

# SAFETY DATA SHEET

Singapore

## Section 1. Identification

GHS product identifier

**High-Range Rainbow™ Molecular Weight Markers, 250 µl**

Catalogue Number

RPN756E



Other means of identification Not available.

Product type Liquid.

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

#### Identified uses

Analytical chemistry.  
Laboratory chemicals  
Scientific research and development

#### Uses advised against

#### Reason

### Supplier

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

Cytiva Singapore  
25 Tuas South Street 1  
Singapore 638034

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

+65 6863 6704  
(hours of operation: 8.30 pm - 5.30 pm)

## Section 2. Hazards identification

**Classification of the substance or mixture** SKIN CORROSION/IRRITATION - Category 2  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

### GHS label elements, including precautionary statements

#### Hazard pictograms



#### Signal word

Warning

#### Hazard statements

Causes serious eye irritation.  
Causes skin irritation.

### Precautionary statements

#### Prevention

Wear protective gloves. Wear eye or face protection. Wash hands thoroughly after handling.

#### Response

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

#### Storage

Not applicable.

#### Disposal

Not applicable.

### 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>Chemical formula</b>	Not applicable.		
<b>Ingredient name</b>	<b>%</b>	<b>Identifiers</b>	
sodium dodecyl sulphate	3	CAS: 151-21-3 EC: 205-788-1	
mesna	1.5	CAS: 19767-45-4 EC: 243-285-9	
Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, sodium salt, hydrate (1:2:2)	1	CAS: 6381-92-6 EC: 205-358-3	

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>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.
<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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Ingestion</b>	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 adverse health effects persist or are severe. 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.

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

##### Potential acute health effects

<b>Eye contact</b>	Causes serious eye irritation.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	Causes skin irritation.
<b>Ingestion</b>	No known significant effects or critical hazards.

##### Over-exposure signs/symptoms

<b>Eye contact</b>	Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	Adverse symptoms may include the following: irritation redness
<b>Ingestion</b>	No specific data.

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

<b>Notes to physician</b>	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
<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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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  
nitrogen oxides  
sulfur oxides  
metal oxide/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. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry 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. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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 (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor 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.

**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: chemical splash goggles.

**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. 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.

**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**

**Appearance**

**Physical state** Liquid.  
**Color** Brownish-red.  
**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	°C	°F	Method	°C	°F	Method
sodium dodecyl sulphate				>150	>302	
glycerol				177	350.6	

**Burning time** Not applicable.  
**Burning rate** Not applicable.  
**Evaporation rate** Not available.  
**Flammability** Not available.  
**Lower and upper explosive (flammable) limits** Not available.  
**Vapor pressure** Not available.

Vapor Pressure at 20°C				Vapor pressure at 50°C		
Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method
water	17.5	2.3				
glycerol	0.000075	0.00001		0	0	

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



Auto-ignition temperature	Not available.			
	Ingredient name	°C	°F	Method
	sodium dodecyl sulphate	310.5	590.9	VDI 2263
	glycerol	370	698	
Decomposition temperature	Not available.			
SADT	Not available.			
Viscosity	Not available.			
Flow time (ISO 2431)	Not available.			
<u>Particle characteristics</u>				
Median particle size	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.
<b>SADT</b>	Not available.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

##### Product/ingredient name

sodium dodecyl sulphate

mesna

Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt, hydrate (1:2:2)

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

##### Result

**Rat - Oral - LD50**

1288 mg/kg

**Rat - Oral - LD50**

4440 mg/kg

**Rat - Oral - LD50**

2000 mg/kg

#### Skin corrosion/irritation

##### Product/ingredient name

sodium dodecyl sulphate

##### Result

**Human - Skin - Mild irritant**Duration of treatment/exposure: 48 hoursAmount/concentration applied: 5 %**Human - Skin - Severe irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 10 %**Guinea pig - Skin - Mild irritant**Duration of treatment/exposure: 336 hoursAmount/concentration applied: 25250 ppm**Guinea pig - Skin - Mild irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 25250 ppm**Guinea pig - Skin - Severe irritant**Duration of treatment/exposure: 48 hoursAmount/concentration applied: 25250 ppm**Guinea pig - Skin - Severe irritant**Duration of treatment/exposure: 72 hoursAmount/concentration applied: 25250 ppm**Human - Skin - Mild irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 0.5 %**Human - Skin - Moderate irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 10 pph**Man - Skin - Mild irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 5 %**Mouse - Skin - Moderate irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 5 %**Rabbit - Skin - Moderate irritant**

Duration of treatment/exposure: 24 hours  
Amount/concentration applied: 5 %  
**Rabbit - Skin - Severe irritant**  
Duration of treatment/exposure: 24 hours  
Amount/concentration applied: 2.5 %  
**Mouse - Skin - Severe irritant**  
Duration of treatment/exposure: 4 hours  
Amount/concentration applied: 1 pph  
**Rabbit - Skin - Mild irritant**  
Duration of treatment/exposure: 1 hours  
Amount/concentration applied: 5 %

