


SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by UK REACH Regulation SI 2019/758


SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	Cystamine dihydrochloride; part of 'Thiol Coupling Kit'	
Catalogue Number	BR100557	
EC number	200-260-7	
CAS number	56-17-7	
Product description	Not available.	
Product type	Solid.	
Other means of identification	Ethanamine, 2,2'-dithiobis-, hydrochloride (1:2); Ethanamine, 2,2'-dithiobis-, dihydrochloride; Cystamine, dihydrochlorid-; di(2-aminoethyl) disulfide dihydrochloride; Ethylamine, 2,2'-dithiobis-, dihydrochloride; 2,2'-Dithiobisethanamine dihydrochloride; Cystaminedihydrochloride; 2,2'-Diaminodiethyldisul fide dihydrochloride; Cystamine; 2-[(2-aminoethyl)disulfanyl]ethan-1-amine hydrochloride	
Chemical formula	$C_4H_{12}N_2S_2 \cdot 2HCl$	

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

Identified uses

Analytical chemistry.
Laboratory chemicals
Scientific research and development
 Consumer use

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1.3 Details of the supplier of the safety data sheet

Supplier	Cytiva Amersham Place Little Chalfont Buckinghamshire HP7 9NA United Kingdom +44 1494 508000	Hours of operation 08.30 - 17.00
Person who prepared the SDS : sds_author@cytiva.com		

1.4 Emergency telephone number

United Kingdom (UK)	Cytiva UK Amersham Place Little Chalfont Buckinghamshire HP7 9NA t: 0870 606 1921	Call INFOTRAC 24 Hour number: 001-352-323-3500 (Call Collect).
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National advisory body/Poison Centre

United Kingdom (UK)	Health professionals should contact the National Poisons Information Service (NPIS) by telephone, or use TOXBASE www.toxbase.org . NPIS http://www.npis.org/ advise that others seeking specific information on poisons should contact: In England and Wales: NHS Direct - 0845 4647 or 111 In Scotland: NHS 24 - 08454 24 24 24 In N Ireland: Contact your local GP or pharmacist during normal hours; click here (www.gpoutofhours.hscni.net/) for GP services Out-of-Hours.
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mono-constituent substance

Classification according to UK CLP/GHS

Acute Tox. 4, H302

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms



Signal word Warning

Hazard statements Harmful if swallowed.

Precautionary statements

General Not applicable.

Prevention Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Response Not applicable.

Storage Not applicable.

Disposal Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

PBT	P	B	T	vPvB	vP	vB
No	N/A	N/A	No	N/A	N/A	N/A

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.1 Substances Mono-constituent substance

Product/ingredient name	Identifiers	%	Classification	Type
2,2'-dithiodi(ethylammonium) dichloride	EC: 200-260-7 CAS: 56-17-7	100	Acute Tox. 4, H302	[1]

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[1] Constituent

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



SECTION 4: First aid measures

4.1 Description of 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 if irritation occurs.
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. Get medical attention if symptoms occur. 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 necessary, call a poison center or physician. 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.
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.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

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.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture No specific fire or explosion hazard.

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

5.3 Advice for firefighters

Special precautions 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.

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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to British standard BS EN 469 will provide a basic level of protection for chemical incidents.



SECTION 6: Accidental release measures

6.1 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 spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders If specialised 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".

6.2 Environmental precautions

Avoid dispersal of spilt 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).

6.3 Methods and material for containment and cleaning up

Small spill Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 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. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. 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.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. 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. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations Analytical chemistry. Laboratory chemicals. Scientific research and development.

Industrial sector specific solutions Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures Reference should be made to monitoring standards, such as the following: British Standard BS EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) British Standard BS EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) British Standard BS EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Not available.

PNECs

Not available.



8.2 Exposure controls

Appropriate engineering controls Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

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: safety glasses with side-shields.

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.

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.

SECTION 9: Physical and chemical properties

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

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Solid.
Colour	White.
Odour	Odourless.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Decomposes
Initial boiling point and boiling range	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	Not applicable.
Flash point	[Product does not sustain combustion.]
Auto-ignition temperature	Not applicable.
Decomposition temperature	217 to 220°C
Viscosity	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C): Not available.

