

# SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2020/878

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

### 1.1 Product identifier

Product name	<b>1,4-Dithioerythritol (DTE); part of 'Thiol Coupling Kit'</b>	
Catalogue Number	BR100557	
EC number	229-998-8	
CAS number	6892-68-8	
Product description	Not available.	
Product type	Solid.	
Other means of identification	2,3-Butanediol, 1,4-dimercapto-, (2R,3S)-rel-; 2,3-Butanediol, 1,4-dimercapto-, (R,S)-; 2,3-Butanediol, 1,4-dimercapto-, (R*,S*)-; 1,4-Dithioerythritol; Erythritol, 1,4-dithio-; Dithioerythritol	
Chemical formula	$C_4H_{10}O_2S_2$	

### 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

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

### 1.4 Emergency telephone number

<b>Switzerland</b>	Pall (Schweiz) GmbH Schaeferweg 16 4057 Basel Switzerland t: 0848 8028 10	Call INFOTRAC 24 Hour number: 001-352-323-3500 (Call Collect).
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### National advisory body/Poison Centre

<b>Switzerland</b>	Vergiftungsnotruf Tel: 145
Aus dem Ausland oder bei technischen Problemen: +41 44 251 51 51	
<a href="https://www.toxinfo.ch/notruf-145">https://www.toxinfo.ch/notruf-145</a>	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

**Product definition** Mono-constituent substance

**Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Not classified.

The product is not classified as hazardous according to Regulation (EC) 1272/2008 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** No signal word.

**Hazard statements** No known significant effects or critical hazards.

**Precautionary statements**

**General** Not applicable.

**Prevention** Not applicable.

**Response** Not applicable.

**Storage** Not applicable.

**Disposal** Not applicable.

**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
N/A	N/A	N/A	N/A	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 Regulation (EC) No. 1272/2008 [CLP]	Type
(R*,S*)-1,4-dimercaptobutane-2,3-diol	EC: 229-998-8 CAS: 6892-68-8	100	Not classified. -	[1]

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

<b>Eye contact</b>	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
<b>Ingestion</b>	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training.

### 4.2 Most important symptoms and effects, both acute and delayed

#### Over-exposure signs/symptoms

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	No specific data.
<b>Ingestion</b>	No specific data.

### 4.3 Indication of any immediate medical attention and special treatment needed

<b>Notes to physician</b>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	Use an extinguishing agent suitable for the surrounding fire.
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<b>Unsuitable extinguishing media</b>	None known.
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### 5.2 Special hazards arising from the substance or mixture

<b>Hazards from the substance or mixture</b>	No specific fire or explosion hazard.
<b>Hazardous combustion products</b>	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides

### 5.3 Advice for firefighters

<b>Special precautions for fire-fighters</b>	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.
<b>Special protective equipment for fire-fighters</b>	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 European standard 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

<b>For non-emergency personnel</b>	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. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	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

<b>Small spill</b>	Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.
<b>Large spill</b>	Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled 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.

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**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**

<b>Protective measures</b>	Put on appropriate personal protective equipment (see Section 8).
<b>Advice on general occupational hygiene</b>	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)**

<b>Recommendations</b>	Analytical chemistry. Laboratory chemicals. Scientific research and development.
<b>Industrial sector specific solutions</b>	Not available.

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**SECTION 8: Exposure controls/personal protection**

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**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: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard 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.

**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.



<b>Other skin protection</b>	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.
<b>Respiratory protection</b>	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.
<b>Environmental exposure controls</b>	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

<b>Physical state</b>	Solid.
<b>Colour</b>	White.
<b>Odour</b>	Unpleasant.
<b>Odour threshold</b>	Not available.
<b>Melting point/freezing point</b>	82 to 84°C
<b>Boiling point or initial boiling point and boiling range</b>	Not available.
<b>Flammability</b>	Not available.
<b>Lower and upper explosion limit</b>	Not applicable.
<b>Flash point</b>	[Product does not sustain combustion.]
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not available.
<b>pH</b>	Not available.
<b>Viscosity</b>	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C): Not available.

