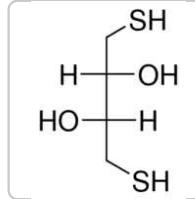


Type in Product Names, Product Numbers, or CAS Numbers to see suggestions.

[All Photos \(7\)](#)

Documents

[SDS](#)[COO/COA](#)[Specification Sheet](#)[More Documents »](#)D0632 ▶ **Sigma-Aldrich.**

DL-Dithiothreitol

 (0)

≥98% (HPLC), ≥99.0% (titration)

Synonym(s):

threo-1,4-Dimercapto-2,3-butanediol, Cleland's reagent, DTT

Linear Formula:

HSCH2CH(OH)CH(OH)CH2SH

CAS Number:

3483-12-3

Molecular Weight:

154.25

Beilstein:

1719757

EC Number:

222-468-7

MDL number:

MFCD00004877

PubChem Substance ID:

24893251

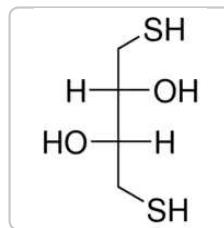
NACRES: NA.21

SKU	Pack Size	Availability	Price	Quantity
D0632-1G	1 G	✓ Estimated to ship on October 10, 2022	Details... €58.20	– + ⓘ
D0632-5G	5 G	✓ Estimated to ship on October 10, 2022	Details... €194.00	– + ⓘ
D0632-10G	10 G	✓ Estimated to ship on October 10, 2022	Details... €370.00	– + ⓘ
D0632-25G	25 G	✓ Estimated to ship on October 10, 2022	Details... €713.00	– + ⓘ

SKU	Pack Size	Availability	Price	Quantity
D0632-100G	100 G	<input checked="" type="checkbox"/> Only 1 left in stock (more on the way)	Details...	€2,020.00 – + i
D0632-1KG	1 KG	<input checked="" type="checkbox"/> Estimated to ship on November 24, 2022	Inquire	– + i

[Request a Bulk Order](#)[Add to Cart](#)

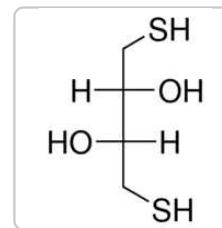
RECOMMENDED PRODUCTS



Roche
DTT-RO
DTT

crystalline powder, =97% (Ellman's reagent), M_r 154.3

[View Price and Availability](#)



Sigma-Aldrich
D9779
DL-Dithiothreitol

for molecular biology, ≥98% (HPLC), ≥99% (titration)

[View Price and Availability](#)

PROPERTIES

Quality Level

200

assay	≥98% (HPLC) ≥99.0% (titration)
form	powder
reaction suitability	reagent type: reductant
color	white
mp	41-44 °C (lit.)
solubility	H ₂ O: soluble 50 mg/mL, clear, colorless to very faintly yellow
storage temp.	2-8°C
SMILES string	O[C@H](CS)[C@H](O)CS
InChI	1S/C4H10O2S2/c5-3(1-7)4(6)2-8/h3-8H,1-2H2/t3-,4-/m1/s1
InChI key	VHJLVAABSRFDPN-QWWZWVQMSA-N

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[Reducing Agents](#)

DESCRIPTION

General description

An excellent reagent for maintaining SH groups in reduced state; quantitatively reduces disulfides. DTT is effective in sample buffers for reducing protein disulfide bonds prior to SDS-PAGE. DTT can also be used for reducing the disulfide bridge of the cross-linker N,N'-bis(acryloyl)cystamine to break apart the matrix of a polyacrylamide gel. DTT is less pungent and is less toxic than 2-mercaptoethanol. Typically, a seven fold lower concentration of DTT (100 mM) is needed than is used for 2-mercaptoethanol (5% v/v, 700 mM).

Application

DTT has been used:

- as one of the reactants in the reduction and alkylation of αs1-Casein, the major allergen of cow's milk.
- as a component of medium for the demembranation and reactivation of spermatozoa.
- to maintain stability of the enzyme as thiol effectively protects the active sites of the biocatalyst.
- as a reducing agent to test the specificity of the reaction of N-Ethylmaleimide with sulfhydryl groups.

An excellent reagent for maintaining SH groups in reduced state; quantitatively reduces disulfides. DTT is effective in sample buffers for reducing protein disulfide bonds prior to SDS-PAGE. DTT can also be used for reducing the disulfide bridge of the cross-linker N,N'-bis(acryloyl)cystamine to break apart the matrix of a polyacrylamide gel. DTT is less pungent and is less toxic than 2-mercaptoethanol. Typically, a seven fold lower concentration of DTT (100 mM) is needed than is used for 2-mercaptoethanol (5% v/v, 700 mM).

Packaging

1, 5, 10, 25, 100 g in poly bottle

1 kg in poly drum

RELATED PRODUCTS

Also Commonly Purchased With This Product

I1149

Iodoacetamide, BioUltra

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I6125

Iodoacetamide, ≥99% (NMR), crystalline

[View Pricing](#)

T1503

Trizma® base, Primary Standard and Buffer, ≥99.9% (titration), crystalline

[View Pricing](#)

G4251

L-Glutathione reduced, ≥98.0%

[View Pricing](#)

D9277

Dialysis tubing cellulose membrane, avg. flat width 10 mm (0.4 in.)

