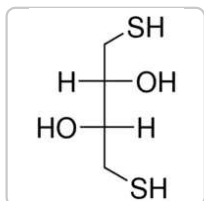


Type in Product Names, Product Numbers, or CAS Numbers to see suggestions.



[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**

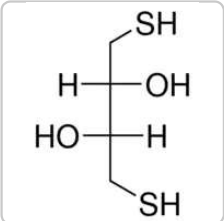
NACRES: NA.21

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

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

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RECOMMENDED PRODUCTS

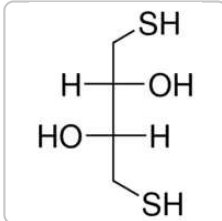


Roche

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	<chem>O[C@H](CS)[C@H](O)CS</chem>
---------------	-----------------------------------

InChI	1S/C4H10O2S2/c5-3(1-7)4(6)2-8/h3-8H,1-2H2/t3-,4-/m1/s1
-------	--

InChI key	VHJLVAABSRFDPM-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 α s1-Casein, the major allergen of cow's milk.
- as a component of medium for the demembration 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

e.g. 023J5431

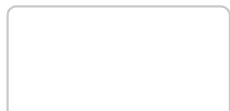
How to enter Lot Number (COA)**Search****Certificate of Origin**

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

Lot Number

e.g. 023J5431

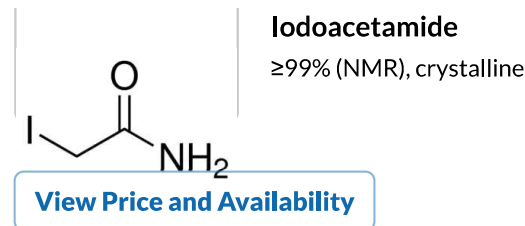
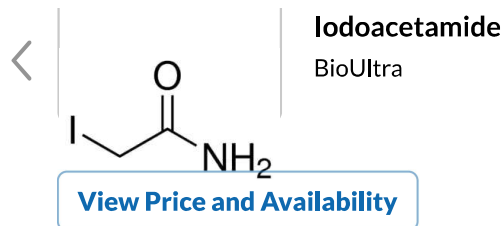
How to enter Lot Number (COO)**Search****More Documents**[Spectra - ATR-IR](#)[Structure Search](#)[SDS](#)

CUSTOMERS ALSO VIEWED

Sigma-Aldrich
I1149



Sigma-Aldrich
I6125



PEER REVIEWED PAPERS

Effects of ions on the motility of fresh and demembrated 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 alphas1-casein using extensively purified synthetic peptides.

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

Alphas1-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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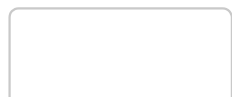
PROTOCOLS AND ARTICLES

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.

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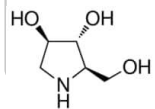


Sigma-Aldrich

D1542

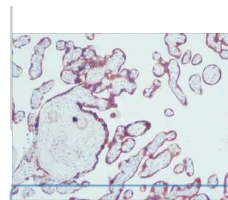
Sigma-Aldrich

C5992



• HCl

**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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