


Safety Data Sheet

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

Product name	ZnAF-2
Product code	SK2001-01
Company name	GORYO Chemical, Inc.
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2. HAZARDS IDENTIFICATION

GHS classification	
Classification of the substance or mixture	
PHYSICAL HAZARDS	Classification not possible
HEALTH HAZARDS	
Skin corrosion/irritation	Category 3
Serious eye damage/eye irritation	Category 2B
Specific target organ toxicity	
Repeated exposure	Category 2 (skin, liver, blood)
ENVIRONMENTAL HAZARDS	Classification not possible
Label elements	
Pictograms or hazard symbols	
Signal word	Warning
Hazard statements	Causes mild skin irritation Causes eye irritation May cause damage to organs through prolonged or repeated exposure
Precautionary statements	
Prevention	Wash face, hands and any exposed skin thoroughly after handling
Response	Get medical advice/attention if you feel unwell IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF eye irritation persists: Get medical advice/attention.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Mixture	Mixture
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Chemical Name	CAS No.	Chemical Formula	Content per Vial
Dimethyl Sulfoxide (DMSO)	67-68-5	C ₂ H ₆ OS	280μL
ZnAF-2	—	—	1mg

4. FIRST AID MEASURES

Skin contact	<ul style="list-style-type: none"> Wash off immediately with plenty of water. If symptoms persist, call a physician. If skin stimulates or rash appears, call a physician.
Eye contact	<ul style="list-style-type: none"> 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	Thermal decomposition can lead to release of irritating and toxic gases and vapors.
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.
Protection of fire-fighters	Use personal protective equipment as required

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. 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	Odorless/ Irritating odor faintly
pH	No data available
Melting point/freezing point	18.5 °C (DMSO)
Boiling Point/Range	189 °C (DMSO)
Flash Point	95 °C / 203 °F (DMSO)
Explosive limits	Upper : 42.0 vol% Lower : 2.6 vol% (DMSO)
Vapor pressure	102Pa (25°C) (DMSO)
Vapor density	No data available
Density	1.100-1.105 g/mL (20 °C) (DMSO)
Autoignition temperature	215°C
Decomposition temperature	No data available
Viscosity	2.0 mPa · s (= 2.0 cP) (25°C) (DMSO)

10. STABILITY AND REACTIVITY

Stability	Alerted by light.
Reactivity	Fire and explosion hazard by reacting with strong oxidizing agents
Incompatible materials	Strong oxidizing agents, reducing agents
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Sulfur oxides (SO _x)

11. TOXICOLOGICAL INFORMATION

(Dimethyl sulfoxide)

Acute Toxicity	
Oral LD50	14,500 mg/kg (Rat)
Dermal LD50	N/A
Inhalation LC50	N/A
Skin corrosion/irritation	Rabbit; 500 mg/24H; mild
Serious eye damage/irritation	Rabbit; 500 mg/24H; mild
Respiratory or skin sensitization	No data available
Reproductive cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity effects	No information available
Mobility	No information available
Biodegradation	No information available
Bioaccumulation	No information available
Hazard to the ozone layer	No information available

13. DISPOSAL CONSIDERATIONS

Chemical materials	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Wash thoroughly before disposal.

14. TRANSPORT INFORMATION

(Dimethyl Sulfoxide)

ADR/RID Not regulated

UN number -

Proper shipping name

UN classification

Subsidiary hazard class

Packing group

Marine pollutant Not applicable

IMDG Not regulated

UN number -

Proper shipping name

UN classification

Subsidiary hazard class

Packing group

Marine pollutant (Sea) Not applicable

Transport in bulk according to No information available

Annex II of MARPOL 73/78 and
the IBC Code

IATA Not regulated

UN number -

Proper shipping name

UN classification

Subsidiary hazard class

Packing group

Environmentally Hazardous Not applicable

Substance

15. JAPANESE REGULATORY INFORMATION

(Dimethyl Sulfoxide)

International Inventories

EINECS/ELINCS Listed

TSCA Listed

Japanese regulations

Pollutant Release and Transfer No

Register Law

Industrial Safety and Health Act No

Poisonous and Deleterious No

Fire Service Act Category IV, Class III petroleum, dangerous grade 3 water-soluble

Act on the Evaluation of Chemical No

Substances and Regulation of Their

Manufacture, etc

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.
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