



1000 29, 1994
POST OFFICE BOX 14508
SAINT LOUIS, MISSOURI 63178, USA

FAX: USA/CANADA 1-800-325-5052 OUTSIDE USA/CANADA 314-771-5757
TELEX: 910-781-0593 or 434475 ANSWERBACK "SIG OK COLLECT"

TELEPHONE: USA/CANADA 1-800-325-3010
OUTSIDE USA/CANADA call COLLECT 314-771-5750

THE WORLD'S FOREMOST MANUFACTURER OF RESEARCH
BIOCHEMICALS AND DIAGNOSTIC REAGENTS

ATTN: SAFETY DIRECTOR
UNIV OF WISC-WHITEWATER
PURCHASING OFFICE
800 W MAIN ST
WHITEWATER WI 53190-1705

EMERGENCY PHONE 1-314-771-5765

DATE: 11/23/94
CUST#: 2-097-94816
PO#: UNE-52243

M A T E R I A L S A F E T Y D A T A S H E E T PAGE 1

SECTION 1. - - - - - CHEMICAL IDENTIFICATION - - - - -

PRODUCT #: 09779 NAME: DITHIOTHREITOL MOLECULAR BIOLOGY REAGENT

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: 27565-41-9
MF: C4H10O2S2

SYNONYMS

2,3-BUTANEDIOL, 1,4-DIMERCAPTO-, DL-THREO- * 2,3-BUTANEDIOL, 1,4-DIMERCAPTO-, (R*,R*)-(+)- (9CI) * CLELAND'S REAGENT * DL-THREO-1,4-DIMERCAPTO-2,3-BUTANEDIOL * (R*,R*)-(+)-1,4-DIMERCAPTO-2,3-BUTANEDIOL * DITHIOTHREITOL * DL-DITHIOTHREITOL * DL-1,4-DITHIOTHREITOL * RAC-DITHIOTHREITOL * DTT *

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -

LABEL PRECAUTIONARY STATEMENTS

HARMFUL
HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
UNPLEASANT ODOR.
TARGET ORGAN(S):
CENTRAL NERVOUS SYSTEM
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
WEAR SUITABLE PROTECTIVE CLOTHING.

SECTION 4. - - - - - FIRST-AID MEASURES - - - - -

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN.
DISCARD CONTAMINATED CLOTHING AND SHOES.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

- | | | | | | | |
|--|--|---|--|---|--|---|
| SIGMA-ALDRICH
VERTRIEBS GmbH
Grünwalder Weg 30
82041 Deisenhofen
Deutschland | SIGMA-ALDRICH QUIMICA, S.A.
Apt. Correas 161
28100 Alcobendas
(Madrid)
España | SIGMA-ALDRICH s.r.o.
Křizkova 27
188 00 Praha 8
Česká Republika | SIGMA CHEMIE
K. Cardingstein, 8
B-2880 Bornem
Belgie/Belgique | SIGMA CHEMIE
P.O. Box 260
CH-9470 Buchs
Svizzera/Schweiz | SIGMA-ALDRICH QUIMICA, S.A. de C.V.
Avenida Picacho Ajusco No. 130-303
Fraccionamiento Jardines en la Montaña
14210 Mexico, D.F. | SIGMA-ALDRICH CORPORATION
New Delhi Location
B-4/158, Safdarjung Enclave
New Delhi - 110 029
India |
| SIGMA CHIMIE
L'ISLE D'Abreau Chesnes
B.P. 701
32997 St. Quentin Fallavier
Cedex | SIGMA-ALDRICH S.r.l.
Via Gallarate 154
20151 Milano
Italia | SIGMA-ALDRICH PTY., LIMITED
Unit 2, 10 Anella Ave.
Castle Hill NSW 2154
Australia | SIGMA-ALDRICH CHEMICAL
REPRESENTAÇÕES LTDA.
Rua Sabará, 566 - Conj. 53
01239-010 São Paulo, SP
Brasil | SIGMA CHEMICAL CO. LTD.
Fancy Road, Poole
Dorset BH17 7NH
England | SIGMA-ALDRICH Kft
Teréz krt. 39
1067 Budapest
Hungary | SIGMA-ALDRICH
208 Samtön Campus Building
17-3 Yoido-dong Yungdeungpo-ku
Seoul
South Korea |



