contact with skin, eyes and clothing.
- Wear suitable protective equipment.
- Wash hands and face thoroughly after handling.
- Use a local exhaust if dust or aerosol will be generated.

Advice on safe handling

- Handle in accordance with good industrial hygiene and safety practice.
- Vessel shouldn't be treated violently, such as rolling, shocking or dragging.

Storage

Storage conditions

- Keep container tightly closed. Store in a dark place under -20 degrees Celsius.
- Avoid long storage.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls

Install a closed system or local exhaust. Also install safety shower and eye bath.

Control parameters

Not set up

Personal protective equipment

Respiratory protection	Dust respirator
Hand protection	Protective gloves
Eye protection	Safety glasses.
Skin and body protection	Protective clothing. Protective boots, if the situation requires

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (color/form)	colorless, liquid
Odor	No data available
pH	No data available
Melting point/freezing point	16 – 19 ℃
Boiling Point/Range	189℃
Flash Point	87℃ (closed cup)
Explosive limits	No data available
Lower	3.5% (v)
Upper	42%(v)
Density	1.1 g / mL
Solubility	Water
Molecular weight	78.13

10. STABILITY AND REACTIVITY

Stability	Stable under proper conditions.

Reactivity	No special reactivity has been reported.
Incompatible materials	Strong oxidative reagents, reducing agents
Hazardous Decomposition Products	Nitrogen oxide, Halogenated organics, Carbon monooxide, Carbon dioxide

11. TOXICOLOGICAL INFORMATION

Acute Toxicity	LD50 Oral - rat - 14.500 mg/kg LC50 Inhalation - rat - 4 h - 40250 ppm LD50 Dermal - rabbit - > 5.000 mg/kg
Skin corrosion/irritation	No data available
Serious eye damage/irritation	No data available
Inhalation	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	Carcinogenicity - rat - Oral Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.
Reproduction toxicity	Reproductive toxicity - rat - Intraperitoneal Effects on Fertility: Abortion.
Target Organ Effects	No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity effects	Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 34.000 mg/l - 96 h LC50 - Oncorhynchus mykiss (rainbow trout) - 35.000 mg/l – 96 h
Mobility	No information available.
Biodegradation	No information available
Bioaccumulation	Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Chemical materials

- You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system.
- Dispose of in accordance with local regulations

Polluted vessels and package

- Wash thoroughly before disposal.

14. TRANSPORT INFORMATION

Hazards Class Does not correspond to the classification standard of the United Nations

IATA

Proper shipping name	Not classified as dangerous in the meaning of transport regulations
Hazard Class	No information available
Subsidiary Class	No information available
Packing group	No information available
UN-No	No information available

15. JAPANESE REGULATORY INFORMATION

Not applicable

16. OTHER INFORMATION

- International Chemical Safety Card（ICSC）database in Japanese（National Institute of Health Sciences）

- This MSDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity.
- Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used.
- Some new information or amendments may be added afterwards.

・If the products are to be used far behind the expected time of use or if you have any questions, please feel free to contact us.