

SAFETY DATA SHEET



Glycerol Calibration Standards Kit, Part Number G3440-85028

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	: Glycerol Calibration Standards Kit, Part Number G3440-85028		
Part no. (chemical kit)	: G3440-85028		
Part no.	Glycerol Calibration Standard 1	G3440-85028-1	
	Glycerol Calibration Standard 2	G3440-85022	
	Glycerol Calibration Standard 3	G3440-85023	
	Glycerol Calibration Standard 4	G3440-85024	
	Glycerol Calibration Standard 5	G3440-85025	

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

Identified uses	: Reagents and Standards for Analytical Chemistry Laboratory Use	
	Glycerol Calibration Standard 1	5 x 1 ml
	Glycerol Calibration Standard 2	1 ml
	Glycerol Calibration Standard 3	1 ml
	Glycerol Calibration Standard 4	1 ml
	Glycerol Calibration Standard 5	1 ml
Uses advised against	: None known.	

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000
e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition	Glycerol Calibration Standard 1	Mixture
	Glycerol Calibration Standard 2	Mixture
	Glycerol Calibration Standard 3	Mixture
	Glycerol Calibration Standard 4	Mixture
	Glycerol Calibration Standard 5	Mixture











Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

SECTION 2: Hazards identification

Glycerol Calibration Standard 1		
H225	FLAMMABLE LIQUIDS	Category 2
H302	ACUTE TOXICITY (oral)	Category 4
H312	ACUTE TOXICITY (dermal)	Category 4
H332	ACUTE TOXICITY (inhalation)	Category 4
Glycerol Calibration Standard 2		
H225	FLAMMABLE LIQUIDS	Category 2
H302	ACUTE TOXICITY (oral)	Category 4
H312	ACUTE TOXICITY (dermal)	Category 4
H332	ACUTE TOXICITY (inhalation)	Category 4
Glycerol Calibration Standard 3		
H225	FLAMMABLE LIQUIDS	Category 2
H302	ACUTE TOXICITY (oral)	Category 4
H312	ACUTE TOXICITY (dermal)	Category 4
H332	ACUTE TOXICITY (inhalation)	Category 4
Glycerol Calibration Standard 4		
H225	FLAMMABLE LIQUIDS	Category 2
H302	ACUTE TOXICITY (oral)	Category 4
H312	ACUTE TOXICITY (dermal)	Category 4
H332	ACUTE TOXICITY (inhalation)	Category 4
Glycerol Calibration Standard 5		
H225	FLAMMABLE LIQUIDS	Category 2
H302	ACUTE TOXICITY (oral)	Category 4
H312	ACUTE TOXICITY (dermal)	Category 4
H332	ACUTE TOXICITY (inhalation)	Category 4
Glycerol Calibration Standard 1	The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.	
Glycerol Calibration Standard 2	The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.	
Glycerol Calibration Standard 3	The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.	
Glycerol Calibration Standard 4	The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.	
Glycerol Calibration Standard 5	The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.	
See Section 16 for the full text of the H statements declared above.		
See Section 11 for more detailed information on health effects and symptoms.		

2.2 Label elements

SECTION 2: Hazards identification

Hazard pictograms	: Glycerol Calibration Standard 1		
	Glycerol Calibration Standard 2		
	Glycerol Calibration Standard 3		
	Glycerol Calibration Standard 4		
	Glycerol Calibration Standard 5		
Signal word	: Glycerol Calibration Standard 1	Danger	
	Glycerol Calibration Standard 2	Danger	
	Glycerol Calibration Standard 3	Danger	
	Glycerol Calibration Standard 4	Danger	
	Glycerol Calibration Standard 5	Danger	
Hazard statements	: Glycerol Calibration Standard 1	H225 - Highly flammable liquid and vapour. H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.	
	Glycerol Calibration Standard 2	H225 - Highly flammable liquid and vapour. H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.	
	Glycerol Calibration Standard 3	H225 - Highly flammable liquid and vapour. H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.	
	Glycerol Calibration Standard 4	H225 - Highly flammable liquid and vapour. H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.	
	Glycerol Calibration Standard 5	H225 - Highly flammable liquid and vapour. H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.	
Precautionary statements			

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Prevention	: Glycerol Calibration Standard 1	P280 - Wear protective gloves and protective clothing. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 - Avoid breathing vapour. P270 - Do not eat, drink or smoke when using this product. P280 - Wear protective gloves and protective clothing.
	Glycerol Calibration Standard 2	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 - Avoid breathing vapour. P270 - Do not eat, drink or smoke when using this product. P280 - Wear protective gloves and protective clothing.
	Glycerol Calibration Standard 3	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 - Avoid breathing vapour. P270 - Do not eat, drink or smoke when using this product. P280 - Wear protective gloves and protective clothing.
	Glycerol Calibration Standard 4	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 - Avoid breathing vapour. P270 - Do not eat, drink or smoke when using this product. P280 - Wear protective gloves and protective clothing.
	Glycerol Calibration Standard 5	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 - Avoid breathing vapour. P270 - Do not eat, drink or smoke when using this product. P280 - Wear protective gloves and protective clothing.
Response	: Glycerol Calibration Standard 1	P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
	Glycerol Calibration Standard 2	P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
	Glycerol Calibration Standard 3	P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
	Glycerol Calibration Standard 4	P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
	Glycerol Calibration Standard 5	P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
Storage	: Glycerol Calibration Standard 1	Not applicable.
	Glycerol Calibration Standard 2	Not applicable.
	Glycerol Calibration Standard 3	Not applicable.
	Glycerol Calibration Standard 4	Not applicable.
	Glycerol Calibration Standard 5	Not applicable.
Disposal	: Glycerol Calibration Standard 1	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Glycerol Calibration Standard 2	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Glycerol Calibration Standard 3	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Glycerol Calibration Standard 4	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Glycerol Calibration Standard 5	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