POST OFFICE BOX 14508
SAINT LOUIS, MISSOURI 63178, USA

FAX: USA/CANADA 1-800-325-5052 OUTSIDE USA/CANADA 314-771-5757
TELEX: 910-761-0593 or 434475 ANSWERBACK "SIG OK COLLECT"

TELEPHONE: USA/CANADA 1-800-325-3010
OUTSIDE USA/CANADA call COLLECT 314-771-5750

THE WORLD'S FOREMOST MANUFACTURER OF RESEARCH
BIOCHEMICALS AND DIAGNOSTIC REAGENTS

M A T E R I A L S A F E T Y D A T A S H E E T P A G E 2

CUST#: 2-097-94816
PO#: UNE-52243

PRODUCT #: D9779
MF: C4H1002S2

NAME: DITHIOTHREITOL MOLECULAR BIOLOGY
REAGENT

EXTINGUISHING MEDIA
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO
PREVENT CONTACT WITH SKIN AND EYES.
USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES - (P) - - - - -

EVACUATE AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY
RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - HANDLING AND STORAGE - - - - -
REFER TO SECTION 8.

SECTION 8. - - - - - EXPOSURE CONTROL S/PERSONAL PROTECTION - - - - -

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT
GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
USE ONLY IN A CHEMICAL FUME HOOD.
SAFETY SHOWER AND EYE BATH.
DO NOT BREATHE DUST.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
IRRITANT.
HARMFUL SOLID.
KEEP TIGHTLY CLOSED.
UNPLEASANT ODOR.
STORE IN A COOL DRY PLACE.

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

SIGMA-ALDRICH VERTRIEBS GmbH Grünwalder Weg 30 82041 Dörsenhofen Deutschland	SIGMA-ALDRICH QUIMICA, S.A. Apt. Correos 151 28100 Alcobendas (Madrid) España	SIGMA-ALDRICH s.r.o. Křizkova 27 186 00 Praha 8 Česká Republika	SIGMA CHEMIE K. Cardijnplein, 8 B-2890 Bornem Belgie/Belgique	SIGMA CHEMIE P.O.Box 260 CH-9470 Buchs Schweiz/Schweiz	SIGMA-ALDRICH QUIMICA, S.A. de C.V. Avenida Picoacho Ajusco No. 130-303 Fraccionamiento Jardines en la Montaña 14210 Mexico, D.F.	SIGMA-ALDRICH CORPORATION New Delhi Location B-4/158, Saldarjung Enclave New Delhi - 110 029 India
SIGMA CHIMIE L'ISLE D'Abauv Chesnes B.P. 701 38297 St. Quentin Fallavier Cedex	SIGMA-ALDRICH S.r.l. Via Gallarate 154 20151 Milano Italia	SIGMA-ALDRICH PTY., LIMITED Unit 2, 10 Anella Ave. Castle Hill NSW 2154 Australia	SIGMA-ALDRICH CHEMICAL REPRESENTAÇÕES LTDA. Rua Sabará, 566 - Conj. 53 01239-010 São Paulo, SP Brasil	SIGMA CHEMICAL CO. LTD. Fancy Road, Poole Dorset BH17 7NH England	SIGMA-ALDRICH KR Tardiz krt. 39 1067 Budapest Hungary	SIGMA-ALDRICH 206 Samhan Campus Building 17-3 Yoido-dong Yungdeungpo-ku Seoul South Korea

M A T E R I A L S A F E T Y D A T A S H E E T P A G E 3


CUST#: 2-097-94816
 PO#: UNE-52243

PRODUCT #: D9779
 MF: C4H100252

NAME: DITHIOTHREITOL MOLECULAR BIOLOGY
 REAGENT

APPEARANCE AND ODDR
 SOLID.
 MELTING POINT: 42 C TO 44 C
 FLASHPOINT >230
 > 109C

SECTION 10. -----STABILITY AND REACTIVITY-----

STABILITY
 STABLE. 
 INCOMPATIBILITIES
 BASES
 OXIDIZING AGENTS
 REDUCING AGENTS
 ALKALI METALS
 MAY DECOMPOSE ON EXPOSURE TO MOIST AIR OR WATER.
 HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
 TOXIC FUMES OF:
 CARBON MONOXIDE, CARBON DIOXIDE
 SULFUR OXIDES
 HAZARDOUS SULFIDE GAS
 HAZARDOUS POLYMERIZATION
 WILL NOT OCCUR.

