



Safety Data Sheet

Canada

Section 1. Identification

Product name

Protease Inhibitor Mix, 1 ml

Catalogue Number

80650123



9 0 8 0 6 5 0 1 2 3

Product type

Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Analytical chemistry.
Laboratory chemicals
Scientific research and development

Supplier Cytiva
Amersham Place
Little Chalfont
Buckinghamshire
HP7 9NA United Kingdom
+44 1494 508000

Importer Cytiva Canada
1055 Vernon Dr
Vancouver BC V6A 3P4
Canada
+1 778-956-2584

In case of emergency

INFOTRAC
Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)
In the United States, call 24 Hour number: 1-800-535-5053

Section 2. Hazard identification

Classification of the substance or mixture

FLAMMABLE LIQUIDS - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
AQUATIC HAZARD (LONG-TERM) - Category 1

GHS label elements

Hazard pictograms



Signal word

Warning

Hazard statements

Combustible liquid.
Causes skin irritation.
Causes serious eye irritation.
Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Avoid release to the environment. Wash thoroughly after handling.

Response

Collect spillage. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. 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 or attention.



9 5 8 0 6 5 0 1 2 3

Storage	Not applicable.
Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2%

Section 3. Composition/information on ingredients

Substance/mixture	Mixture
Other means of identification	Not available.

Ingredient name	Synonyms	% (w/w)	CAS number
Dimethyl sulfoxide	Methane, 1,1'-sulfinylbis-; Methane, sulfinylbis-; Dimethyl sulphoxide; (methylsulfinyl)methanedimethyl sulfoxide; Methyl sulfoxide; METHYLSULFINYLMETHANE; SULFINYLBIS(METHANE); DMSO; Methyl sulphoxide; Sulfinylbismethane; SULFOXIDE, DIMETHYL	≥80	CAS: 67-68-5
α-toluenesulphonyl fluoride	Benzenemethanesulfonyl fluoride; Phenylmethanesulphonyl fluoride; α-toluenesulfonyl fluoride; alpha-toluenesulfonyl fluoride; phenylmethanesulfonyl fluoride; alpha-toluenesulphonyl fluoride	≥1 - ≤5	CAS: 329-98-6

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	Causes serious eye irritation.
Inhalation	No known significant effects or critical hazards.
Skin contact	Causes skin irritation.
Ingestion	No known significant effects or critical hazards.

Over-exposure signs/symptoms



Eye contact	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	No specific data.
Skin contact	Adverse symptoms may include the following: irritation redness
Ingestion	No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	Do not use water jet.

Specific hazards arising from the chemical Combustible liquid. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
halogenated compounds

Special protective actions for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.



Large spill

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Do not store above the following temperature: -20°C (-4°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits**Ingredient name**

Dimethyl sulfoxide

Exposure limits**OARS WEEL (United States, 9/2024)**

TWA 8 hours: 250 ppm.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection**Hand protection**

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.



Body protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	Liquid.
Color	Colorless.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	Not available.
Flash point	Closed cup: 61 to 93.3°C (141.8 to 199.9°F)
Burning time	Not applicable.
Burning rate	Not applicable.
Evaporation rate	Not available.
Flammability	Not available.
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.

	Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	dimethyl sulfoxide	0.42	0.056	EU A.4			

Relative vapor density	Not available.
Relative density	Not available.
Solubility(ies)	

Media	Result
cold water	Easily soluble
hot water	Easily soluble
diethyl ether	Easily soluble
acetone	Easily soluble

Solubility in water	Not available.
Partition coefficient: n-octanol/ water	Not applicable.

Auto-ignition temperature	Not available.		
Ingredient name	°C	°F	Method
dimethyl sulfoxide	300 to 302	572 to 575.6	

Decomposition temperature	Not available.
SADT	Not available.
Viscosity	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.
Flow time (ISO 2431)	Not available.

