

SAFETY DATA SHEET

Agilent High Sensitivity Protein 250 Labeling Kit, Part Number 5067-1577

Section 1. Identification

Product identifier	: Agilent High Sensitivity Protein 250 Labeling Kit, Part Number 5067-1577		
Part no. (chemical kit)	: 5067-1577		
Part no.	<u>High Sens Protein Labeling Reagents</u>	<u>G2938-85001</u>	
	Dimethyl sulfoxide		Not available.
	Protein 250 Labeling Buffer		Not available.
	Ethanolamine solution		Not available.
	<u>High Sens Protein Labeling Dye</u>	<u>G2938-85002</u>	
	Protein 250 Labeling Dye		Not available.

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

Identified uses	: <input checked="" type="checkbox"/> Analytical chemistry. Research and Development		
	<input checked="" type="checkbox"/> Dimethyl sulfoxide		1 x 0.1 ml
	Protein 250 Labeling Dye		1 x 0.018 mg
	Protein 250 Labeling Buffer		1 x 1 ml
	Ethanolamine solution		1 x 0.1 ml

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

Emergency telephone number (with hours of operation)	: CHEMTREC®: 1-800-424-9300		
---	-----------------------------	--	--

Section 2. Hazard identification

Classification of the substance or mixture

<input checked="" type="checkbox"/> Dimethyl sulfoxide	
H227	FLAMMABLE LIQUIDS - Category 4
H320	EYE IRRITATION - Category 2B
Protein 250 Labeling Dye	
H318	SERIOUS EYE DAMAGE - Category 1

GHS label elements

Hazard pictograms : Protein 250 Labeling Dye



Signal word	: <input checked="" type="checkbox"/> Dimethyl sulfoxide	Warning
	Protein 250 Labeling Dye	Danger
	Protein 250 Labeling Buffer	No signal word.
	Ethanolamine solution	No signal word.
Hazard statements	: <input checked="" type="checkbox"/> Dimethyl sulfoxide	H227 - Combustible liquid.
		H320 - Causes eye irritation.
	Protein 250 Labeling Dye	H318 - Causes serious eye damage.
	Protein 250 Labeling Buffer	No known significant effects or critical hazards.
	Ethanolamine solution	No known significant effects or critical hazards.

Section 2. Hazard identification

Precautionary statements

Prevention	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P280 - Wear eye or face protection. Not applicable. Not applicable.
Response	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	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 advice or attention. P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. Not applicable. Not applicable.
Storage	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	Not applicable. Not applicable. Not applicable. Not applicable.
Disposal	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. Not applicable. Not applicable.
Supplemental label elements	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	None known. None known. None known. None known.
Other hazards which do not result in classification	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	None known. None known. None known. None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	Substance Substance Mixture Mixture
--------------------------	--	--

Ingredient name	Synonyms	% (w/w)	CAS number
Dimethyl sulfoxide	Dimethyl sulfoxide	100	67-68-5
Protein 250 Labeling Dye 3H-Indolium, 2-[3-[7-(diethylamino)-2-(1,1-dimethylethyl)-4H-1-benzopyran-4-ylidene]-1-propen-1-yl]-3-[4-[(2,5-dioxo-1-pyrrolidinyloxy)-4-oxobutyl]-3-methyl-5-sulfo-1-(3-sulfopropyl)-, inner salt, sodium salt (1:1)	631-NHS Ester; DY™- 631 - NHS Ester	100	704891-70-3

Section 3. Composition/information on ingredients

Protein 250 Labeling Buffer			
Trometamol	Tris	≥1 - ≤5	77-86-1

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

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

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

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact

: Dimethyl sulfoxide

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. If irritation persists, get medical attention.

Protein 250 Labeling Dye

Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.

Protein 250 Labeling 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.

Ethanolamine solution

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.

Inhalation

: Dimethyl sulfoxide

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 250 Labeling Dye

Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie,

Section 4. First-aid measures

		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 250 Labeling 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.
	Ethanolamine solution	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: Dimethyl sulfoxide	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 250 Labeling Dye	Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Protein 250 Labeling Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Ethanolamine solution	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: Dimethyl sulfoxide	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if 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 250 Labeling Dye	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Section 4. First-aid measures

Protein 250 Labeling Buffer	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Ethanolamine solution	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	Causes eye irritation. Causes serious eye damage. No known significant effects or critical hazards. No known significant effects or critical hazards.
Inhalation	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	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.
Skin contact	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	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.
Ingestion	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	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

Eye contact	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: pain watering redness No specific data. No specific data.
Inhalation	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	No specific data. No specific data. No specific data. No specific data.
Skin contact	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	No specific data. Adverse symptoms may include the following: pain or irritation redness blistering may occur No specific data. No specific data.
Ingestion	: Dimethyl sulfoxide Protein 250 Labeling Dye Protein 250 Labeling Buffer Ethanolamine solution	No specific data. Adverse symptoms may include the following: stomach pains No specific data. No specific data.

Section 4. First-aid measures

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

Notes to physician	: Dimethyl sulfoxide	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Protein 250 Labeling Dye	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 250 Labeling 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.
	Ethanolamine solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: Dimethyl sulfoxide	No specific treatment.
	Protein 250 Labeling Dye	No specific treatment.
	Protein 250 Labeling Buffer	No specific treatment.
	Ethanolamine solution	No specific treatment.
Protection of first-aiders	: Dimethyl sulfoxide	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 250 Labeling Dye	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.
	Protein 250 Labeling Buffer	No action shall be taken involving any personal risk or without suitable training.
	Ethanolamine solution	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	: Dimethyl sulfoxide	Use dry chemical, CO ₂ , water spray (fog) or foam.
	Protein 250 Labeling Dye	Use an extinguishing agent suitable for the surrounding fire.
	Protein 250 Labeling Buffer	Use an extinguishing agent suitable for the surrounding fire.
	Ethanolamine solution	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Dimethyl sulfoxide	Do not use water jet.
	Protein 250 Labeling Dye	None known.
	Protein 250 Labeling Buffer	None known.
	Ethanolamine solution	None known.

Section 5. Fire-fighting measures

Specific hazards arising from the chemical	: Dimethyl sulfoxide	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. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
	Protein 250 Labeling Dye	No specific fire or explosion hazard.
	Protein 250 Labeling Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	Ethanolamine solution	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Dimethyl sulfoxide	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
	Protein 250 Labeling Dye	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides
	Protein 250 Labeling Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	Ethanolamine solution	No specific data.
Special protective actions for fire-fighters	: Dimethyl sulfoxide	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.
	Protein 250 Labeling Dye	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.
	Protein 250 Labeling 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.
	Ethanolamine solution	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	: Dimethyl sulfoxide	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Protein 250 Labeling Dye	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Protein 250 Labeling Buffer	Fire-fighters should wear appropriate protective

Section 5. Fire-fighting measures

Ethanolamine solution

equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

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

: Dimethyl sulfoxide

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 250 Labeling Dye

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. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Protein 250 Labeling 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.

Ethanolamine solution

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

For emergency responders

: Dimethyl sulfoxide

Protein 250 Labeling Dye

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 250 Labeling 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".

Ethanolamine solution

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".

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

Environmental precautions	: Dimethyl sulfoxide	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 250 Labeling Dye	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 250 Labeling 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).
	Ethanolamine solution	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

Methods for cleaning up	: Dimethyl sulfoxide	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 250 Labeling Dye	Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	Protein 250 Labeling 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.
	Ethanolamine solution	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

Precautions for safe handling

Protective measures	: Dimethyl sulfoxide	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
----------------------------	----------------------	---

Section 7. Handling and storage

		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 250 Labeling Dye	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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 250 Labeling Buffer	Put on appropriate personal protective equipment (see Section 8).
	Ethanolamine solution	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	: Dimethyl sulfoxide	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 250 Labeling Dye	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 250 Labeling 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.
	Ethanolamine solution	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	: Dimethyl sulfoxide	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

Section 7. Handling and storage

Protein 250 Labeling Dye

containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. 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. Store locked up. 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 250 Labeling Buffer

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.


Ethanolamine solution

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](#)

Ingredient name	Exposure limits
 Dimethyl sulfoxide Dimethyl sulfoxide	OARS WEEL (United States, 4/2022). TWA: 250 ppm 8 hours.

[Biological exposure indices](#)

No exposure indices known.

[Appropriate engineering controls](#)

: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

[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.

Section 8. Exposure controls/personal protection

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 and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- 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 and safety characteristics

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

Appearance

- Physical state** : Dimethyl sulfoxide Liquid. [Clear.]
Protein 250 Labeling Dye Solid. [lyophilised]
Protein 250 Labeling Buffer Liquid.
Ethanolamine solution Liquid.
- Color** : Dimethyl sulfoxide Colorless.
Protein 250 Labeling Dye Not available.
Protein 250 Labeling Buffer Not available.
Ethanolamine solution Not available.
- Odor** : Dimethyl sulfoxide Odorless. [Slight]
Protein 250 Labeling Dye Odorless.
Protein 250 Labeling Buffer Not available.
Ethanolamine solution Not available.
- Odor threshold** : Dimethyl sulfoxide Not available.
Protein 250 Labeling Dye Not available.
Protein 250 Labeling Buffer Not available.
Ethanolamine solution Not available.
- pH** :

Section 9. Physical and chemical properties and safety characteristics

	Dimethyl sulfoxide	Not available.
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	8.6 to 8.9
	Ethanolamine solution	Not available.
Melting point/freezing point	Dimethyl sulfoxide	18.5°C (65.3°F)
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	0°C (32°F)
	Ethanolamine solution	0°C (32°F)
Boiling point, initial boiling point, and boiling range	Dimethyl sulfoxide	189°C (372.2°F)
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	100°C (212°F)
	Ethanolamine solution	100°C (212°F)
Flash point	Dimethyl sulfoxide	Closed cup: 87°C (188.6°F) [ASTM D 93] Open cup: 87°C (188.6°F)
	Protein 250 Labeling Dye	Not applicable.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
Evaporation rate	Dimethyl sulfoxide	0.026 (butyl acetate = 1)
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
Flammability	Dimethyl sulfoxide	Not applicable.
	Protein 250 Labeling Dye	May be combustible at high temperature.
	Protein 250 Labeling Buffer	Not applicable.
	Ethanolamine solution	Not applicable.
Lower and upper explosion limit/flammability limit	Dimethyl sulfoxide	Lower: 2.6% Upper: 28.5%
	Protein 250 Labeling Dye	Not applicable.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
Vapor pressure	Dimethyl sulfoxide	0.056 kPa (0.42 mm Hg) [EU A.4]

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Protein 250 Labeling Buffer						
water	17.5	2.3	-	92.258	12.3	-
Trometamol	<0.00075006	<0.0001	-	-	-	-
Ethanolamine solution						
water	17.5	2.3	-	92.258	12.3	-

Relative vapor density	Dimethyl sulfoxide	2.7 [Air = 1]
	Protein 250 Labeling Dye	Not applicable.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
Relative density	Dimethyl sulfoxide	1.1
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.




Section 9. Physical and chemical properties and safety characteristics

Solubility(ies)	Media	Result
	Dimethyl sulfoxide	
	water	Soluble
	Protein 250 Labeling Dye	
	water	Soluble
	methanol	Soluble
	Protein 250 Labeling Buffer	
	water	Soluble
	Ethanolamine solution	
	water	Soluble
Partition coefficient: n-octanol/water	Dimethyl sulfoxide	-1.35
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	Not applicable.
	Ethanolamine solution	Not applicable.
Auto-ignition temperature	Dimethyl sulfoxide	300 to 302°C (572 to 575.6°F)
	Protein 250 Labeling Dye	Not applicable.
Decomposition temperature	Dimethyl sulfoxide	140 to 189°C (284 to 372.2°F)
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
Viscosity	Dimethyl sulfoxide	Dynamic: 2.14 mPa·s (2.14 cP)
	Protein 250 Labeling Dye	Not applicable.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
Particle characteristics		
Median particle size	Dimethyl sulfoxide	Not applicable.
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	Not applicable.
	Ethanolamine solution	Not applicable.

Section 10. Stability and reactivity

Reactivity	Dimethyl sulfoxide	No specific test data related to reactivity available for this product or its ingredients.
	Protein 250 Labeling Dye	No specific test data related to reactivity available for this product or its ingredients.
	Protein 250 Labeling Buffer	No specific test data related to reactivity available for this product or its ingredients.
	Ethanolamine solution	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	Dimethyl sulfoxide	The product is stable.
	Protein 250 Labeling Dye	The product is stable.
	Protein 250 Labeling Buffer	The product is stable.
	Ethanolamine solution	The product is stable.
Possibility of hazardous reactions	Dimethyl sulfoxide	Under normal conditions of storage and use, hazardous reactions will not occur.
	Protein 250 Labeling Dye	Under normal conditions of storage and use, hazardous reactions will not occur.
	Protein 250 Labeling Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	Ethanolamine solution	Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

Conditions to avoid	:  Dimethyl sulfoxide	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. Do not allow vapor to accumulate in low or confined areas.
	Protein 250 Labeling Dye	No specific data.
	Protein 250 Labeling Buffer	No specific data.
	Ethanolamine solution	No specific data.
Incompatible materials	:  Dimethyl sulfoxide	Reactive or incompatible with the following materials: oxidizing materials
	Protein 250 Labeling Dye	May react or be incompatible with oxidizing materials.
	Protein 250 Labeling Buffer	May react or be incompatible with oxidizing materials.
	Ethanolamine solution	May react or be incompatible with oxidizing materials.
Hazardous decomposition products	:  Dimethyl sulfoxide	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Protein 250 Labeling Dye	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Protein 250 Labeling Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Ethanolamine solution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.


Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Dimethyl sulfoxide Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Protein 250 Labeling Buffer Trometamol	LD50 Dermal	Rat	>5000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
 Dimethyl sulfoxide Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	100 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	100 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Protein 250 Labeling Buffer Trometamol	Skin - Moderate irritant	Rabbit	-	25 %	-
	Skin - Severe irritant	Rabbit	-	500 mg	-

Sensitization

Section 11. Toxicological information

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Protein 250 Labeling Buffer Trometamol	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure	: Dimethyl sulfoxide	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Protein 250 Labeling Dye	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Protein 250 Labeling Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Ethanolamine solution	Not available.

Potential acute health effects

Eye contact	: Dimethyl sulfoxide	Causes eye irritation.
	Protein 250 Labeling Dye	Causes serious eye damage.
	Protein 250 Labeling Buffer	No known significant effects or critical hazards.
	Ethanolamine solution	No known significant effects or critical hazards.
Inhalation	: Dimethyl sulfoxide	No known significant effects or critical hazards.
	Protein 250 Labeling Dye	No known significant effects or critical hazards.
	Protein 250 Labeling Buffer	No known significant effects or critical hazards.
	Ethanolamine solution	No known significant effects or critical hazards.
Skin contact	: Dimethyl sulfoxide	No known significant effects or critical hazards.
	Protein 250 Labeling Dye	No known significant effects or critical hazards.
	Protein 250 Labeling Buffer	No known significant effects or critical hazards.
	Ethanolamine solution	No known significant effects or critical hazards.
Ingestion	: Dimethyl sulfoxide	No known significant effects or critical hazards.
	Protein 250 Labeling Dye	No known significant effects or critical hazards.
	Protein 250 Labeling Buffer	No known significant effects or critical hazards.
	Ethanolamine solution	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact	: Dimethyl sulfoxide	Adverse symptoms may include the following: irritation watering redness
	Protein 250 Labeling Dye	Adverse symptoms may include the following: pain watering redness
	Protein 250 Labeling Buffer Ethanolamine solution	No specific data. No specific data.
Inhalation	: Dimethyl sulfoxide	No specific data.
	Protein 250 Labeling Dye	No specific data.
	Protein 250 Labeling Buffer Ethanolamine solution	No specific data. No specific data.
	Skin contact	: Dimethyl sulfoxide
Protein 250 Labeling Dye		Adverse symptoms may include the following: pain or irritation redness blistering may occur
Protein 250 Labeling Buffer Ethanolamine solution		No specific data. No specific data.
Ingestion	: Dimethyl sulfoxide	No specific data.
	Protein 250 Labeling Dye	Adverse symptoms may include the following: stomach pains
	Protein 250 Labeling Buffer Ethanolamine solution	No specific data. 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

