Thermo SCIENTIFIC

Part of Thermo Fisher Scientific
The world leader in serving science

Material Safety Data Sheet

PageRuler Unstained High Range Protein Ladder

1. Product and company identification

Product name : PageRuler Unstained High Range Protein Ladder

Synonym : PageRuler Prestained NIR Protein Ladder

Supplier : Thermo Fisher Scientific
Pierce Biotechnology
P.O. Box 117
Rockford, IL 61105
United States
815.968.0747 or
800.874.3723

Manufacturer : Thermo Fisher Scientific
Pierce Biotechnology
P.O. Box 117
Rockford, IL 61105
United States
815.968.0747 or
800.874.3723

Code : 0026635 0026636 0026637 0026638

MSDS # 8675

Validation date : 11/10/2011.

Print date : 11/10/2011.

Responsible name MSDS (Regulatory Specialist)

CHEMTREC:
800.424.9300
OUTSIDE US:
703.527.3887

Material uses **Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.**

Product type : Liquid.

2. Hazards identification

Emergency overview

Physical state : Liquid.

Color : Blue.

Odor : Unpleasant.

Signal word : WARNING!

Hazard statements : HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Precautionary measures : Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Wash thoroughly after handling.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Toxic by inhalation. Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : Toxic if swallowed.

Skin : Toxic in contact with skin. Irritating to skin. May cause sensitization by skin contact.

Eyes : Irritating to eyes.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

2. Hazards identification

Potential chronic health effects

Chronic effects : Contains material that can cause target organ damage. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Target organs : Contains material which causes damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, eyes, central nervous system (CNS). Contains material which may cause damage to the following organs: kidneys, liver, gastrointestinal tract.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Ingestion : No specific data.

Skin : Adverse symptoms may include the following:
irritation
redness

Eyes : Adverse symptoms may include the following:
pain or irritation
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
glycerol	56-81-5	25 - 45
sodium dodecyl sulphate	151-21-3	1 - 3
[2-hydroxy-1,1-bis(hydroxymethyl)ethyl]ammonium dihydrogen phosphate	6992-39-8	1 - 3
(R*,R*)-1,4-dimercaptobutane-2,3-diol	3483-12-3	1 - 3

Canada

Name	CAS number	%
glycerol	56-81-5	25 - 45
sodium dodecyl sulphate	151-21-3	1 - 3
(R*,R*)-1,4-dimercaptobutane-2,3-diol	3483-12-3	1 - 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.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

4. First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician : 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.

5. Fire-fighting measures

Flammability of the product : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : 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.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
phosphorus oxides
metal oxide/oxides

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.

6. Accidental release measures

Personal precautions : 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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

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 for 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.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

PageRuler Unstained High Range Protein Ladder

6. Accidental release measures

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.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). 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. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.

Storage : 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.

8. Exposure controls/personal protection

United States

Ingredient	Exposure limits
glycerol	**ACGIH (United States).** TWA: 10 mg/m³ **ACGIH TLV (United States, 2/2010).** TWA: 10 mg/m³ 8 hour(s). Form: Inhalable fraction **OSHA PEL (United States, 6/2010).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust **OSHA PEL 1989 (United States, 3/1989).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 10 mg/m³ 8 hour(s). Form: Total dust **OSHA PEL (United States).** TWA: 15 mg/m³ 8 hour(s). Form: Total dust **ACGIH TLV (United States).** TWA: 10 mg/m³ 8 hour(s). Form: Total particulates **OSHA PEL (United States). Notes: Respirable** TWA: 15 mg/m³ 8 hour(s).

Canada

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

8. Exposure controls/personal protection

glycerol	US ACGIH 2/2010	-	10	-	-	-	-	-	-	-	[a]
	US ACGIH	-	10	-	-	-	-	-	-	-	[b]
	AB 4/2009	-	10	-	-	-	-	-	-	-	[3] [c]
	BC 9/2010	-	10	-	-	-	-	-	-	-	[c]
		-	3	-	-	-	-	-	-	-	[d]
	ON 7/2010	-	10	-	-	-	-	-	-	-	[a]
	QC 6/2008	-	10	-	-	-	-	-	-	-	[e]

[3]Skin sensitization
Form: [a]Inhalable fraction [b]Total particulates [c]Mist [d]Respirable mist [e]mist

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : 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.

Eyes : 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 or dusts.

