




# Safety Data Sheet

Canada

## Section 1. Identification

**Product name** DTT Solution; part of 'First Strand cDNA Synthesis Kit, 55 reactions'

**Catalogue Number** 27-9261-01   
9 0 2 7 9 2 6 1 0 1

**Component Number** 279261B

**Product type** Liquid.

### Relevant identified uses of the substance or mixture and uses advised against

#### Identified uses

Use in laboratories

**Supplier** Cytiva  
Amersham Place  
Little Chalfont  
Buckinghamshire  
HP7 9NA United Kingdom  
+44 1494 508000

**Importer** Cytiva Canada  
1055 Vernon Dr  
Vancouver BC V6A 3P4  
Canada  
+1 778-956-2584

### In case of emergency

INFOTRAC

Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)  
In the United States, call 24 Hour number: 1-800-535-5053

## Section 2. Hazard identification

**Classification of the substance or mixture** Not classified.

### GHS label elements

**Signal word** No signal word.

**Hazard statements** No known significant effects or critical hazards.

### Precautionary statements

**Prevention** Not applicable.

**Response** Not applicable.

**Storage** Not applicable.

**Disposal** Not applicable.

**Supplemental label elements** Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 3%



### Section 3. Composition/information on ingredients

**Substance/mixture** Mixture

**Other means of identification** Not available.

Ingredient name	Synonyms	% (w/w)	CAS number
(R*,R*)-1,4-dimercaptobutane-2,3-diol	2,3-Butanediol, 1,4-dimercapto-, (2R,3R)-rel-; 2,3-Butanediol, 1,4-dimercapto-, (R,R)-; 2,3-Butanediol, 1,4-dimercapto-, (R*,R*)-; 1,4-Dithiothreitol; (2R,3S)-1,4-disulfanylbuthane-2,3-diol; dithiothreitol; 2,3-Butanediol, 1,4-dimercapto-, D-threo-; (2R,3R)-rel-1,4-Dimercapto-2,3-butanediol; 1,4-disulfanylbuthane-2,3-diol; CLELANDS REAGENT; (2S,3S)-1,4-bis(sulfanyl)butane-2,3-diol	≥1 - ≤5	CAS: 3483-12-3

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

### Section 4. First-aid measures

#### Description of necessary first aid measures

<b>Eye contact</b>	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
<b>Ingestion</b>	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

#### Most important symptoms/effects, acute and delayed

##### Potential acute health effects

<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Ingestion</b>	No known significant effects or critical hazards.

##### Over-exposure signs/symptoms

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	No specific data.
<b>Ingestion</b>	No specific data.

#### Indication of immediate medical attention and special treatment needed, if necessary

<b>Notes to physician</b>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	No specific treatment.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)



## Section 5. Fire-fighting measures

### Extinguishing media

**Suitable extinguishing media** Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** None known.

**Specific hazards arising from the chemical** In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous thermal decomposition products** Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
sulfur oxides

**Special protective actions for fire-fighters** Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

**For emergency responders** If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

**Small spill** Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** Put on appropriate personal protective equipment (see Section 8).

**Advice on general occupational hygiene** Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Conditions for safe storage, including any incompatibilities** Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.



## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

None.

#### Biological exposure indices

No exposure indices known.

#### **Appropriate engineering controls**

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

#### **Environmental exposure controls**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### **Hygiene measures**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### **Eye/face protection**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

#### Skin protection

##### **Hand protection**

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

##### **Body protection**

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

##### **Other skin protection**

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

#### **Respiratory protection**

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

#### **Physical state**

Liquid.

#### **Color**

Colorless.

#### **Odor**

Odorless.

#### **Odor threshold**

Not available.

#### **pH**

Not available.

#### **Melting point/freezing point**

Not available.

#### **Boiling point or initial boiling point and boiling range**

Not available.

#### **Flash point**

[Product does not sustain combustion.]

#### **Closed cup**

#### **Open cup**

Ingredient name (R*,R*)	°C	°F	Method	°C	°F	Method
-1,4-dimercaptobutane- 2,3-diol	>110	>230				

#### **Burning time**

Not applicable.

#### **Burning rate**

Not applicable.

#### **Evaporation rate**

Not available.

#### **Flammability**

Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.

