

# SAFETY DATA SHEET

Agilent Protein 230 Reagents, Part Number 5067-1518

## Section 1. Identification

### 1.1 Product identifier

**Product name** : Agilent Protein 230 Reagents, Part Number 5067-1518  
**Part No. (Chemical Kit)** : 5067-1518  
**Part No.** : Reagents P230 G2938-80026  
                                   Protein 230 Gel Matrix                                   Not available.  
                                   Protein 230 Dye Concentrate                                   Not available.  
                                   Reagents P230 frozen G2938-80041  
                                   Protein 230 Ladder   Not available.  
                                   Protein 230 Sample Buffer   Not available.

**Validation date** : 9/22/2017

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

**Material uses** : Analytical chemistry.  
                                   Research and Development  
                                   Protein 230 Gel Matrix   4 x 0.65 ml  
                                   Protein 230 Dye Concentrate   1 x 0.09 ml  
                                   Protein 230 Ladder   1 x 0.18 ml  
                                   Protein 230 Sample Buffer   4 x 0.2 ml

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
                                   5301 Stevens Creek Blvd  
                                   Santa Clara, CA 95051, USA  
                                   800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** :  Protein 230 Gel Matrix                                   While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.  
                                   Protein 230 Dye Concentrate                                   This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
                                   Protein 230 Ladder   This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
                                   Protein 230 Sample Buffer                                   While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

### Classification of the substance or mixture

## Section 2. Hazards identification

### Protein 230 Dye Concentrate

H227 FLAMMABLE LIQUIDS - Category 4  
 H319 EYE IRRITATION - Category 2A

### Protein 230 Ladder

H319 EYE IRRITATION - Category 2A

#### Ingredients of unknown toxicity

: Protein 230 Gel Matrix	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10%
Protein 230 Dye Concentrate	Percentage of the mixture consisting of ingredient (s) of unknown oral toxicity: 1 - 10%
Protein 230 Ladder	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10%
Protein 230 Sample Buffer	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 10 - 30% Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10%

### 2.2 GHS label elements

#### Hazard pictograms

: Protein 230 Dye Concentrate



Protein 230 Ladder



#### Signal word

: Protein 230 Gel Matrix No signal word.  
 Protein 230 Dye Concentrate Warning  
 Protein 230 Ladder Warning  
 Protein 230 Sample Buffer No signal word.

#### Hazard statements

: Protein 230 Gel Matrix No known significant effects or critical hazards.  
 Protein 230 Dye Concentrate H227 - Combustible liquid.  
 H319 - Causes serious eye irritation.  
 Protein 230 Ladder H319 - Causes serious eye irritation.  
 Protein 230 Sample Buffer No known significant effects or critical hazards.

### Precautionary statements

#### Prevention

: Protein 230 Gel Matrix Not applicable.  
 Protein 230 Dye Concentrate P280 - Wear protective gloves. Wear eye or face protection.  
 P210 - Keep away from flames and hot surfaces. -  
 No smoking.  
 P264 - Wash hands thoroughly after handling.  
 Protein 230 Ladder P280 - Wear eye or face protection.  
 P264 - Wash hands thoroughly after handling.  
 Protein 230 Sample Buffer Not applicable.

## Section 2. Hazards identification

<b>Response</b>	: Protein 230 Gel Matrix	Not applicable.
	Protein 230 Dye Concentrate	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
	Protein 230 Ladder	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
<b>Storage</b>	: Protein 230 Sample Buffer	Not applicable.
	: Protein 230 Gel Matrix Protein 230 Dye Concentrate	Not applicable. P403 - Store in a well-ventilated place. P235 - Keep cool.
<b>Disposal</b>	Protein 230 Ladder Protein 230 Sample Buffer	Not applicable. Not applicable.
	: Protein 230 Gel Matrix Protein 230 Dye Concentrate	Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Supplemental label elements</b>	Protein 230 Ladder Protein 230 Sample Buffer	Not applicable. Not applicable.
	: Protein 230 Gel Matrix	None known.
	Protein 230 Dye Concentrate	None known.
	Protein 230 Ladder Protein 230 Sample Buffer	None known. None known.