Skin : 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.

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.

9. Physical and chemical properties

Physical state : Liquid.

Color : Blue.

Odor : Unpleasant.

pH : 7.5

Dispersibility properties : Dispersible in the following materials: cold water and hot water.

Solubility : Easily soluble in the following materials: cold water and hot water.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

PageRuler Unstained High Range Protein Ladder

10. Stability and reactivity

Chemical stability : The product is stable.

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.

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

11. Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
glycerol	LD50 Dermal	Rat	>21900 mg/kg	-
	LD50 Oral	Rat	12600 mg/kg	-
(R*,R*)-1,4-dimercaptobutane-2,3-diol	LD50 Oral	Rat	400 mg/kg	-
sodium dodecyl sulphate	LC50 Inhalation Dusts and mists	Rat	>3900 mg/m³	1 hours
	LD50 Dermal	Rabbit	580 mg/kg	-
	LD50 Oral	Rat	1288 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
glycerol	Sub-chronic TD50 Oral	Rat	16800 mg/kg	28 days Continuous
	Sub-chronic TD50 Oral	Rat	96 g/kg	30 days Intermittent

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
sodium dodecyl sulphate	Eyes - Mild irritant	Rabbit	-	250 Micrograms	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Dog	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Guinea pig	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Human	-	504 hours 0.3 Percent	-
	Skin - Mild irritant	Human	-	24 hours 0.06 Percent	-
	Skin - Mild irritant	Human	-	22 hours 10 Percent	-
	Skin - Mild irritant	Human	-	47 hours 0.5 Percent	-
	Skin - Mild irritant	Human	-	18 hours 2 Percent	-

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

11. Toxicological information

	Skin - Moderate irritant	Human	-	48 hours 3 Percent	-
	Skin - Moderate irritant	Human	-	24 hours 0.1 Percent	-
	Skin - Moderate irritant	Mouse	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Pig	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Human	-	2 hours 2 Percent	-

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
glycerol	Equivocal - Oral - TDLo	Mouse	87.5 g/kg	25 weeks Intermittent

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
glycerol	-	-	-	-	-	None.
sodium dodecyl sulphate	A2	-	-	None.	-	None.
(R*,R*)-1,4-dimercaptobutane-2,3-diol	-	-	-	None.	-	None.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
glycerol	Cytogenetic Analysis DNA Inhibition	Subject: Mammalian-Animal Subject: Mammalian-Human	Positive Positive

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
glycerol	-	Positive	-	Rat - Male	Oral: 100 mg/kg	1 days
	-	-	-	Rat - Male	Unreported: 280 mg/kg	2 days
	-	-	-	Rat - Male	Unreported: 862 mg/kg	1 days
	-	Positive	-	Rat - Male	Unreported: 1600 mg/kg	1 days
	-	-	-	Mammal - species unspecified - Male	Unreported: 119 mg/kg	1 days
sodium dodecyl sulphate	-	-	-	Mouse	Dermal: 480 mg/kg	-

Conclusion/Summary : Not available.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

PageRuler Unstained High Range Protein Ladder

11. Toxicological information

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
(R*,R*)-1,4-dimercaptobutane-2,3-diol	LD50 Oral	Rat	400 mg/kg	-
sodium dodecyl sulphate	LC50 Inhalation Dusts and mists	Rat	>3900 mg/m³	1 hours
	LD50 Dermal	Rabbit	580 mg/kg	-
	LD50 Oral	Rat	1288 mg/kg	-
glycerol	LD50 Dermal	Rat	>21900 mg/kg	-
	LD50 Oral	Rat	12600 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
glycerol	Sub-chronic TD50 Oral	Rat	16800 mg/kg	28 days Continuous
	Sub-chronic TD50 Oral	Rat	96 g/kg	30 days Intermittent

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
sodium dodecyl sulphate	Eyes - Mild irritant	Rabbit	-	250 Micrograms	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Dog	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Guinea pig	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Human	-	504 hours 0.3 Percent	-
	Skin - Mild irritant	Human	-	24 hours 0.06 Percent	-
	Skin - Mild irritant	Human	-	22 hours 10 Percent	-
	Skin - Mild irritant	Human	-	47 hours 0.5 Percent	-
	Skin - Mild irritant	Human	-	18 hours 2 Percent	-
	Skin - Moderate irritant	Human	-	48 hours 3 Percent	-
	Skin - Moderate irritant	Human	-	24 hours 0.1 Percent	-
	Skin - Moderate irritant	Mouse	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Pig	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Human	-	2 hours 2 Percent	-
glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500	-