#### **Solubility**

<b>Media</b>	<b>Result</b>
cold water	Easily soluble
hot water	Easily soluble
<b>Solubility in water</b>	Not available.
<b>Partition coefficient: n-octanol/water</b>	Not available.
<b>Vapour pressure</b>	Not available.
<b>Relative density</b>	Not available.
<b>Relative vapour density</b>	Not applicable.

#### Particle characteristics

<b>Median particle size</b>	Not available.
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### 9.2 Other information

#### 9.2.1 Information with regard to physical hazard classes

<b>Burning time</b>	Not available.
<b>Burning rate</b>	Not available.
<b>Explosive properties</b>	Not available.
<b>Oxidising properties</b>	Not available.

#### 9.2.2 Other safety characteristics

<b>Evaporation rate</b>	Not available.
<b>Molecular weight</b>	154.26 g/mole



## SECTION 10: Stability and reactivity

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

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Not available.

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

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**

<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Ingestion</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Eye contact</b>	No known significant effects or critical hazards.

**Symptoms related to the physical, chemical and toxicological characteristics**

<b>Inhalation</b>	No specific data.
<b>Ingestion</b>	No specific data.
<b>Skin contact</b>	No specific data.
<b>Eye contact</b>	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.

<b>General</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	No known significant effects or critical hazards.

**11.2 Information on other hazards****11.2.1 Endocrine disrupting properties**

Not available.

**Conclusion/Summary [Product]** The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

**11.2.2 Other information**

Not available.

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**SECTION 12: Ecological information****12.1 Toxicity**

Not available.

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

**12.2 Persistence and degradability**

Not available.

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

**12.3 Bioaccumulative potential**

Not available.

**12.4 Mobility in soil**

**Soil/water partition coefficient**



Product/ingredient name	logKoc				Koc		
(R*,S*)-1,4-dimercaptobutane-2,3-diol	1.6				42.4122		
Results of PMT and vPvM assessment							
Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
(R*,S*)-1,4-dimercaptobutane-2,3-diol	N/A	N/A	Yes	N/A	N/A	N/A	Yes
Mobility	Not available.						
Conclusion/Summary	The product does not meet the criteria to be considered as a PMT or vPvM.						

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1907/2006 [REACH]

According to the results of its assessment, this substance is not a PBT or a vPvB.

Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
(R*,S*)-1,4-dimercaptobutane-2,3-diol	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Conclusion/Summary	The product does not meet the criteria to be considered as a PBT or vPvB.						
Regulation (EC) No. 1272/2008 [CLP]							

12.6 Endocrine disrupting properties

Not applicable.

Conclusion/Summary [Product] The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

12.7 Other adverse effects

No known significant effects or critical hazards.

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	Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

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. 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	-	-	-	-
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**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

#### EU Regulation (EC) No. 1907/2006 (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.

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

##### Other EU regulations

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

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

**Explosive precursors**      ☒ Not applicable.

##### Ozone depleting substances (EU 2024/590)

Not listed.

##### Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

##### Persistent Organic Pollutants

Not listed.

##### Seveso Directive

This product is not controlled under the Seveso Directive.

##### National regulations

**VOC content**      Exempt.

##### 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**      This material is active or exempted.

**Canada inventory**      This material is listed or exempted.

**China**      This material is listed or exempted.




Japan

Japan inventory (CSCL): Not determined.  
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  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
DMEL = Derived Minimal Effect Level  
DNEL = Derived No Effect Level  
EUH statement = CLP-specific Hazard statement  
N/A = Not available  
PBT = Persistent, Bioaccumulative and Toxic  
PNEC = Predicted No Effect Concentration  
RRN = REACH Registration Number  
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

Full text of abbreviated H statements

Not applicable.

Full text of classifications [CLP/ GHS]

Not applicable.

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Version

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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.