### 2.3 Other hazards

<b>Hazards not otherwise classified</b>	: Protein 230 Gel Matrix	None known.
	Protein 230 Dye Concentrate	None known.
	Protein 230 Ladder	None known.
	Protein 230 Sample Buffer	None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: Protein 230 Gel Matrix	Mixture
	Protein 230 Dye Concentrate	Mixture
	Protein 230 Ladder	Mixture
	Protein 230 Sample Buffer	Mixture

Ingredient name	%	CAS number
<b>Protein 230 Gel Matrix</b> Trometamol	≤3	77-86-1
<b>Protein 230 Dye Concentrate</b> Dimethyl sulfoxide	≥90	67-68-5
Sodium dodecyl sulphate	<10	151-21-3
<b>Protein 230 Ladder</b> Glycerol	≥10 - ≤25	56-81-5
Trometamol	≤3	77-86-1
Lithium dodecyl sulphate	≤3	2044-56-6
<b>Protein 230 Sample Buffer</b>		

## Section 3. Composition/information on ingredients

Lithium dodecyl sulphate	≤5	2044-56-6
Trometamol	≤3	77-86-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**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

### 4.1 Description of necessary first aid measures

<b>Eye contact</b>	: Protein 230 Gel Matrix	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.
	Protein 230 Dye Concentrate	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.
	Protein 230 Ladder	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.
	Protein 230 Sample Buffer	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>	: Protein 230 Gel Matrix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. 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.
	Protein 230 Dye Concentrate	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.
	Protein 230 Ladder	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

## Section 4. First aid measures

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.

Protein 230 Sample Buffer

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. 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.

### Skin contact

: Protein 230 Gel Matrix

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Protein 230 Dye Concentrate

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.

Protein 230 Ladder

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.

Protein 230 Sample Buffer

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

### Ingestion

: Protein 230 Gel Matrix

Wash out mouth with water. 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. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protein 230 Dye Concentrate

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.

Protein 230 Ladder

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

## Section 4. First aid measures

Protein 230 Sample Buffer

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.

Wash out mouth with water. 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. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

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

#### Potential acute health effects

<b>Eye contact</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. Causes serious eye irritation. Causes serious eye irritation. No known significant effects or critical hazards.
<b>Inhalation</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

<b>Eye contact</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate  Protein 230 Ladder  Protein 230 Sample Buffer	No specific data. Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness No specific data.
<b>Inhalation</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No specific data. No specific data. No specific data. No specific data.
<b>Skin contact</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No specific data. No specific data. No specific data. No specific data.

## Section 4. First aid measures

<b>Ingestion</b>	:	Protein 230 Gel Matrix	No specific data.
		Protein 230 Dye Concentrate	No specific data.
		Protein 230 Ladder	No specific data.
		Protein 230 Sample Buffer	No specific data.

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

<b>Notes to physician</b>	:	Protein 230 Gel Matrix	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.
		Protein 230 Dye Concentrate	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Protein 230 Ladder	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.
		Protein 230 Sample Buffer	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>	:	Protein 230 Gel Matrix	No specific treatment.
		Protein 230 Dye Concentrate	No specific treatment.
		Protein 230 Ladder	No specific treatment.
		Protein 230 Sample Buffer	No specific treatment.
<b>Protection of first-aiders</b>	:	Protein 230 Gel Matrix	No action shall be taken involving any personal risk or without suitable training.
		Protein 230 Dye Concentrate	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.
		Protein 230 Ladder	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.
		Protein 230 Sample Buffer	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	:	Protein 230 Gel Matrix	Use an extinguishing agent suitable for the surrounding fire.
		Protein 230 Dye Concentrate	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
		Protein 230 Ladder	Use an extinguishing agent suitable for the surrounding fire.
		Protein 230 Sample Buffer	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	:	Protein 230 Gel Matrix	None known.
		Protein 230 Dye Concentrate	Do not use water jet.
		Protein 230 Ladder	None known.
		Protein 230 Sample Buffer	None known.

### 5.2 Special hazards arising from the substance or mixture



## Section 5. Fire-fighting measures

### Specific hazards arising from the chemical

- : Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

In a fire or if heated, a pressure increase will occur and the container may burst.  
 Combustible liquid. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.  
 In a fire or if heated, a pressure increase will occur and the container may burst.  
 In a fire or if heated, a pressure increase will occur and the container may burst.