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

**Serious eye damage/eye irritation**

**Product/ingredient name**

sodium dodecyl sulphate

**Result**

**Rabbit - Eyes - Mild irritant**

Duration of treatment/exposure: 1 hours  
Amount/concentration applied: 5 pph

**Rabbit - Eyes - Severe irritant**

Duration of treatment/exposure: 1 hours  
Amount/concentration applied: 1 %

**Rabbit - Eyes - Severe irritant**

Duration of treatment/exposure: 1 hours  
Amount/concentration applied: 1 %

**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.

**Germ cell mutagenicity**

Not available.

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

**Carcinogenicity**

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.

**Information on the likely routes of exposure** Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

**Potential acute health effects**

**Eye contact** Causes serious eye irritation.  
**Inhalation** No known significant effects or critical hazards.  
**Skin contact** Causes skin irritation.  
**Ingestion** No known significant effects or critical hazards.

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

**Eye contact** Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness  
**Inhalation** No specific data.  
**Skin contact** Adverse symptoms may include the following:  
 irritation  
 redness  
**Ingestion** No specific data.

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

**Potential immediate effects** Not available.  
**Potential delayed effects** Not available.

**Long term exposure**

**Potential immediate effects** Not available.  
**Potential delayed effects** Not available.

**Potential chronic health effects**

Not available.

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

**General** No known significant effects or critical hazards.  
**Carcinogenicity** No known significant effects or critical hazards.  
**Mutagenicity** No known significant effects or critical hazards.  
**Reproductive toxicity** No known significant effects or critical hazards.

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

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Rainbow Markers New Formulation - GROUP	35395.7	N/A	N/A	N/A	N/A
sodium dodecyl sulphate	1288	N/A	N/A	N/A	N/A
mesna	4440	N/A	N/A	N/A	N/A
Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, sodium salt, hydrate (1:2:2)]	2000	N/A	N/A	N/A	N/A

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

Product/ingredient name	Result
sodium dodecyl sulphate	<b>Acute - LC50 - Fresh water</b> Fish - Carp, hawk fish - <i>Cirrhinus mrigala</i> - Larvae Age: 2 days; Size: 4.5 mm; Weight: 51 mg 590 µg/l [96 hours] Effect: Mortality <b>Acute - EC50 - Marine water</b> Algae - Diatom - <i>Skeletonema costatum</i> 1200 µg/l [96 hours] Effect: Population <b>Acute - LC50 - Marine water</b> Crustaceans - Brine shrimp - <i>Artemia salina</i> - Adult



Age: 25 days; Size: 3.5 to 4.5 mm  
900 µg/l [48 hours]  
Effect: Mortality  
**Chronic - NOEC - Marine water**  
Algae - Sea Lettuce - *Ulva fasciata* - Zoea  
1.25 mg/l [96 hours]  
Effect: Reproduction  
**Chronic - NOEC - Fresh water**  
OECD  
Crustaceans - Water flea - *Pseudosida ramosa* - Neonate  
Age: <24 hours  
1 mg/l [21 days]  
Effect: Reproduction  
**Chronic - NOEC - Fresh water**  
OECD  
Fish - Eastern mosquitofish - *Gambusia holbrooki*  
Weight: 0.14 g  
0.8 mg/l [28 days]  
Effect: Enzymes

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

**Persistence/degradability**

Not available.

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

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
sodium dodecyl sulphate	-	>60%; 28 day(s)	Readily

**Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
sodium dodecyl sulphate	-2.03	-	Low

**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 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. 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 spilled material and runoff and contact with soil, waterways, drains and sewers.
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Section 14. Transport information

	UN	IMDG	IATA
<b>UN number</b>	Not regulated.	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-	-
<b>Transport hazard class(es)</b>	-	-	-
<b>Packing group</b>	-	-	-
<b>Environmental hazards</b>	No.	No.	No.
<b>Additional information</b>	-	-	-





	ADR/RID	ADN
<b>UN number</b>	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-
<b>Transport hazard class(es)</b>	-	-
<b>Packing group</b>	-	-
<b>Environmental hazards</b>	No.	No.
<b>Additional information</b>		
<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

### Singapore - hazardous chemicals under government control

None.

### 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.

### International lists

#### National inventory

<b>United States</b>	Not determined.
<b>Canada inventory</b>	Not determined.
<b>China</b>	Not determined.
<b>Japan</b>	<b>Japan inventory (CSCL):</b> Not determined. <b>Japan inventory (ISHL):</b> Not determined.

## Section 16. Other information

### History

<b>Date of printing</b>	16 February 2026
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**Key to abbreviations**

ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
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
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method

**References** Not available.

▣ Indicates information that has changed from previously issued version.

**Notice to reader**

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