SECTION 11. -----TOXICOLOGICAL INFORMATION-----

ACUTE EFFECTS
 HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.
 CAUSES EYE AND SKIN IRRITATION.
 MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER
 RESPIRATORY TRACT.
 EXPOSURE CAN CAUSE:
 NAUSEA, HEADACHE AND VOMITING
 CNS DEPRESSION
 CHRONIC EFFECTS
 TARGET ORGAN(S):
 CENTRAL NERVOUS SYSTEM
 TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
 TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.
 RTECS NO: X08576500
 THREITOL, 1,4-DITHIO-, DL-

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

SIGMA-ALDRICH VERTRIEBS GmbH Grünwalder Weg 30 82041 Dalsenhofen Deutschland	SIGMA-ALDRICH QUIMICA, S.A. Apt. Correas 161 28100 Alcobendas (Madrid) España	SIGMA-ALDRICH S.r.l. Via Gallarate 154 20151 Milano Italia	SIGMA-ALDRICH PTY., LIMITED Unit 2, 10 Anella Ave. Castle Hill NSW 2154 Australia	SIGMA-ALDRICH S.r.o. Kizikova 27 185 00 Praha 6 Česká Republika	SIGMA-ALDRICH QUIMICA, S.A. de C.V. Avenida Picacho Ajusco No. 130-303 Fraccionamiento Jardines en la Montaña 14210 Mexico, D.F.	SIGMA-ALDRICH CORPORATION New Delhi Location B-4/155, Sardarjung Enclave New Delhi - 110 029 India	SIGMA-ALDRICH Tetőz köz. 39 1067 Budapest Hungary	SIGMA-ALDRICH KR 206 Samhan Campus Building 17-3 Yoido-dong Yungdeungpo-ku Seoul South Korea
SIGMA-ALDRICH L'ISLE D'Abeau Chesnes B.P. 701 38297 St. Quentin Fallavier Cedex	SIGMA-ALDRICH S.r.l. Via Gallarate 154 20151 Milano Italia	SIGMA-ALDRICH S.r.o. K. Cardijnplein, 8 B-2880 Bornem Belgie/Belgique	SIGMA-ALDRICH CHEMICAL REPRESENTAÇÕES LTDA. Rua Sabará, 566 - Conj. 53 01239-010 São Paulo, SP Brasil	SIGMA-ALDRICH CHEMIE P.O.Box 260 CH-9470 Buchs Switzerland	SIGMA-ALDRICH CHEMICAL Fanoy Road, Poole Dorset BH17 7NH England			



POST OFFICE BOX 14508
SAINT LOUIS, MISSOURI 63178, USA

FAX: USA/CANADA 1-800-325-5052 OUTSIDE USA/CANADA 314-771-5757
TELEX: 910-761-0593 or 434475 ANSWERBACK "SIG OK COLLECT"

TELEPHONE: USA/CANADA 1-800-325-3010
OUTSIDE USA/CANADA call COLLECT 314-771-5750

THE WORLD'S FOREMOST MANUFACTURER OF RESEARCH
BIOCHEMICALS AND DIAGNOSTIC REAGENTS

M A T E R I A L S A F E T Y D A T A S H E E T P A G E 4

CUST#: 2-097-94816
PO#: UNE-52243

PRODUCT #: D9779
MF: C4H10O2S2

NAME: DITHIOTHREITOL MOLECULAR BIOLOGY
REAGENT

TOXICITY DATA

IPR-MUS LD50:169 MG/KG
SCU-MUS LD50:333 MG/KG
IVN-MUS LD50:94 MG/KG

JMCMAR 15,600,72
ARZNAD 22,1434,72
ARZNAD 22,1434,72

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR
COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----
DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A
CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. ----- TRANSPORT INFORMATION -----

CONTACT SIGMA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. ----- REGULATORY INFORMATION -----

REVIEWS, STANDARDS, AND REGULATIONS

NOES 1983: HZD X2950; NIS 1; TNF 35; NOS 3; TNE 627; TFE 436

SECTION 16. ----- OTHER INFORMATION -----

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO
BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA SHALL NOT BE
HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH
THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR
ADDITIONAL TERMS AND CONDITIONS OF SALE.