### Hazardous thermal decomposition products

- : Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

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

### 5.3 Advice for firefighters

#### Special protective actions for fire-fighters

- : Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

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.  
 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.  
 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.  
 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.



## Section 5. Fire-fighting measures

<b>Special protective equipment for fire-fighters</b>	: Protein 230 Gel Matrix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Protein 230 Dye Concentrate	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Protein 230 Ladder	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Protein 230 Sample Buffer	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

### 6.1 Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	: Protein 230 Gel Matrix	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.
	Protein 230 Dye Concentrate	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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Protein 230 Ladder	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.
	Protein 230 Sample Buffer	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.
<b>For emergency responders</b>	: Protein 230 Gel Matrix	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".
	Protein 230 Dye Concentrate	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".

## Section 6. Accidental release measures

Protein 230 Ladder		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".
Protein 230 Sample Buffer		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".
<b>6.2 Environmental precautions</b>	<b>:</b>	
Protein 230 Gel Matrix		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).
Protein 230 Dye Concentrate		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).
Protein 230 Ladder		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).
Protein 230 Sample Buffer		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).

### 6.3 Methods and materials for containment and cleaning up

<b>Methods for cleaning up</b>	<b>:</b>	
Protein 230 Gel Matrix		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.
Protein 230 Dye Concentrate		Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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.
Protein 230 Ladder		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.
Protein 230 Sample Buffer		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.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

#### Protective measures

: Protein 230 Gel Matrix

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

Protein 230 Dye Concentrate

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.

Protein 230 Ladder

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.

Protein 230 Sample Buffer

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

#### Advice on general occupational hygiene

: Protein 230 Gel Matrix

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.

Protein 230 Dye Concentrate

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.

Protein 230 Ladder

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.

Protein 230 Sample Buffer

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.

## Section 7. Handling and storage

### 7.2 Conditions for safe storage, including any incompatibilities

: Protein 230 Gel Matrix

Storage temperature: 4°C (39.2°F). 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.

Protein 230 Dye Concentrate

Storage temperature: 4°C (39.2°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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.

Protein 230 Ladder

Storage temperature: -20°C (-4°F). 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.

Protein 230 Sample Buffer

Storage temperature: -20°C (-4°F). 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.

### 7.3 Specific end use(s)

#### Recommendations

: Protein 230 Gel Matrix  
Protein 230 Dye Concentrate  
Protein 230 Ladder  
Protein 230 Sample Buffer

Industrial applications, Professional applications.  
Industrial applications, Professional applications.  
Industrial applications, Professional applications.  
Industrial applications, Professional applications.

## Section 7. Handling and storage

<b>Industrial sector specific solutions</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not applicable. Not applicable. Not applicable. Not applicable.
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## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<b>Protein 230 Gel Matrix</b> Trometamol	None.
<b>Protein 230 Dye Concentrate</b> Dimethyl sulfoxide	<b>AIHA WEEL (United States, 10/2011).</b> TWA: 250 ppm 8 hours.
Sodium dodecyl sulphate	None.
<b>Protein 230 Ladder</b> Glycerol	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust
Trometamol	<b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust
Lithium dodecyl sulphate	None.
<b>Protein 230 Sample Buffer</b> Lithium dodecyl sulphate	None.
Trometamol	None.

