



Protease Inhibitor Solution

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Revision Date: 26Jul2018

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Name: Protease Inhibitor Solution

Product Code: 3-3057-020014, 3-3057-020015, 3-3057-020016

1.2. Intended Use of the Product

Laboratory chemicals

1.3. Name, Address, and Telephone of the Responsible Party

Company

Meso Scale Diagnostics

1601 Research Blvd

Rockville, MD 20850-3128

T 240-314-2600

1.4. Emergency Telephone Number

Emergency Number : Within the U.S. and Canada (24 hours, toll-free)

CHEMTREC: 1-800-424-9300

International (Hours of operation: Monday – Friday, 1230 – 2130 UTC or 0830 – 1730 ET)

MSD direct dial: +1-240-314-2799

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US classification

Flam. Liq. 4 H227

Skin Irrit. 2 H315

Eye Irrit. 2A H319

Full text of H-phrases: see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)

:



GHS07

Signal Word (GHS-US)

: Warning

Hazard Statements (GHS-US)

: H227 - Combustible liquid.

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

Precautionary Statements (GHS-US)

: P210 - Keep away from extremely high or low temperatures, ignition sources, and incompatible materials. - No smoking.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P280 - Wear protective gloves, protective clothing, and eye protection.

P302+P352 - If on skin: Wash with plenty of water.

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 - Specific treatment (see section 4 on this SDS).

P332+P313 - If skin irritation occurs: Get medical advice/attention.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P362+P364 - Take off contaminated clothing and wash it before reuse.

P370+P378 - In case of fire: Use water spray, fog, alcohol-resistant foam, carbon dioxide, dry chemical powder to extinguish.

P403+P235 - Store in a well-ventilated place. Keep cool.

P501 - Dispose of contents/container in accordance with local, regional, national,

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territorial, provincial, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. May cause an allergic reaction in sensitive individuals.

2.4. Unknown Acute Toxicity (GHS-US) No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable

3.2. Mixture

Name	Product Identifier	% (w/w)	GHS-US classification
Dimethyl sulfoxide	(CAS No) 67-68-5	97.18	Flam. Liq. 4, H227
Benzenesulfonyl fluoride, 4-(2-aminoethyl)-, hydrochloride	(CAS No) 30827-99-7	2.4	Skin Corr. 1B, H314 Eye Dam. 1, H318

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Causes skin irritation. Causes serious eye irritation.

Inhalation: Prolonged exposure may cause irritation.

Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: Repeated or prolonged skin contact may cause dermatitis and defatting.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Water spray, fog, alcohol-resistant foam, carbon dioxide (CO₂), dry chemical powder.

Unsuitable Extinguishing Media: Do not use a heavy water stream. A heavy water stream may spread burning liquid.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Combustible liquid. Vapors are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapors.

Explosion Hazard: May form flammable or explosive vapor-air mixture.

Reactivity: Reacts violently with strong oxidizers. Increased risk of fire or explosion.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Sulfur oxides. Sodium oxides. Nitrogen oxides. Hydrogen chloride gas. Hydrogen Fluoride.

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Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid breathing (vapor, mist, spray). Do not get in eyes, on skin, or on clothing. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Use special care to avoid static electric charges.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel. Stop leak if safe to do so.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Eliminate ignition sources.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Absorb and/or contain spill with inert material. Do not take up in combustible material such as: saw dust or cellulosic material. Use only non-sparking tools. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Avoid the formation of mists in the atmosphere. Handle empty containers with care because residual vapors are flammable.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing vapors, mist, spray. Take precautionary measures against static discharge. Use only non-sparking tools.

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

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Take action to prevent static discharges. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment.

Storage Conditions: Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store in a well-ventilated place. Keep container tightly closed. Keep in fireproof place.

Incompatible Materials: Strong oxidizers. Strong acids. Reducing agents. Acid chlorides. Phosphorus halides. Strong bases.

7.3. Specific End Use(s)

Laboratory chemicals

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Dimethyl sulfoxide (67-68-5)

USA AIHA	WEEL TWA (ppm)	250 ppm
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8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Gas detectors should be used when flammable gases or vapors may be released. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment.

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Personal Protective Equipment: Gloves. Protective clothing. Protective goggles.



Materials for Protective Clothing: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection: Wear protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Not available
Odor	: Not available
Odor Threshold	: Not available
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Specific Gravity	: Not available
Solubility	: Not available
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Static discharge could act as an ignition source.

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Reacts violently with strong oxidizers. Increased risk of fire or explosion.
- 10.2. Chemical Stability:** Combustible liquid. May form flammable or explosive vapor-air mixture.
- 10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. Conditions to Avoid:** Direct sunlight, extremely high or low temperatures, heat, hot surfaces, sparks, open flames, incompatible materials, and other ignition sources.
- 10.5. Incompatible Materials:** Strong oxidizers. Strong acids. Reducing agents. Acid chlorides. Phosphorus halides. Strong bases.
- 10.6. Hazardous Decomposition Products:** None known.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Causes serious eye irritation.

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Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: Repeated or prolonged skin contact may cause dermatitis and defatting.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Dimethyl sulfoxide (67-68-5)	
LD50 Oral Rat	> 20000 mg/kg
LD50 Dermal Rat	≈ 40000 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Not classified.

Dimethyl sulfoxide (67-68-5)	
LC50 Fish 1	34 g/l (Exposure time: 96 h - Species: Pimephales promelas)
LC 50 Fish 2	33 - 37 g/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

12.2. Persistence and Degradability

Protease Inhibitor (Bulk 3-3057-420010-A)	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

Protease Inhibitor (Bulk 3-3057-420010-A)	
Bioaccumulative Potential	Not established.

Dimethyl sulfoxide (67-68-5)	
Log Pow	-2.03

12.4. Mobility in Soil Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Handle empty containers with care because residual vapors are flammable.

Ecology – Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT

Proper Shipping Name : COMBUSTIBLE LIQUID, N.O.S.(Dimethyl sulfoxide)
Identification Number : NA1993
Packing Group : III
ERG Number : 128

14.2. In Accordance with IMDG Not regulated for transport

14.3. In Accordance with IATA Not regulated for transport

14.4. In Accordance with TDG Not regulated for transport

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SECTION 15: REGULATORY INFORMATION


15.1. US Federal Regulations

Protease Inhibitor (Bulk 3-3057-420010-A)	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard
Dimethyl sulfoxide (67-68-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Fire hazard

15.2. US State Regulations

Dimethyl sulfoxide (67-68-5)	
U.S. - New Jersey - Right to Know Hazardous Substance List	

15.3. Canadian Regulations

Protease Inhibitor (Bulk 3-3057-420010-A)	
WHMIS Classification	Class B Division 3 - Combustible Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects
	

Dimethyl sulfoxide (67-68-5)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class B Division 3 - Combustible Liquid
Benzenesulfonyl fluoride, 4-(2-aminoethyl)-, hydrochloride (30827-99-7)	
WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date	: 26Jul2018
Other Information	: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 4	Flammable liquids Category 4
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
H227	Combustible liquid
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation

Party Responsible for the Preparation of This Document

Meso Scale Diagnostics
T 240-314-2600

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.