COPYRIGHT 1994 SIGMA CHEMICAL CO.
LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

- | | | | | | | |
|---|--|---|--|---|--|--|
| SIGMA-ALDRICH
VERTRIEBS GmbH
Grünwalder Weg 30
82041 Delsenhofen
Deutschland | SIGMA-ALDRICH QUIMICA, S.A.
Apt. Correos 161
28100 Alcobendas
(Madrid)
España | SIGMA-ALDRICH s.r.o.
Krizikova 27
186 00 Praha 8
Ceská Republika | SIGMA CHEMIE
K. Cardijnplein,8
B-2890 Bornem
Belgie/Belgique | SIGMA CHEMIE
P.O.Box 260
CH-9470 Buchs
Switzerland | SIGMA-ALDRICH QUIMICA, S.A. de C.V.
Avenida Picacho Ajusco No. 130-303
Fraccionamiento Jardines en la Montaña
14210 Mexico, D.F. | SIGMA-ALDRICH CORPORATION
New Delhi Location
B-4/158, Satdajung Enclave
New Delhi - 110 029
India |
| SIGMA CHIMIE
L'ISLE D'Abreau Chesnes
B.P. 701
38297 St. Quentin Fallavier
France | SIGMA-ALDRICH S.r.l.
Via Gallarate 154
20151 Milano
Italia | SIGMA-ALDRICH PTY., LIMITED
Unit 2, 10 Anetta Ave.
Castle Hill NSW 2154
Australia | SIGMA-ALDRICH CHEMICAL
REPRESENTAÇÕES LTDA.
Rua Sabará, 966 - Cori, 53
01239-010 São Paulo, SP
Brasil | SIGMA CHEMICAL CO. LTD.
Fancy Road, Poole
Dorset BH17 7NH
England | SIGMA-ALDRICH Kft
Törözkrt. 39
1067 Budapest
Hungary | SIGMA-ALDRICH
205 Samhan Campus Building
17-3 Yeido-dong Yungdeungpo-ku
Seoul
South Korea |

M A T E R I A L S A F E T Y D A T A S H E E T

PAGE 5

CUST#: 2-097-94816
 PO#: UNE-52243

PRODUCT #: D9779
 MF: C4H10O2S2

NAME: DITHIOTHREITOL MOLECULAR BIOLOGY
 REAGENT



BRANCH OFFICES AT:

SIGMA-ALDRICH VERTRIEBS GmbH Grünwalder Weg 30 92041 Delsenhofen Deutschland	SIGMA-ALDRICH QUIMICA, S.A. Apt. Correos 161 28100 Alcobendas (Madrid) Espana	SIGMA-ALDRICH s.r.o. Krizkova 27 186 00 Praha 6 Ceská Republika	SIGMA CHEMIE K. Cardijnplein, 8 B-2880 Bornem Belgie/Belgique	SIGMA CHEMIE P.O. Box 280 CH-9470 Buchs Switzerland	SIGMA-ALDRICH QUIMICA, S.A. de C.V. Avenida Picacho Ajusco No. 130-303 Fraccionamiento Jardines en la Montaña 14210 Mexico, D.F.	SIGMA-ALDRICH CORPORATION New Delhi Location B-4/158, Safdarjung Enclave New Delhi - 110 029 India
SIGMA CHIMIE L'ISLE D'Abeau Chesnes B.P. 701 38297 St. Quentin Fallavier Cadex France	SIGMA-ALDRICH S.r.l. Via Gallarate 154 20151 Milano Italia	SIGMA-ALDRICH PTY., LIMITED Unit 2, 10 Anella Ave. Castle Hill NSW 2154 Australia	SIGMA-ALDRICH CHEMICAL REPRESENTAÇÕES LTDA. Rua Sabará, 566 - Conj. 53 01239-010 São Paulo, SP Brasil	SIGMA CHEMICAL CO. LTD. Fancy Road, Poole Dorset BH17 7NH England	SIGMA-ALDRICH Kft Teréz krt. 39 1067 Budapest Hungary	SIGMA-ALDRICH 206 Samhan Campus Building 17-3 Yoido-dong Yungdeungpo-ku Seoul South Korea