### 8.2 Exposure controls

- 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

## Section 8. Exposure controls/personal 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

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	Protein 230 Gel Matrix	Liquid.
	Protein 230 Dye Concentrate	Liquid.
	Protein 230 Ladder	Liquid.
	Protein 230 Sample Buffer	Liquid.
<b>Color</b>	Protein 230 Gel Matrix	Not available.
	Protein 230 Dye Concentrate	Blue.
	Protein 230 Ladder	Not available.
	Protein 230 Sample Buffer	Not available.
<b>Odor</b>	Protein 230 Gel Matrix	Not available.
	Protein 230 Dye Concentrate	Not available.
	Protein 230 Ladder	Not available.
	Protein 230 Sample Buffer	Not available.
<b>Odor threshold</b>	Protein 230 Gel Matrix	Not available.
	Protein 230 Dye Concentrate	Not available.
	Protein 230 Ladder	Not available.
	Protein 230 Sample Buffer	Not available.
<b>pH</b>	Protein 230 Gel Matrix	Not available.
	Protein 230 Dye Concentrate	Not available.
	Protein 230 Ladder	Not available.
	Protein 230 Sample Buffer	Not available.
<b>Melting point</b>	Protein 230 Gel Matrix	Not available.
	Protein 230 Dye Concentrate	Not available.
	Protein 230 Ladder	Not available.
	Protein 230 Sample Buffer	Not available.
<b>Boiling point</b>	Protein 230 Gel Matrix	Not available.
	Protein 230 Dye Concentrate	Not available.
	Protein 230 Ladder	Not available.
	Protein 230 Sample Buffer	Not available.
<b>Flash point</b>	Protein 230 Gel Matrix	Not available.
	Protein 230 Dye Concentrate	Closed cup: 93°C (199.4°F)
	Protein 230 Ladder	Not available.
	Protein 230 Sample Buffer	Not available.



## Section 9. Physical and chemical properties

<b>Evaporation rate</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.
<b>Flammability (solid, gas)</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not applicable. Not applicable. Not applicable. Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.
<b>Vapor pressure</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.
<b>Vapor density</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.
<b>Relative density</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.
<b>Solubility</b>	: Protein 230 Gel Matrix  Protein 230 Dye Concentrate  Protein 230 Ladder  Protein 230 Sample Buffer	Soluble in the following materials: cold water and hot water.  Soluble in the following materials: cold water and hot water.  Soluble in the following materials: cold water and hot water.  Soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.
<b>Auto-ignition temperature</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.
<b>Decomposition temperature</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.
<b>Viscosity</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	Not available. Not available. Not available. Not available.



## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p>
<b>10.2 Chemical stability</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p>
<b>10.3 Possibility of hazardous reactions</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p>
<b>10.4 Conditions to avoid</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<p>No specific data.</p> <p>Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.</p> <p>No specific data.</p> <p>No specific data.</p>
<b>10.5 Incompatible materials</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<p>May react or be incompatible with oxidizing materials.</p> <p>Reactive or incompatible with the following materials: oxidizing materials</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p>
<b>10.6 Hazardous decomposition products</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p>

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>Protein 230 Gel Matrix</b> Trometamol	LD50 Dermal	Rat	>5000 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
<b>Protein 230 Dye Concentrate</b> Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
	Sodium dodecyl sulphate	Rat	1288 mg/kg	-
<b>Protein 230 Ladder</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
	Trometamol	LD50 Dermal	>5000 mg/kg	-
		LD50 Oral	5000 mg/kg	-
	Lithium dodecyl sulphate	LD50 Oral	>5000 mg/kg	-
<b>Protein 230 Sample Buffer</b> Lithium dodecyl sulphate	LD50 Oral	Rat	>5000 mg/kg	-
	Trometamol	LD50 Dermal	>5000 mg/kg	-
		LD50 Oral	5000 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation	
<b>Protein 230 Gel Matrix</b> Trometamol	Skin - Moderate irritant	Rabbit	-	25 Percent 500 milligrams	-	
	Skin - Severe irritant	Rabbit	-		-	
<b>Protein 230 Dye Concentrate</b> Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams 100 milligrams 24 hours 500 milligrams 100 milligrams 250 Micrograms 24 hours 100 milligrams 10 milligrams 24 hours 25 milligrams 24 hours 25 milligrams 24 hours 50 milligrams 24 hours 25 milligrams	-	
	Eyes - Mild irritant	Rabbit	-		-	
	Skin - Mild irritant	Rabbit	-		-	
	Skin - Mild irritant	Rabbit	-		-	
	Sodium dodecyl sulphate	Eyes - Mild irritant	Rabbit		-	-
		Eyes - Moderate irritant	Rabbit		-	-
		Eyes - Moderate irritant Skin - Mild irritant	Rabbit Guinea pig		- -	- -
	<b>Protein 230 Ladder</b>	Skin - Moderate irritant	Mouse		-	-
Skin - Mild irritant		Rabbit	-	-		
Skin - Moderate irritant		Rabbit	-	-		

## Section 11. Toxicological information

Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Trometamol	Skin - Moderate irritant	Rabbit	-	25 Percent	-
	Skin - Severe irritant	Rabbit	-	500 milligrams	-
<b>Protein 230 Sample Buffer</b>					
Trometamol	Skin - Moderate irritant	Rabbit	-	25 Percent	-
	Skin - Severe irritant	Rabbit	-	500 milligrams	-

### Sensitization

Not available.