Solubility(ies)

Media	Result
cold water	Easily soluble
hot water	Easily soluble

Solubility in water Not available.

Partition coefficient: n-octanol/water Not available.

Vapour pressure Not available.

Evaporation rate Not available.

Relative density Not available.



Vapour density	Not applicable.
Explosive properties	Not available.
Oxidising properties	Not available.

Particle characteristics

Median particle size	Not available.
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9.2 Other information

Burning time	Not available.
Burning rate	Not available.
Solubility in water	Not available.
Molecular weight	225.22 g/mole

SECTION 10: Stability and reactivity

10.1 Reactivity	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	The product is stable.
10.3 Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	No specific data.
10.5 Incompatible materials	No specific data.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity	
Product/ingredient name	Result
2,2'-dithiodi(ethylammonium) dichloride	Rat - Oral - LD50 896 mg/kg
	Mouse - Oral - LD50 874 mg/kg
	Rat - Oral - LD50 896 mg/kg
	Toxic effects: Behavioral - Somnolence (general depressed activity) Behavioral - Convulsions or effect on seizure threshold Lung, Thorax, or Respiration - Respiratory depression

Conclusion/Summary [Product] Not available.

Acute toxicity estimates					
Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
2,2'-dithiodi(ethylammonium) dichloride	896	N/A	N/A	N/A	N/A

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.**Carcinogenicity**

Not available.

Conclusion/Summary [Product] Not available.**Reproductive toxicity**

Not available.

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

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.**Potential acute health effects****Inhalation** No known significant effects or critical hazards.**Ingestion** Harmful if swallowed.**Skin contact** No known significant effects or critical hazards.**Eye contact** No known significant effects or critical hazards.**Symptoms related to the physical, chemical and toxicological characteristics****Inhalation** No specific data.**Ingestion** No specific data.**Skin contact** No specific data.**Eye contact** No specific data.**Delayed and immediate effects as well as 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	<input checked="" type="checkbox"/> No known significant effects or critical hazards.
Other information	Not available.

SECTION 12: Ecological information

12.1 Toxicity

Not available.

Conclusion/Summary [Product]	Not available.
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12.2 Persistence and degradability

Not available.

Conclusion/Summary [Product]	Not available.
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Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<input checked="" type="checkbox"/> 2,2'-dithiodi(ethylammonium) dichloride	-	-	Readily

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient	<input checked="" type="checkbox"/> 00.044 Koc
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Mobility	Not available.
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12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
<input checked="" type="checkbox"/> According to the results of its assessment, this substance is not a PBT or a vPvB.							

12.6 Other adverse effects	No known significant effects or critical hazards.
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SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal	The generation of waste should be avoided or minimised 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.
Hazardous waste	The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal	The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
Special precautions	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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

14.6 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.

14.7 Transport in bulk according to IMO instruments Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

UK (GB)/REACH

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Ozone depleting substances

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Not listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

No listed substance

Seveso Directive

This product is not controlled under the Seveso Directive.

EU regulations

Industrial emissions Not listed
(integrated pollution prevention and control) - Air

Industrial emissions Not listed
(integrated pollution prevention and control) -
Water

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

United States	Not determined.
Canada inventory	This material is not listed in DSL but is listed in NDSL.
China	This material is listed or exempted.
Japan	Japan inventory (CSCL): This material is listed or exempted. Japan inventory (ISHL): Not determined.

15.2 Chemical safety assessment Not available.

SECTION 16: Other information

 Indicates information that has changed from previously issued version.

Abbreviations and acronyms	ATE = Acute Toxicity Estimate GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EUH statement = GB CLP-specific Hazard statement N/A = Not available PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number SGG = Segregation Group vPvB = Very Persistent and Very Bioaccumulative
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Procedure used to derive the classification

Classification	Justification
Acute Tox. 4, H302	On basis of test data
Full text of abbreviated H statements	H302 Harmful if swallowed.
Full text of classifications	Acute Tox. 4 ACUTE TOXICITY - Category 4
Date of printing	12 February 2026
Date of issue/ Date of revision	12 February 2026
Date of previous issue	05 February 2024
Version	11

Notice to reader

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