Particle characteristics

Median particle size	Not applicable.
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Section 10. Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name

Dimethyl sulfoxide

Result

Rat - Oral - LD50

14500 mg/kg

Toxic effects: Eye - Hemorrhage Eye - Conjunctive irritation

Rat - Dermal - LD50

40000 mg/kg

Conclusion/Summary
[Product] Not available.

Skin corrosion/irritation

Not available.

Conclusion/Summary
[Product] Not available.

Serious eye damage/eye irritation

Not available.

Conclusion/Summary
[Product] Not available.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary
[Product] Not available.

Respiratory or skin sensitization

Not available.

Skin

Conclusion/Summary
[Product] Not available.

Respiratory

Conclusion/Summary
[Product] Not available.

Germ cell mutagenicity

Not available.



Conclusion/Summary [Product]	Not available.
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Carcinogenicity

Not available.

Conclusion/Summary [Product]	Not available.
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Reproductive toxicity

Not available.

Conclusion/Summary [Product]	Not available.
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Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
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Potential acute health effects

Eye contact	Causes serious eye irritation.
Inhalation	No known significant effects or critical hazards.
Skin contact	Causes skin irritation.
Ingestion	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	No specific data.
Skin contact	Adverse symptoms may include the following: irritation redness
Ingestion	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure**Short term exposure**

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects

Not available.



Conclusion/Summary [Product]	Not available.
General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Reproductive toxicity	No known significant effects or critical hazards.

Numerical measures of toxicity**Acute toxicity estimates**

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Protease Inhibitor Mix, 1 ml	5128.8	N/A	N/A	N/A	N/A
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
α-toluenesulphonyl fluoride	100	N/A	N/A	N/A	N/A

Section 12. Ecological information**Toxicity**

Product/ingredient name	Result
Dimethyl sulfoxide	<p>Acute - LC50 - Fresh water Fish - Fathead minnow - <i>Pimephales promelas</i> Age: 31 days; Size: 15.8 mm; Weight: 0.062 g 34 g/l [96 hours] Effect: Mortality</p> <p>Chronic - NOEC - Fresh water Fish - Guppy - <i>Poecilia reticulata</i> - Adult 6 ppb [16 weeks] Effect: Mortality</p> <p>Acute - EC50 - Marine water OECD Algae - Diatom - <i>Nitzschia pungens</i> 18.299 mg/l [96 hours] Effect: Population</p> <p>Chronic - NOEC - Marine water OECD Algae - Diatom - <i>Nitzschia pungens</i> 3323 µg/l [96 hours] Effect: Population</p> <p>Acute - LC50 - Marine water OECD Crustaceans - Brine shrimp - <i>Artemia sp.</i> Age: ≤24 hours 37.437 mg/l [48 hours] Effect: Mortality</p> <p>Chronic - NOEC - Fresh water OECD Daphnia - Water flea - <i>Daphnia magna</i> - Juvenile (Fledgling, Hatchling, Weanling) Age: 6 days 100 µl/l [21 days] Effect: Reproduction</p>
Conclusion/Summary [Product]	Not available.

Persistence and degradability

Not available.

Conclusion/Summary [Product]		Not available.	
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Dimethyl sulfoxide	-	31%; 28 day(s)	Not readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Dimethyl sulfoxide	-1.35	3.16	Low

Mobility in soil

Soil/Water partition coefficient Not available.

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG Classification	DOT Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	-	-	-	-	-

Special precautions for user **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI None of the components are listed.

CEPA Toxic substances None of the components are listed.

International regulations**Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Canada	Not determined.
United States	Not determined.

Section 16. Other information**History**

Date of printing	2/19/2026
Date of issue/Date of revision	2/19/2026
Date of previous issue	3/3/2023
Version	7.01
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Key to abbreviations

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 4	On basis of test data
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 1	Calculation method

References

Not available.



Indicates information that has changed from previously issued version.

Notice to reader

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