



# SAFETY DATA SHEET

New Zealand

## 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

### Other means of identification

Not available.

### Product type

Liquid.

### Identified uses

Use in laboratories

### Supplier

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

Cytiva New Zealand  
Buddle Findlay, Level 18, Pricewaterhousecooper Tower,  
188 Quay Street,  
Auckland, Auckland, 1010  
New Zealand

### Person who prepared the SDS :

sds\_author@cytiva.com

### Emergency telephone number (with hours of operation)

0800 733 893  
(10am - 7pm)

## Section 2. Hazards identification

### HSNO Classification

ACUTE TOXICITY (oral) - Category 4

Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 97%

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 100%

This material is classified as hazardous according to criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

### GHS label elements

**Signal word** Warning

**Hazard statements** Harmful if swallowed.

### Precautionary statements

**Prevention** Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

**Response** IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

**Storage** Not applicable.

**Disposal** Dispose of contents and container in accordance with all local, regional, national and international regulations.

### Symbol



**Other hazards which do not result in classification**

None known.



### Section 3. Composition/information on ingredients

|                                      |                |                                 |
|--------------------------------------|----------------|---------------------------------|
| <b>Substance/mixture</b>             | Mixture        |                                 |
| <b>Other means of identification</b> | Not available. |                                 |
| <b>Ingredient name</b>               | <b>% (w/w)</b> | <b>Identifiers</b>              |
| 1,4-Dithiothreitol                   | 1 - 5          | CAS: 3483-12-3<br>EC: 222-468-7 |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment 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>Inhalation</b>   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.  |
| <b>Ingestion</b>    | Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| <b>Skin contact</b> | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.   |
| <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. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.  |

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

#### Potential acute health effects

|                     |   |
|---------------------|---|
| <b>Inhalation</b>   | No known significant effects or critical hazards. |
| <b>Ingestion</b>    | Harmful if swallowed.                             |
| <b>Skin contact</b> | No known significant effects or critical hazards. |
| <b>Eye contact</b>  | No known significant effects or critical hazards. |

#### Over-exposure signs/symptoms

|                   |                   |
|-------------------|-------------------|
| <b>Inhalation</b> | No specific data. |
| <b>Ingestion</b>  | No specific data. |
| <b>Skin</b>       | No specific data. |
| <b>Eyes</b>       | No specific data. |

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

|                                   |  |
|-----------------------------------|--|
| <b>Specific treatments</b>        | Not available.   |
| <b>Notes to physician</b>         | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.  |
| <b>Protection of first-aiders</b> | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |

### See toxicological information (Section 11)

### Section 5. Firefighting measures

#### Extinguishing media

|                     |   |
|---------------------|---|
| <b>Suitable</b>     | Use an extinguishing agent suitable for the surrounding fire. |
| <b>Not suitable</b> | 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



|   |   |
|---|---|
| <b>Hazchem code</b>                                   | Not available.  |
| <b>Special precautions for fire-fighters</b>          | 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. |
| <b>Special protective equipment for fire-fighters</b> | 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**

|  |   |
|--|---|
| <b>For non-emergency personnel</b>                                 | 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 spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.   |
| <b>For emergency responders</b>                                    | If specialised 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".   |
| <b>Environmental precautions</b>                                   | Avoid dispersal of spilt 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).   |
| <b><u>Methods and material for containment and cleaning up</u></b> |   |
| <b>Small spill</b>   | 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.  |
| <b>Large spill</b>   | Stop leak if without risk. Move containers from spill area. Approach the release from upwind. 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. Contaminated absorbent material may pose the same hazard as the spilt product. 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**

|   |   |
|---|---|
| <b>Protective measures</b>  | Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.  |
| <b>Advice on general occupational hygiene</b>                       | 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.   |
| <b>Conditions for safe storage, including any incompatibilities</b> | 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 unlabelled 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.

|   |  |
|---|--|
| <b>Appropriate engineering controls</b> | Good general ventilation should be sufficient to control worker exposure to airborne contaminants.   |
| <b>Environmental exposure controls</b>  | 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**

|                            |   |
|----------------------------|---|
| <b>Hygiene measures</b>    | 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. |
| <b>Eye/face protection</b> | 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**



|                               |  |
|-------------------------------|--|
| <b>Hand protection</b>        | 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.  |
|                               | Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. |
| <b>Body protection</b>        | 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.  |
| <b>Other skin protection</b>  | 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.  |
| <b>Respiratory protection</b> | 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