[View Pricing](#)

Suggested Gloves For Splash Protection

Z677256

Dermatril™ nitrile gloves, size XS

[View Pricing](#)

Z677264

Dermatril™ nitrile gloves, size S

[View Pricing](#)

Z677272

Dermatril™ nitrile gloves, size M

[View Pricing](#)

Z677280

Dermatril™ nitrile gloves, size L

[View Pricing](#)

Z677299

Dermatril™ nitrile gloves, size XL

[View Pricing](#)

Z677302

Dermatril™ nitrile gloves, size XXL

[View Pricing](#)**SAFETY INFORMATION****Pictograms**

GHS05, GHS07

Signal Word

Danger

Hazard Statements**H302 - H315 - H318****Precautionary Statements****P264 - P270 - P280 - P301 + P312 - P302 + P352 - P305 + P351 + P338****Hazard Classifications**Acute Tox. 4 Oral - Eye Dam.
1 - Skin Irrit. 2**Storage Class Code**

11 - Combustible Solids

WGK

WGK 3

Flash Point(F)

Not applicable

Flash Point(C)

Not applicable

Personal Protective**Equipment**dust mask type N95 (US),
Eyeshields, Gloves**DOCUMENTATION****Certificate of Analysis**

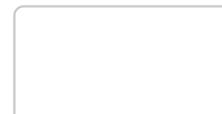
Enter Lot Number to search for Certificate of Analysis (COA).

Lot Number

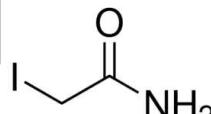
How to enter Lot Number (COA)**Search****Certificate of Origin**

Enter Lot Number to search for Certificate of Origin (COO).

Lot Number

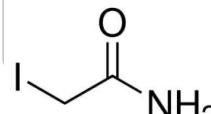
How to enter Lot Number (COO)**Search****More Documents**[Spectra - ATR-IR](#)[Structure Search](#)[SDS](#)**CUSTOMERS ALSO VIEWED** Sigma-Aldrich**11149** Sigma-Aldrich**16125**

Iodoacetamide
BioUltra



[View Price and Availability](#)

Iodoacetamide
≥99% (NMR), crystalline



[View Price and Availability](#)



PEER REVIEWED PAPERS

Effects of ions on the motility of fresh and demembranated paddlefish (*Polyodon spathula*) spermatozoa.

O Linhart et al.

Reproduction (Cambridge, England), 124(5), 713-719 (2002-11-06)

This study investigated the effects of different environmental conditions on the motility parameters of paddlefish (*Polyodon spathula*) spermatozoa. Paddlefish spermatozoa demonstrated the following characteristics: (i) all spermatozoa were motile 10 s after activation with a velocity of 130-160 microm s(-1);

Automated enzymatic determination of sodium in serum.

R Quiles et al.

Clinical chemistry, 39(3), 500-503 (1993-03-01)

An automated method based on the principles of flow-injection analysis is proposed for the enzymatic determination of sodium ion in serum. The method relies on the activation of beta-galactosidase by the analyte. The features of the proposed method include linear

Comprehensive characterisation of the heterogeneity of adalimumab via charge variant analysis hyphenated on-line to native high resolution Orbitrap mass spectrometry.

Florian Füssl et al.

mAbs, 11(1), 116-128 (2018-10-09)

Charge variant analysis is a widely used tool to monitor changes in product quality during the manufacturing process of monoclonal antibodies (mAbs). Although it is a powerful technique for revealing mAb heterogeneity, an unexpected outcome, for example the appearance of

N-Ethylmaleimide Stimulates and Inhibits Ion Transport in Vestibular Dark Cells of Gerbil.

Daniel C Marcus et al.*Auditory neuroscience, 1, 101-109 (1994-01-01)*

Vestibular dark cell epithelium was isolated from the semicircular canal of gerbils to test the proposal that the sulfhydryl alkylating agent N-ethylmaleimide (NEM) inhibits K(+) secretion by this tissue and does so by reacting with a site in or near

Evaluation of the allergenicity and antigenicity of bovine-milk α 1-casein using extensively purified synthetic peptides.

S Elsayed et al.*Scandinavian journal of immunology, 60(5), 486-493 (2004-11-16)*

α 1-Casein (CAS1_BOVIN), the major allergen of cow's milk (CM), is widely used as hydrolysates in infant diet formulae and additive to other processed food items. To date, most of the reported B-cell epitope mapping were performed on polyethylene pins or

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PROTOCOLS AND ARTICLES

Articles

[Middle-Up Analysis of Antibodies by Reversed-Phase Chromatography](#)

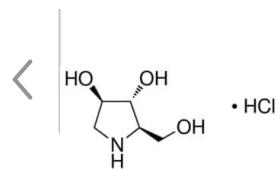
Comparative analysis of different columns in resolving medium-sized fragments of monoclonal antibodies, after digestion using dithiothreitol (DTT) or IdeS (a protease), by Reversed-Phase Chromatography.

RECENTLY VIEWED PRODUCTS

 Sigma-Aldrich**D1542**

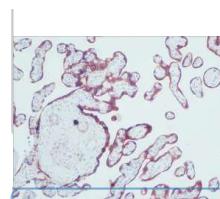
Sigma-Aldrich

C5992



1,4-Dideoxy-1,4-imino-D-arabinitol hydrochloride
enzyme inhibitor

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Anti-Cytokeratin, pan antibody, Mouse monoclonal
clone PCK-26, purified from hybridoma cell culture

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