TwistDx Pol Protein

Safety Data Sheet

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

SECTION 1: Identification

1.1. Identification

Product form : Mixture

Product name : TwistDx Pol Protein

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Laboratory chemical

Recommended use : For research purpose only

1.3. Supplier

TwistDx Ltd
Abbott House
Vanwall Business Park
Vanwall Road
Maidenhead SL6 4XE
United Kingdom
Telephone: +1-877-450-6901
Email: info@twistdx.co.uk

1.4. Emergency telephone number

Emergency number : +1-703-741-5970 (+1-800-424-9300 for US, Canada)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
Tris (hydroxymethyl) aminomethane	CAS-No.: 77-86-1	> 1	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
Potassium chloride	CAS-No.: 7447-40-7	> 1	Not classified
DITHIOTHREITOL	CAS-No.: 3483-12-3	> 1	Not classified
Alcohols, C12-14-secondary, ethoxylated *(component of Tergitol™)*	CAS-No.: 84133-50-6	0.097 – 0.1	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 2, H401
Ethylenediaminetetraacetic acid	CAS-No.: 64-02-8	0.038	Eye Dam. 1, H318
Polyethylene glycol *(component of Tergitol™)*	CAS-No.: 25322-68-3	< 0.003	Not classified

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store as directed in product literature.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Personal protective equipment symbol(s):

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	clear Liquid: colourless
Odor	:	odorless
Odor threshold	:	No data available
pH	:	7.5
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Tris (hydroxymethyl) aminomethane (77-86-1)	
LD50 oral rat	> 5000 mg/kg body weight (OECD 425: Acute Oral Toxicity: Up-and-Down Procedure, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 5000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)

(7447-40-7)	
LD50 oral rat	3020 mg/kg body weight (Rat, Female, Experimental value, Oral)
ATE US (oral)	3020 mg/kg body weight

Alcohols, C12-14-secondary, ethoxylated (84133-50-6)	
LD50 oral rat	> 412 mg/kg
LC50 Inhalation - Rat	≈ 1.06 mg/l/4h
ATE US (oral)	500 mg/kg body weight
ATE US (dust, mist)	1.5 mg/l/4h

(64-02-8)	
LD50 oral rat	> 2000 mg/kg (Rat, Oral)

Polyethylene glycol (25322-68-3)	
LD50 oral rat	> 2000 mg/kg body weight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Remarks on results: other:
LD50 dermal rat	> 2000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Remarks on results: other:

Skin corrosion/irritation : Not classified
pH: 7.5

Tris (hydroxymethyl) aminomethane (77-86-1)	
pH	10 – 11 (5 %)

(7447-40-7)	
pH	7

(64-02-8)	
pH	11 (1 %)

Serious eye damage/irritation : Not classified
pH: 7.5

Tris (hydroxymethyl) aminomethane (77-86-1)	
pH	10 – 11 (5 %)

(7447-40-7)	
pH	7

(64-02-8)	
pH	11 (1 %)

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified

Tris (hydroxymethyl) aminomethane (77-86-1)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified

Polyethylene glycol (25322-68-3)	
LOAEL (oral,rat,90 days)	16000 mg/kg body weight: Animal: rat, Guideline: other:
NOAEL (oral,rat,90 days)	8000 mg/kg body weight : Animal: rat, Guideline: other: />
NOAEC (inhalation,rat,dust/mist/fume,90 days)	1 mg/l air : Animal: rat, Guideline: other:

Aspiration hazard : Not classified
Viscosity, kinematic : No data available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Tris (hydroxymethyl) aminomethane (77-86-1)	
EC50 - Crustacea [1]	> 980 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
EC50 72h - Algae [1]	397 mg/l (Equivalent or similar to OECD 201, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth rate)

(7447-40-7)	
LC50 - Fish [1]	2010 mg/l (96 h, Lepomis macrochirus, Static system)
EC50 - Crustacea [1]	660 mg/l (EPA 600/4-90/027, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Nominal concentration)
LC50 - Fish [2]	880 mg/l (EPA 600/4-90/027, 96 h, Pimephales promelas, Static system, Fresh water, Experimental value, Nominal concentration)
EC50 72h - Algae [1]	2500 mg/l (Scenedesmus subspicatus, Biomass)
ErC50 algae	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP)

(64-02-8)	
LC50 - Fish [1]	121 mg/l (96 h, Lepomis macrochirus, Literature study, Soft water)

(64-02-8)	
EC50 - Crustacea [1]	625 mg/l (24 h, Daphnia magna, Literature study)

Polyethylene glycol (25322-68-3)	
LC50 - Fish [1]	> 100 mg/l : Test organisms (species): Poecilia reticulata
EC50 - Crustacea [1]	> 100 mg/l : Test organisms (species): Daphnia magna
EC50 96h - Algae [1]	> 100 mg/l : Test organisms (species): other:
NOEC (chronic)	17475.27 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	13671.59 mg/l : Test organisms (species): other: Duration: '28 d'

12.2. Persistence and degradability

Tris (hydroxymethyl) aminomethane (77-86-1)	
Persistence and degradability	Readily biodegradable in water.

(7447-40-7)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

(64-02-8)	
Persistence and degradability	Not readily biodegradable in water.
Biochemical oxygen demand (BOD)	< 0.002 g O_2 /g substance
Chemical oxygen demand (COD)	0.54 – 0.58 g O_2 /g substance

12.3. Bioaccumulative potential

Tris (hydroxymethyl) aminomethane (77-86-1)	
Partition coefficient n-octanol/water (Log Pow)	-2.31 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)
Bioaccumulative potential	Not bioaccumulative.

(7447-40-7)	
Partition coefficient n-octanol/water (Log Pow)	-0.46 (Estimated value)
Bioaccumulative potential	Not bioaccumulative.

(64-02-8)	
Partition coefficient n-octanol/water (Log Pow)	-2.6
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

Tris (hydroxymethyl) aminomethane (77-86-1)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.87 (log Koc, QSAR)
Ecology - soil	Highly mobile in soil.

(7447-40-7)	
Ecology - soil	No (test) data on mobility of the substance available.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Not applicable
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not applicable

TDG
Transport hazard class(es) (TDG) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

14.4. Packing group

Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT
No data available

TDG

No data available

IMDG

No data available

IATA

No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Tris (hydroxymethyl) aminomethane	77-86-1	Present	Active	
Potassium chloride	7447-40-7	Present	Active	
DITHIOTHREITOL	3483-12-3	Present	Active	
Alcohols, C12-14-secondary, ethoxylated	84133-50-6	Present	Active	XU
Ethylenediaminetetraacetic acid	64-02-8	Present	Active	
Polyethylene glycol	25322-68-3	Present	Active	XU

15.2. International regulations

CANADA

Tris (hydroxymethyl) aminomethane (77-86-1)

Listed on the Canadian DSL (Domestic Substances List)

(7447-40-7)

Listed on the Canadian DSL (Domestic Substances List)

DITHIOTHREITOL (3483-12-3)

Listed on the Canadian DSL (Domestic Substances List)

Alcohols, C12-14-secondary, ethoxylated (84133-50-6)

Listed on the Canadian DSL (Domestic Substances List)

(64-02-8)

Listed on the Canadian DSL (Domestic Substances List)

Polyethylene glycol (25322-68-3)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Tris (hydroxymethyl) aminomethane (77-86-1)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

No additional information available

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Full text of H-phrases	
H302	Harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H401	Toxic to aquatic life

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose

Abbreviations and acronyms	
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product