|   |  |              |            |                |              |            |                                |
|---|--|--------------|------------|----------------|--------------|------------|--------------------------------|
| <b>Physical state</b>   | Liquid.  |              |            |                |              |            |                                |
| <b>Colour</b>   | Colourless.  |              |            |                |              |            |                                |
| <b>Odour</b>  | Odourless.   |              |            |                |              |            |                                |
| <b>Odour threshold</b>  | Not available.   |              |            |                |              |            |                                |
| <b>pH</b>   | Not available.   |              |            |                |              |            |                                |
| <b>Melting point/freezing point</b>                             | Not available.   |              |            |                |              |            |                                |
| <b>Boiling point or initial boiling point and boiling range</b> | Not available.   |              |            |                |              |            |                                |
| <b>Flash point</b>  | [Product does not sustain combustion.]   |              |            |                |              |            |                                |
|   | <b>Closed cup</b>  |              |            |                |              |            |                                |
|   | <b>Ingredient name</b>   | <b>°C</b>    | <b>°F</b>  | <b>Method</b>  | <b>°C</b>    | <b>°F</b>  | <b>Method</b>                  |
|   | (R*,R*)  | >110         | >230       |                |              |            |                                |
|   | -1,4-dimercaptobutane-2,3-diol   |              |            |                |              |            |                                |
| <b>Burning time</b>   | Not applicable.  |              |            |                |              |            |                                |
| <b>Burning rate</b>   | Not applicable.  |              |            |                |              |            |                                |
| <b>Evaporation rate</b>   | Not available.   |              |            |                |              |            |                                |
| <b>Flammability</b>   | Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidising materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture. |              |            |                |              |            |                                |
| <b>Lower and upper explosive (flammable) limits</b>             | Not available.   |              |            |                |              |            |                                |
| <b>Vapour pressure</b>  | Not available.   |              |            |                |              |            |                                |
|   | <b>Vapour Pressure at 20°C</b>   |              |            |                |              |            | <b>Vapour pressure at 50°C</b> |
|   | <b>Ingredient name</b>   | <b>mm Hg</b> | <b>kPa</b> | <b>Method</b>  | <b>mm Hg</b> | <b>kPa</b> | <b>Method</b>                  |
|   | water  | 17.5         | 2.3        |                |              |            |                                |
| <b>Relative vapour density</b>                                  | Not available.   |              |            |                |              |            |                                |
| <b>Relative density</b>   | Not available.   |              |            |                |              |            |                                |
| <b>Solubility(ies)</b>  |  |              |            |                |              |            |                                |
|   | <b>Media</b>   |              |            | <b>Result</b>  |              |            |                                |
|   | cold water   |              |            | Easily soluble |              |            |                                |
|   | hot water  |              |            | Easily soluble |              |            |                                |
| <b>Solubility in water</b>                                      | Not available.   |              |            |                |              |            |                                |
| <b>Miscible with water</b>                                      | Yes.   |              |            |                |              |            |                                |
| <b>Partition coefficient: n-octanol/water</b>                   | Not applicable.  |              |            |                |              |            |                                |
| <b>Auto-ignition temperature</b>                                | Not available.   |              |            |                |              |            |                                |
| <b>Decomposition temperature</b>                                | Not available.   |              |            |                |              |            |                                |
| <b>SADT</b>   | Not available.   |              |            |                |              |            |                                |
| <b>Viscosity</b>  | Dynamic (room temperature): Not available.<br>Kinematic (room temperature): Not available.<br>Kinematic (40°C (104°F)): Not available.   |              |            |                |              |            |                                |
| <b>Flow time (ISO 2431)</b>                                     | Not available.   |              |            |                |              |            |                                |
| <b>Particle characteristics</b>                                 |  |              |            |                |              |            |                                |
| <b>Median particle size</b>                                     | Not applicable.  |              |            |                |              |            |                                |



## Section 10. Stability and reactivity

|   |  |
|---|--|
| <b>Reactivity</b>                         | No specific test data related to reactivity available for this product or its ingredients.           |
| <b>Chemical stability</b>                 | The product is stable.   |
| <b>Possibility of hazardous reactions</b> | Under normal conditions of storage and use, hazardous reactions will not occur.                      |
| <b>Conditions to avoid</b>                | No specific data.  |
| <b>Incompatible materials</b>             | No specific data.  |
| <b>Hazardous decomposition products</b>   | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

## Section 11. Toxicological information

### Information on likely routes of exposure

|                     |   |
|---------------------|---|
| <b>Inhalation</b>   | No known significant effects or critical hazards. |
| <b>Ingestion</b>    | Harmful if swallowed.                             |
| <b>Skin contact</b> | No known significant effects or critical hazards. |
| <b>Eye contact</b>  | No known significant effects or critical hazards. |

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

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

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Acute toxicity

| <b>Product/ingredient name</b> | <b>Result</b>                  |
|--------------------------------|--------------------------------|
| 1,4-Dithiothreitol             | Rat - Oral - LD50<br>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.