#### **Lower and upper explosive (flammable) limits**

Not available.



**Vapor pressure** Not available.

	Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	water	17.5	2.3				

**Relative vapor density** Not available.

**Relative density** Not available.

**Solubility(ies)**

Media	Result
cold water	Easily soluble
hot water	Easily soluble

**Solubility in water** Not available.

**Miscible with water** Yes.

**Partition coefficient: n-octanol/ water** Not applicable.

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**SADT** Not available.

**Viscosity** Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.

**Flow time (ISO 2431)** Not available.

#### Particle characteristics

**Median particle size** Not applicable.

## Section 10. Stability and reactivity

**Reactivity** No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability** The product is stable.

**Possibility of hazardous reactions** Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid** No specific data.

**Incompatible materials** No specific data.

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

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result
(R*,R*)-1,4-dimercaptobutane-2,3-diol	<b>Rat - Oral - LD50</b> 400 mg/kg

**Conclusion/Summary [Product]** Not available.

#### Skin corrosion/irritation

Not available.

**Conclusion/Summary [Product]** Not available.

#### Serious eye damage/eye irritation

Not available.

**Conclusion/Summary [Product]** Not available.

#### Respiratory corrosion/irritation



Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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#### **Respiratory or skin sensitization**

Not available.

#### **Skin**

<b>Conclusion/Summary [Product]</b>	Not available.
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#### **Respiratory**

<b>Conclusion/Summary [Product]</b>	Not available.
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#### **Germ cell mutagenicity**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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#### **Carcinogenicity**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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#### **Reproductive toxicity**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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#### **Specific target organ toxicity (single exposure)**

Not available.

#### **Specific target organ toxicity (repeated exposure)**

Not available.

#### **Aspiration hazard**

Not available.

<b>Information on the likely routes of exposure</b>	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
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#### **Potential acute health effects**

<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Ingestion</b>	No known significant effects or critical hazards.

#### **Symptoms related to the physical, chemical and toxicological characteristics**

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	No specific data.



<b>Skin contact</b>	No specific data.
<b>Ingestion</b>	No specific data.

**Delayed and immediate effects and also chronic effects from short and long term exposure****Short term exposure**

<b>Potential immediate effects</b>	Not available.
<b>Potential delayed effects</b>	Not available.

**Long term exposure**

<b>Potential immediate effects</b>	Not available.
<b>Potential delayed effects</b>	Not available.

**Potential chronic health effects**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
<b>General</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	No known significant effects or critical hazards.

**Numerical measures of toxicity****Acute toxicity estimates**

<b>Product/ingredient name</b>	<b>Oral (mg/kg)</b>	<b>Dermal (mg/kg)</b>	<b>Inhalation (gases) (ppm)</b>	<b>Inhalation (vapors) (mg/l)</b>	<b>Inhalation (dusts and mists) (mg/l)</b>
DTT Solution; part of 'First Strand cDNA Synthesis Kit, 55 reactions'	13333.3	N/A	N/A	N/A	N/A
(R*,R*)-1,4-dimercaptobutane-2,3-diol	400	N/A	N/A	N/A	N/A

**Section 12. Ecological information****Toxicity**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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**Persistence and degradability**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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**Bioaccumulative potential**

Not available.

**Mobility in soil**

<b>Soil/Water partition coefficient</b>	Not available.
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<b>Other adverse effects</b>	No known significant effects or critical hazards.
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## Section 13. Disposal considerations

### Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	TDG Classification	DOT Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	-	-	-	-	-
Special precautions for user	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.				
Transport in bulk according to IMO instruments	Not available.				

## Section 15. Regulatory information

### Canadian lists

**Canadian NPRI** None of the components are listed.

**CEPA Toxic substances** None of the components are listed.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**Canada** All components are listed or exempted.

**United States** All components are active or exempted.



## Section 16. Other information

### History

**Date of printing** 2/19/2026  
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**Date of previous issue** 10/10/2019  
**Version** 8.01  
sds\_author@cytiva.com

### Key to abbreviations

ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
HPR = Hazardous Products Regulations  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
N/A = Not available  
UN = United Nations

### Procedure used to derive the classification

Classification	Justification
Not classified.	

### References

Not available.



Indicates information that has changed from previously issued version.

### Notice to reader

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