### Mutagenicity

Not available.

### Carcinogenicity

Not available.

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
<b>Protein 230 Gel Matrix</b> Trometamol	Category 3	Not applicable.	Respiratory tract irritation
<b>Protein 230 Dye Concentrate</b> Sodium dodecyl sulphate	Category 3	Not applicable.	Respiratory tract irritation
<b>Protein 230 Ladder</b> Trometamol	Category 3	Not applicable.	Respiratory tract irritation
Lithium dodecyl sulphate	Category 3	Not applicable.	Respiratory tract irritation
<b>Protein 230 Sample Buffer</b> Lithium dodecyl sulphate	Category 3	Not applicable.	Respiratory tract irritation
Trometamol	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

## Section 11. Toxicological information

<b>Information on the likely routes of exposure</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> </ul>
<b>Potential acute health effects</b>		
<b>Eye contact</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards. Causes serious eye irritation.</li> <li>Causes serious eye irritation.</li> <li>No known significant effects or critical hazards.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>
<b>Skin contact</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>

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

<b>Eye contact</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li>   <li>Protein 230 Ladder</li>   <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>No specific data.</li> <li>Adverse symptoms may include the following: pain or irritation watering redness</li> <li>Adverse symptoms may include the following: pain or irritation watering redness</li> <li>No specific data.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>No specific data.</li> <li>No specific data.</li> <li>No specific data.</li> <li>No specific data.</li> </ul>
<b>Skin contact</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>No specific data.</li> <li>No specific data.</li> <li>No specific data.</li> <li>No specific data.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>: Protein 230 Gel Matrix</li> <li>Protein 230 Dye Concentrate</li> <li>Protein 230 Ladder</li> <li>Protein 230 Sample Buffer</li> </ul>	<ul style="list-style-type: none"> <li>No specific data.</li> <li>No specific data.</li> <li>No specific data.</li> <li>No specific data.</li> </ul>

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

<b>Potential immediate effects</b>	: Not available.
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## Section 11. Toxicological information

**Potential delayed effects** : Not available.

### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

<b>General</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Mutagenicity</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Teratogenicity</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Developmental effects</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Fertility effects</b>	: Protein 230 Gel Matrix Protein 230 Dye Concentrate Protein 230 Ladder Protein 230 Sample Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
<b>Protein 230 Gel Matrix</b> Oral	343892.7 mg/kg
<b>Protein 230 Dye Concentrate</b> Oral Inhalation (dusts and mists)	23320.8 mg/kg 27.16 mg/l
<b>Protein 230 Ladder</b> Oral Inhalation (dusts and mists)	44624.5 mg/kg 129.4 mg/l
<b>Protein 230 Sample Buffer</b> Oral Inhalation (dusts and mists)	15713.4 mg/kg 50 mg/l

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<b>Protein 230 Gel Matrix</b> Trometamol	Acute EC50 >980 mg/l Fresh water Acute NOEC 520 mg/l Fresh water	Daphnia Daphnia	48 hours 48 hours
<b>Protein 230 Dye Concentrate</b> Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Sodium dodecyl sulphate	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 µl/L Marine water	Algae - Ulva lactuca	72 hours
	Acute EC50 1200 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 900 µg/l Marine water	Crustaceans - Artemia salina - Adult	48 hours
	Acute LC50 1400 µg/l Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 590 µg/l Fresh water	Fish - Cirrhinus mrigala - Larvae	96 hours
	Chronic NOEC 1.25 mg/l Marine water Chronic NOEC 1 mg/l Fresh water	Algae - Ulva fasciata - Zoea Crustaceans - Pseudosida ramosa - Neonate	96 hours 21 days
Chronic NOEC 3.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days	
Chronic NOEC >1357 µg/l Fresh water	Fish - Pimephales promelas	42 days	
<b>Protein 230 Ladder</b> Glycerol Trometamol	Acute LC50 54000 mg/l Fresh water Acute EC50 >980 mg/l Fresh water Acute NOEC 520 mg/l Fresh water	Fish - Oncorhynchus mykiss Daphnia Daphnia	96 hours 48 hours 48 hours
<b>Protein 230 Sample Buffer</b> Trometamol	Acute EC50 >980 mg/l Fresh water Acute NOEC 520 mg/l Fresh water	Daphnia Daphnia	48 hours 48 hours

### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<b>Protein 230 Ladder</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>Protein 230 Gel Matrix</b> Trometamol	-1.56	-	low
<b>Protein 230 Dye Concentrate</b> Dimethyl sulfoxide	-1.35	3.16	low
Sodium dodecyl sulphate	-2.03	-	low
<b>Protein 230 Ladder</b> Glycerol	-1.76	-	low

## Section 12. Ecological information

Trometamol	-1.56	-	low
<b>Protein 230 Sample Buffer</b>			
Trometamol	-1.56	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**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. 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. Local regulations may be more stringent than regional or national requirements.**

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

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

## Section 14. Transport information

**DOT / TDG / Mexico / IMDG / IATA** : Not regulated.

**Special precautions for user** : **Transport within user's premises:** 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 Annex II of MARPOL and the IBC Code** : Not available.



## Section 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**U.S. Federal regulations** : TSCA 8(a) CDR Exempt/Partial exemption: Not determined

**Clean Air Act Section 112** : Not listed

**(b) Hazardous Air Pollutants (HAPs)**

**Clean Air Act Section 602** : Not listed

**Class I Substances**

**Clean Air Act Section 602** : Not listed

**Class II Substances**

**DEA List I Chemicals** : Not listed

**(Precursor Chemicals)**

**DEA List II Chemicals** : Not listed

**(Essential Chemicals)**

#### SARA 302/304

##### Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
<b>Protein 230 Ladder</b> Sodium azide	≤0.1	Yes.	500	-	1000	-
<b>Protein 230 Sample Buffer</b> Sodium azide	≤0.1	Yes.	500	-	1000	-

**SARA 304 RQ** : 5594405.6 lbs / 2539860.1 kg

#### SARA 311/312

**Classification** : Protein 230 Gel Matrix Not applicable.  
Protein 230 Dye Concentrate Fire hazard  
Protein 230 Ladder Immediate (acute) health hazard  
Protein 230 Sample Buffer Immediate (acute) health hazard  
Not applicable.

##### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
<b>Protein 230 Gel Matrix</b> Trometamol	≤3	Yes.	No.	No.	Yes.	No.
<b>Protein 230 Dye Concentrate</b> Dimethyl sulfoxide	≥90	Yes.	No.	No.	Yes.	No.
Sodium dodecyl sulphate	<10	Yes.	No.	No.	Yes.	No.
<b>Protein 230 Ladder</b> Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Trometamol	≤3	Yes.	No.	No.	Yes.	No.
Lithium dodecyl sulphate	≤3	Yes.	No.	No.	Yes.	No.
<b>Protein 230 Sample Buffer</b> Lithium dodecyl sulphate	≤5	Yes.	No.	No.	Yes.	No.
Trometamol	≤3	Yes.	No.	No.	Yes.	No.

## Section 15. Regulatory information

### 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; 1,2,3-PROPANETRIOL; DIMETHYL SULFOXIDE; METHANE, SULFINYLBI-
- Pennsylvania** : The following components are listed: 1,2,3-PROPANETRIOL

### International regulations

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

Not listed.

#### Montreal Protocol (Annexes A, B, C, E)

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

- Australia** : Not determined.
- Canada** : Not determined.
- China** : Not determined.
- Europe** : Not determined.
- Japan** : **Japan inventory (ENCS)**: Not determined.  
**Japan inventory (ISHL)**: Not determined.
- Malaysia** : Not determined.
- New Zealand** : Not determined.
- Philippines** : Not determined.
- Republic of Korea** : Not determined.
- Taiwan** : Not determined.
- Thailand** :  Not determined.
- Turkey** : Not determined.
- United States** : Not determined.
- Viet Nam** :  Not determined.

## Section 16. Other information

### History

- Date of issue** : 09/22/2017
- Date of previous issue** : 01/29/2016.
- Version** : 6

Indicates information that has changed from previously issued version.

### Notice to reader

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