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

#### Respiratory or skin sensitization

Not available.

#### Skin

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

#### Respiratory

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



**Potential chronic health effects**

|                              |   |
|------------------------------|---|
| <b>General</b>               | No known significant effects or critical hazards. |
| <b>Inhalation</b>            | No known significant effects or critical hazards. |
| <b>Ingestion</b>             | No known significant effects or critical hazards. |
| <b>Skin contact</b>          | No known significant effects or critical hazards. |
| <b>Eye contact</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>Developmental effects</b> | No known significant effects or critical hazards. |
| <b>Fertility effects</b>     | No known significant effects or critical hazards. |

**Chronic toxicity**

Not available.

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

**Carcinogenicity**

Not available.

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

**Germ cell mutagenicity**

Not available.

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

**Reproductive toxicity**

Not available.

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

**Specific target organ toxicity (single exposure)**

Not available.

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

Not available.

**Aspiration hazard**

Not available.

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

| Product/ingredient name   | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapours) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|---|--------------|----------------|--------------------------|-----------------------------|-------------------------------------|
| DTT Solution; part of 'First Strand cDNA Synthesis Kit, 55 reactions' | 400          | N/A            | N/A                      | N/A                         | N/A                                 |
| 1,4-Dithiothreitol  | 400          | N/A            | N/A                      | N/A                         | N/A                                 |

**Section 12. Ecological information**

**Ecotoxicity** No known significant effects or critical hazards.

**Aquatic and terrestrial toxicity**

Not available.

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

**Persistence/degradability**

Not available.

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

#### **Bioaccumulative potential**

Not available.

#### **Mobility in soil**

**Soil/water partition coefficient** Not available.

**Other adverse effects** No known significant effects or critical hazards.

### **Section 13. Disposal considerations**

|                         |  |
|-------------------------|--|
| <b>Disposal methods</b> | The generation of waste should be avoided or minimised 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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. |
|-------------------------|--|

### **Section 14. Transport information**

| <b>Regulatory information</b> | <b>UN number</b> | <b>Proper shipping name</b> | <b>Classes</b> | <b>PG*</b> |
|-------------------------------|------------------|-----------------------------|----------------|------------|
| <b>New Zealand Class</b>      | Not regulated.   | -                           | -              | -          |
|                               |                  | No.                         |                |            |
| <b>IATA Class</b>             | Not regulated.   | -                           | -              | -          |
|                               |                  | No.                         |                |            |
| <b>IMDG Class</b>             | Not regulated.   | -                           | -              | -          |
|                               |                  | No.                         |                |            |

PG\* : Packing group

|   |   |
|---|---|
| <b>Special precautions for user</b>                   | <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. |
| <b>Transport in bulk according to IMO instruments</b> | Not available.  |

### **Section 15. Regulatory information**

|                             |                                       |
|-----------------------------|---------------------------------------|
| <b>HSNO Approval Number</b> | HSR002596                             |
| <b>HSNO Group Standard</b>  | Laboratory Chemicals and Reagent Kits |
| <b>HSNO Classification</b>  | ACUTE TOXICITY (oral) - Category 4    |

#### **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**

|                    |  |
|--------------------|--|
| <b>New Zealand</b> | All components are listed or exempted. |
| <b>Australia</b>   | All components are listed or exempted. |



|                         |  |
|-------------------------|--|
| <b>United States</b>    | All components are active or exempted.   |
| <b>Canada inventory</b> | All components are listed or exempted.   |
| <b>China</b>            | All components are listed or exempted.   |
| <b>Japan</b>            | <b>Japan inventory (CSCL):</b> Not determined.<br><b>Japan inventory (ISHL):</b> Not determined. |

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## Section 16. Other information

### History

|  |   |
|--|---|
| <b>Date of printing</b>                | 19 February 2026  |
| <b>Date of issue/ Date of revision</b> | 19 February 2026  |
| <b>Date of previous issue</b>          | 10/10/2019  |
| <b>Version</b>                         | 8.01  |
| <b>Key to abbreviations</b>            | ADG = Australian Dangerous Goods<br>ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road<br>ATE = Acute Toxicity Estimate<br>BCF = Bioconcentration Factor<br>GHS = Globally Harmonized System of Classification and Labelling of Chemicals<br>IATA = International Air Transport Association<br>IBC = Intermediate Bulk Container<br>IMDG = International Maritime Dangerous Goods<br>LogPow = logarithm of the octanol/water partition coefficient<br>MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)<br>RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail<br>UN = United Nations |

**References** Not available.

 **Indicates information that has changed from previously issued version.**

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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