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

11. Toxicological information

	Skin - Mild irritant	Rabbit	-	milligrams 24 hours 500 milligrams	-

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
glycerol	Equivocal - Oral - TDLo	Mouse	87.5 g/kg	25 weeks Intermittent

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
glycerol	-	-	-	-	-	None.
sodium dodecyl sulphate	A2	-	-	None.	-	None.
(R*,R*)-1,4-dimercaptobutane-2,3-diol	-	-	-	None.	-	None.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
glycerol	Cytogenetic Analysis DNA Inhibition	Subject: Mammalian-Animal Subject: Mammalian-Human	Positive Positive

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
sodium dodecyl sulphate	-	-	-	Mouse	Dermal: 480 mg/kg	-
glycerol	-	-	-	Rat - Male	Unreported: 280 mg/kg	2 days
	-	Positive	-	Rat - Male	Oral: 100 mg/kg	1 days
	-	-	-	Rat - Male	Unreported: 862 mg/kg	1 days
	-	-	-	Mammal - species unspecified - Male	Unreported: 119 mg/kg	1 days
	-	Positive	-	Rat - Male	Unreported: 1600 mg/kg	1 days

Conclusion/Summary : Not available.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

PageRuler Unstained High Range Protein Ladder

12. Ecological information

glycerol	Acute LC50 51 to 57 ml/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
(R*,R*)-1,4-dimercaptobutane-2,3-diol	Acute LC50 27000 to 30000 ug/L Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
sodium dodecyl sulphate	Acute EC50 1200 ug/L Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 1.26 mg/L Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 1400 ug/L Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 590 ug/L Fresh water	Fish - Cirrhinus mrigala - Larvae - 2 days - 4.5 mm - 51 mg	96 hours
	Chronic NOEC 3.2 mg/L Fresh water	Daphnia - Daphnia magna - Neonate - <24 hours	21 days
	Chronic NOEC >1357 ug/L Fresh water	Fish - Pimephales promelas	42 days

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

Canada

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
(R*,R*)-1,4-dimercaptobutane-2,3-diol	Acute LC50 27000 to 30000 ug/L Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
sodium dodecyl sulphate	Acute EC50 1200 ug/L Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 1.26 mg/L Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 1400 ug/L Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 590 ug/L Fresh water	Fish - Cirrhinus mrigala - Larvae - 2 days - 4.5 mm - 51 mg	96 hours
	Chronic NOEC 3.2 mg/L Fresh water	Daphnia - Daphnia magna - Neonate - <24 hours	21 days
	Chronic NOEC >1357 ug/L Fresh water	Fish - Pimephales promelas	42 days
glycerol	Acute LC50 51 to 57 ml/L Fresh water	Fish - Oncorhynchus mykiss	96 hours

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

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

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not regulated.	-	-	-

PG* : Packing group

15. Regulatory information

United States

HCS Classification : Toxic material
Irritating material
Sensitizing material
Target organ effects

U.S. Federal regulations : **TSCA 8(a) IUR Exempt/Partial exemption**: Not determined
United States inventory (TSCA 8b): Not determined.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: sodium dodecyl sulphate; glycerol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: sodium dodecyl sulphate: Immediate (acute) health hazard, Delayed (chronic) health hazard; glycerol: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

State regulations

Massachusetts : The following components are listed: GLYCERINE MIST

New York : None of the components are listed.

New Jersey : The following components are listed: Glycerin

Pennsylvania : The following components are listed: 1,2,3-PROPANETRIOL

United States inventory (TSCA 8b) : Not determined.

Canada

WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : Not determined.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

PageRuler Unstained High Range Protein Ladder

15. Regulatory information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

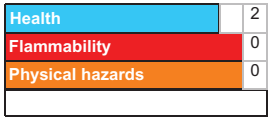
International regulations

International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Japan inventory: Not determined.
Korea inventory: Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.

16. Other information

Label requirements : HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Hazardous Material Information System (U.S.A.) :



The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :

Date of printing : **11/10/2011.**

Date of issue : 11/10/2011.

Date of previous issue : 7/14/2011.

Version : 1.01

Prepared by : MSDS (Regulatory Specialist)

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.

Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax