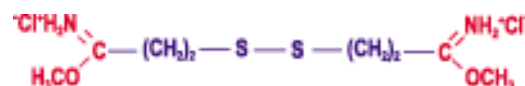


Homobifunctional imidoester cross-linkers

Product Description

Catalog number: **18628A**, 1g
 Name: **DTBP**
 Formula : Dimethyl-3,3'-DithioBisPropionamidate.2HCl
 M.W.= 309.28, CAS[38285-78-8]
 Spacer length: 11.9 Å (8 atoms)



Storage : +4°C (possible at -20°C), protect from moisture and light (L)
 Stable on year

DTBP features:

- Amine-reactive imidoester
- DTBP crosslinker is water soluble for compatibility with aqueous solutions
- DTBP crosslinking can be easily reversed with DTT, TCEP or other reducing agents

Applications for DTBP:

- Reversibly crosslink and stabilize protein-protein interactions

Directions for use

Applications

Dimethyl dithiobispropionimidate (DTBP) is a homobifunctional, cleavable and membrane permeable cross-linker.

DTBP crosslinks amine-containing molecules but then can be easily reversed with DTT, TCEP or other reducing agents. Once a conjugate has been made with DTPB, it may be useful to use in *in vivo* or *in vitro* systems, and separation techniques where a cleavage of the conjugate may be useful to remove one component. DTPB is used to modify proteins in order to immobilize them on supports (Resins, Chips), create conjugates, and for structure or functional studies (i.e. stabilizes protein-protein interactions). It has been used to stabilize protein interactions prior to ChIP assays.

Technical information

- DTBP crosslinker is water soluble.

• DTBP contains an amine-reactive imidoester at each end that react rapidly with primary amines at pH 8-10 to form stable amidine bonds. Lysine residues from proteins (side chain ε-NH2-Lys) are modified without change in their ionic charge (the amidine is protonated and has a positive charge at physiological pH). The imidoester also reacts with the N-terminus of polypeptides.

Refer to the literature for protocols. As a general guideline, standard conditions are 1 hour, pH 8.5, room temperature.

• DTBP contains a 8-atom spacer arm with a central disulfide bond that can be cleaved with reducing agents. Hence, DTBP crosslinks can be easily reversed by the addition of 125 mM DTT (#UP28425) at 37°C for 30 minutes. DMS, the non-cleavable analog of DTBP is available for applications that require a stable, non-cleavable bond.

See also DTSSP, the NHS-ester analog of DTBP, that has similar crosslinking activity toward primary amines, but is recommended for crosslinking at physiologic pH and for greater stability of the crosslinked product at elevated pH.

Literature – DTBP

Charulatha V; Rajaram A (2001) ; Dimethyl 3,3'-dithiobispropionimidate: a novel crosslinking reagent for collagen. Journal of biomedical materials research 2001;54(1):122-8. [Abstract](#)

Jerng, H.H., Kunjilwar, K. and Pfaffinger, P.J. (2005). Multiprotein assembly of Kv4.2, KChIP3 and DPP10 produces ternary channel complexes with I SA-like properties. J. Physiol. 568, 767-788.

Markwell M.A. et al; Protein-protein interactions within paramyxoviruses identified by native disulfide bonding or reversible chemical cross-linking. J.Virol (1980) 33: 152-166; [Abstract](#)

Mattson, G., et al. (1993). A practical approach to cross-linking. Molecular Biology Reports 17, 167-183.

Hand, E.S., and Jencks, W.P. (1962). Mechanism of the reaction of imidoesters with amines. J. Am. Chem. Soc. 84, 3505-3514.

Packman, L.C. and Perhan, R.N. (1982). Quaternary Structures the Pyruvate Dehydrogenase Multienzyme Complex of Bacillus Stearothermophilus Studies by a New Reversible Crosslinking Procedure with Bis(imidoesters). Biochem. 21, 5171-5175.

Peretz H. et al; The use of a cleavable crosslinking reagent to identify neighboring proteins in the 30-S ribosomal subunit of Escherichia coli. Eur.J.Biochem. (1976) 63: 83-92 ; [Abstract](#)

Shivdasani, R.A. and Thomas, D.W. (1988). Molecular associations of IA antigens after T-B cell interactions. J. Immunol. 141, 1252-1260.

Tóth-Boconádi R, SG Taneva, AV Kiselev, NG Abdulaev, L Keszthelyi ; The bacteriorhodopsin proton pump: effect of crosslinkings of lysine residues. Arch Biochem Biophys (1988) 260: 725-31. [Abstract](#)

MSDS – DTBP

Section 1. Chemical Product and Company Identification

Sulfo-LC-SPDP HCl salt, Dimethyl-3,3'-DithioBisPropionamidate.2HCl, CAS[38285-78-8]

Section 2. Composition, Information on Ingredients

No hazardous ingredient according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directives 1999/45/EC-2001/59/EC (EU)

Section 3. Hazards identification

Not classified (EU), No specific hazard (US)

Physical/chemical hazards: Not applicable.

Human health hazards: Not applicable.

Environmental hazards: Not applicable.

Section 4. First aid measures

Effect and Symptoms

Inhalation: Not available.

Skin contact Not available.

Eye contact Not available.

Ingestion: Not available.

Aggravating conditions: Repeated or prolonged exposure is not known to aggravate medical condition.

First-Aid measures

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

Skin contact: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse.

Thoroughly clean shoes before reuse. Get medical attention.

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Notes to physician: Not available.

Protection of first-aiders: Not available.

Section 5. Fire fighting measures

May be combustible at high temperature

Use an extinguishing agent suitable for surrounding fires.

Hazardous thermal decomposition products: These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), sulfur oxides (SO₂, SO₃...).

Some metallic oxides

Section 6. Accidental release measures

Small spill and leak: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Personal precautions: Safety glasses. Lab coat.

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Wash thoroughly after handling.

Section 7. Handling and storage

Handling: Wash thoroughly after handling.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Contact your local distributor

Uptima, powered by



213 Avenue J.F. Kennedy - BP 1140
03103 Montluçon Cedex - France
Tél. 04 70 03 88 55 - Fax 04 70 03 82 60

Uptima@interchim.com

FT-18628A

Section 8. Exposure Controls, Personal Protection

Engineering Controls: use standard lab equipments

Section 9. Physical and chemical properties

Physical state: Powdered solid

Color: White. Tan.

Molecular formula C14 H16 N3 Na O8 S3

Molecular weight: 527.57 g/mole

Soluble in cold water, hot water.

Section 10. Stability and reactivity

The product is stable.

Section 11. Toxicological information

Not available data. No known significant effects or critical hazards. To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Section 12. Ecological information

Not available data. No known significant effects or critical hazards.

Germany water class: VCI WGK: No products were found.

Section 13. Disposal considerations

To present knowledge of the supplier, this product is not regarded as hazardous waste as defined by EU Directive 91/689/EC, nor by (Norway) by SFT's Directive on special waste.

The generation of waste should be avoided or minimized wherever possible.

Section 14. Transport information

Contact the supplier for all information regarding the proper transportation method

Section 15. Regulatory information

This product is not classified according to the EU regulations DSCL (EEC)

Not found in US federal regulations:

SARA 302/304/311/312 , 302/304 , 302/304/311/312 , 311/312

TCSCA, Clean Water Act (CWA) 307, 311, 112

Not controlled under WHMIS (Canada).

Section 16. Other information

US Hazardous material information: Health: 1, Fire hazard: 0, Reactivity: 0, Personal protection: 0

Validation: revision.J05E(060323)

Related products and documents

See [BioSciences Innovations catalogue](#) and [e-search tool](#).

*Other crosslinkers – Amine reactive

- Homobifunctional crosslinkers: Amines reactive, i.e. [NHS-PEO-NHS \(BH8811\)](#) and [DSS \(54940A\)](#)
Sulphydryls reactive, i.e. [MAL-PEO-MAL \(L7736A\)](#) and [BMOE \(L7730A\)](#)
- Heterobifunctional crosslinkers, Amines & Sulphydryls reactive, i.e. [NHS-PEO-MAL \(AL6581\)](#) and [SMCC \(17412A\)](#)
- PhotoActivable (PA) crosslinkers: NH2 reactive [NHS-ASA \(42252A\)](#) and [SDA Diazirines \(DW8561\)](#),...
- Hydrazone chemistry: [Conjugation kit \(BL1501\)](#) and [HynNic crosslinkers](#) (SANH #[BL9270](#), MHPH #[BL9401](#) SH-reactive)

*Amino group modifiers:

- 2-Iminothiolane (**Traut's reagent**) #[UP42425A](#) to convert amino group to un-protected sulphydryl group
- SATA** #[84235A](#) to converts amino group to protected sulphydryl group
- SulfoSuccinimidyl-Acetate (**SulfoNHS-Acetate**) #[UP69380A](#) to block amino group
- 6-(N-trifluoroacetyl)caproic acid NHS (**TFCS**) #[L7727B](#) to protect amino group that can then be unmasked at pH 7.8-8.1

*Reducing agents

DTT ([UP28425](#))

*Desalting tools: [CelluSep dialysis tubings](#), gel filtration columns #[UP84874](#)

- Buffers: PBS(Phosphate Buffer Saline) #[UP68723A](#)
- Preservatives: AEBS #[401070](#) and other protease inhibitors, SodiumAzide #[08112A](#)

rev.: M10E-J05E-B07E