Conforms to Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals

SAFETY DATA SHEET

Agilent Technologies

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. :

High Sens Protein Labeling Reagents	G2938-85001
Dimethyl sulfoxide	Not available.
Protein 250 Labeling Buffer	Not available.
Ethanolamine solution	Not available.
High Sens Protein Labeling Dye	G2938-85002
Protein 250 Labeling Dye	Not available.

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

Identified uses : Analytical chemistry.
Research and Development

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 Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

Dimethyl sulfoxide

H227	FLAMMABLE LIQUIDS - Category 4
H320	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

Protein 250 Labeling Dye

H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1

GHS label elements

Hazard pictograms : Protein 250 Labeling Dye

Signal word :

Dimethyl sulfoxide	WARNING
Protein 250 Labeling Dye	DANGER
Protein 250 Labeling Buffer	No signal word.
Ethanolamine solution	No signal word.

Hazard statements :

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(s) identification

Precautionary statements

Prevention	:	Dimethyl sulfoxide	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
		Protein 250 Labeling Dye	P280 - Wear eye or face protection.
		Protein 250 Labeling Buffer	Not applicable.
		Ethanolamine solution	Not applicable.
Response	:	Dimethyl sulfoxide	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.
		Protein 250 Labeling Dye	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.
		Protein 250 Labeling Buffer	Not applicable.
		Ethanolamine solution	Not applicable.
Storage	:	Dimethyl sulfoxide	Not applicable.
		Protein 250 Labeling Dye	Not applicable.
		Protein 250 Labeling Buffer	Not applicable.
		Ethanolamine solution	Not applicable.
Disposal	:	Dimethyl sulfoxide	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		Protein 250 Labeling Dye	Not applicable.
		Protein 250 Labeling Buffer	Not applicable.
		Ethanolamine solution	Not applicable.

Supplemental label elements

Additional warning phrases	:	Dimethyl sulfoxide	Not applicable.
		Protein 250 Labeling Dye	Not applicable.
		Protein 250 Labeling Buffer	Not applicable.
		Ethanolamine solution	Not applicable.

Other hazards which do not result in classification	:	Dimethyl sulfoxide	None known.
		Protein 250 Labeling Dye	None known.
		Protein 250 Labeling Buffer	None known.
		Ethanolamine solution	None known.

Section 3. Composition and ingredient information

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

CAS number/other identifiers

Ingredient name	% (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-pyrrolidinyl)oxy] -4-oxobutyl]-3-methyl-5-sulfo-1-(3- sulfopropyl)-, inner salt, sodium salt (1: 1)	100	704891-70-3

Section 3. Composition and ingredient information

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.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

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, 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

Section 4. First aid measures

			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.
		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.

Section 4. First aid measures

Most important symptoms/effects, acute and delayed

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.

Over-exposure signs/symptoms

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

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

Section 4. First aid measures

			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. Firefighting 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.
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 vapour/gas is heavier than air and will spread along the ground. Vapours 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

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		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 equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Ethanolamine solution	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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour 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 spilt material. Provide adequate ventilation.

Section 6. Accidental release measures

		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 spilt 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 spilt material. Put on appropriate personal protective equipment.
For emergency responders :	Dimethyl sulfoxide	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Protein 250 Labeling Dye	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Protein 250 Labeling Buffer	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Ethanolamine solution	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions :	Dimethyl sulfoxide	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Protein 250 Labeling Dye	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Protein 250 Labeling Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Ethanolamine solution	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material 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

Section 6. Accidental release measures

	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 vapour 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 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.

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	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 oxidising 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	Protein 250 Labeling Dye	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 unlabelled 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 unlabelled 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Dimethyl sulfoxide Dimethyl sulfoxide	**DFG MAC-values list (Germany, 7/2022). Absorbed through skin.** PEAK: 320 mg/m³, 4 times per shift, 15 minutes. TWA: 160 mg/m³ 8 hours. PEAK: 100 ppm, 4 times per shift, 15 minutes. TWA: 50 ppm 8 hours.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapour 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.

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.
Colour	: Dimethyl sulfoxide	Colourless.
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
Odour	: Dimethyl sulfoxide	Odourless. [Slight]
	Protein 250 Labeling Dye	Odourless.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
Odour threshold	: Dimethyl sulfoxide	Not available.
	Protein 250 Labeling Dye	Not available.
	Protein 250 Labeling Buffer	Not available.
	Ethanolamine solution	Not available.
pH	: 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.
Vapour pressure	: Dimethyl sulfoxide	0.056 kPa (0.42 mm Hg) [EU A.4]

Section 9. Physical and chemical properties and safety characteristics

Ingredient name	Vapour Pressure at 20˚C			Vapour 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	-
Ethanolamine solution						
water	17.5	2.3	-	92.258	12.3	-

Relative vapour 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.

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.

Conditions to avoid :

Dimethyl sulfoxide	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour 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: oxidising materials
Protein 250 Labeling Dye	May react or be incompatible with oxidising materials.
Protein 250 Labeling Buffer	May react or be incompatible with oxidising materials.
Ethanolamine solution	May react or be incompatible with oxidising 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	-

Section 11. Toxicological information

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	-

Sensitisation

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)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

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

Delayed and immediate effects as well as 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	No known significant effects or critical hazards.
		Ethanolamine solution	No known significant effects or critical hazards.
Carcinogenicity	:	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.
Mutagenicity	:	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.
Reproductive toxicity	:	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.

Numerical measures of toxicity

Acute toxicity estimates

Section 11. Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (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 ul/L Marine water Chronic NOEC 100 ul/L Fresh water	Daphnia - *Daphnia magna* - Neonate Fish - *Pimephales promelas* Algae - *Ulva lactuca* Daphnia - *Daphnia magna* - Juvenile (Fledgling, Hatchling, Weanling)	48 hours 96 hours 72 hours 21 days

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	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Dimethyl sulfoxide Dimethyl sulfoxide	-	-	Not readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Dimethyl sulfoxide Dimethyl sulfoxide	-1.35	3.16	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 minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its

Section 13. Disposal considerations

container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code .

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

Standard for the Uniform Scheduling of Medicines and Poisons

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Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

New Zealand : Not determined.

United States : Not determined.

Section 16. Any other relevant information

History

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Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container

Section 16. Any other relevant information

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
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

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

Indicates information that has changed from previously issued version.

Notice to reader

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