General	: Dimethyl sulfoxide	No known significant effects or critical hazards.
	Protein 250 Labeling Dye	No known significant effects or critical hazards.
	Protein 250 Labeling Buffer Ethanolamine solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
	Carcinogenicity	: Dimethyl sulfoxide
Protein 250 Labeling Dye		No known significant effects or critical hazards.
Protein 250 Labeling Buffer Ethanolamine solution		No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity		: Dimethyl sulfoxide
	Protein 250 Labeling Dye	No known significant effects or critical hazards.
	Protein 250 Labeling Buffer Ethanolamine solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
	Reproductive toxicity	: Dimethyl sulfoxide
Protein 250 Labeling Dye		No known significant effects or critical hazards.
Protein 250 Labeling Buffer Ethanolamine solution		No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Section 11. Toxicological information

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)
Dimethyl sulfoxide Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Dimethyl sulfoxide Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water Acute LC50 34000000 µg/l Fresh water Chronic NOEC 100 µl/L Marine water Chronic NOEC 100 µl/L Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate Fish - <i>Pimephales promelas</i> Algae - <i>Ulva lactuca</i> Daphnia - <i>Daphnia magna</i> - Juvenile (Fledgling, Hatchling, Weanling)	48 hours 96 hours 72 hours 21 days
Protein 250 Labeling Buffer Trometamol	Acute EC50 >980 mg/l Fresh water Acute NOEC 520 mg/l Fresh water	Daphnia Daphnia	48 hours 48 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Dimethyl sulfoxide Dimethyl sulfoxide	OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-	-
Protein 250 Labeling Buffer Trometamol	OECD 301F Ready Biodegradability - Manometric Respirometry Test	97.1 % - Readily - 28 days	30 mg/l	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Dimethyl sulfoxide Dimethyl sulfoxide	-	-	Not readily
Protein 250 Labeling Buffer Trometamol	-	-	Readily

Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Dimethyl sulfoxide Dimethyl sulfoxide	-1.35	3.16	Low
Protein 250 Labeling Buffer Trometamol	-2.31	-	Low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

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

Section 13. Disposal considerations

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

Section 14. Transport information

TDG / 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 IMO instruments : Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Section 15. Regulatory information

Not listed.

[UNECE Aarhus Protocol on POPs and Heavy Metals](#)

Not listed.

[Inventory list](#)

Canada : Not determined.

United States : Not determined.

Section 16. Other information

[History](#)

Date of issue/Date of revision : 09/27/2023

Date of previous issue : 09/02/2020

Version : 8

Key to abbreviations :

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

[Procedure used to derive the classification](#)

Classification	Justification
Dimethyl sulfoxide FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B	On basis of test data On basis of test data
Protein 250 Labeling Dye SERIOUS EYE DAMAGE - Category 1	Expert judgment

☑ Indicates information that has changed from previously issued version.

[Notice to reader](#)

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.