SECTION 2: Hazards identification

Hazardous ingredients	: Glycerol Calibration Standard 1	pyridine
	Glycerol Calibration Standard 2	pyridine
	Glycerol Calibration Standard 3	pyridine
	Glycerol Calibration Standard 4	pyridine
	Glycerol Calibration Standard 5	pyridine

Supplemental label elements	: Glycerol Calibration Standard 1	Not applicable.
	Glycerol Calibration Standard 2	Not applicable.
	Glycerol Calibration Standard 3	Not applicable.
	Glycerol Calibration Standard 4	Not applicable.
	Glycerol Calibration Standard 5	Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	: Glycerol Calibration Standard 1	Not applicable.
	Glycerol Calibration Standard 2	Not applicable.
	Glycerol Calibration Standard 3	Not applicable.
	Glycerol Calibration Standard 4	Not applicable.
	Glycerol Calibration Standard 5	Not applicable.

Special packaging requirements

Tactile warning of danger	: Glycerol Calibration Standard 1	Not applicable.
	Glycerol Calibration Standard 2	Not applicable.
	Glycerol Calibration Standard 3	Not applicable.
	Glycerol Calibration Standard 4	Not applicable.
	Glycerol Calibration Standard 5	Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII	: Glycerol Calibration Standard 1	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
	Glycerol Calibration Standard 2	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
	Glycerol Calibration Standard 3	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
	Glycerol Calibration Standard 4	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
	Glycerol Calibration Standard 5	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification	: Glycerol Calibration Standard 1	None known.
	Glycerol Calibration Standard 2	None known.
	Glycerol Calibration Standard 3	None known.
	Glycerol Calibration Standard 4	None known.

SECTION 2: Hazards identification

Glycerol Calibration Standard 5 None known.

SECTION 3: Composition/information on ingredients

3.1 Substances : Glycerol Calibration Standard 1 Mixture
Glycerol Calibration Standard 2 Mixture
Glycerol Calibration Standard 3 Mixture
Glycerol Calibration Standard 4 Mixture
Glycerol Calibration Standard 5 Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Glycerol Calibration Standard 1 pyridine	EC: 203-809-9 CAS: 110-86-1 Index: 613-002-00-7	≥90	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332	ATE [Oral] = 891 mg/kg ATE [Dermal] = 1120 mg/kg ATE [Inhalation (vapours)] = 12.9 mg/l	[1] [2]
Glycerol Calibration Standard 2 pyridine	EC: 203-809-9 CAS: 110-86-1 Index: 613-002-00-7	≥90	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332	ATE [Oral] = 891 mg/kg ATE [Dermal] = 1120 mg/kg ATE [Inhalation (vapours)] = 12.9 mg/l	[1] [2]
Glycerol Calibration Standard 3 pyridine	EC: 203-809-9 CAS: 110-86-1 Index: 613-002-00-7	≥90	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332	ATE [Oral] = 891 mg/kg ATE [Dermal] = 1120 mg/kg ATE [Inhalation (vapours)] = 12.9 mg/l	[1] [2]
Glycerol Calibration Standard 4 pyridine	EC: 203-809-9 CAS: 110-86-1 Index: 613-002-00-7	≥90	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332	ATE [Oral] = 891 mg/kg ATE [Dermal] = 1120 mg/kg ATE [Inhalation (vapours)] = 12.9 mg/l	[1] [2]
Glycerol Calibration Standard 5					

SECTION 3: Composition/information on ingredients

pyridine	EC: 203-809-9 CAS: 110-86-1 Index: 613-002-00-7	≥90	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 See Section 16 for the full text of the H statements declared above.	ATE [Oral] = 891 mg/kg ATE [Dermal] = 1120 mg/kg ATE [Inhalation (vapours)] = 12.9 mg/l	[1] [2]
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There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type	
Glycerol Calibration Standard 1	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit
Glycerol Calibration Standard 2	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit
Glycerol Calibration Standard 3	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit
Glycerol Calibration Standard 4	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit
Glycerol Calibration Standard 5	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	: Glycerol Calibration Standard 1	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
	Glycerol Calibration Standard 2	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
	Glycerol Calibration Standard 3	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
	Glycerol Calibration Standard 4	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
	Glycerol Calibration Standard 5	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Inhalation	: Glycerol Calibration Standard 1	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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. 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

SECTION 4: First aid measuresGlycerol Calibration
Standard 2

products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. 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.

Glycerol Calibration
Standard 3

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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. 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.

Glycerol Calibration
Standard 4

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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. 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.

Glycerol Calibration
Standard 5

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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. 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

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		products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Glycerol Calibration Standard 1	Wash with plenty of soap and 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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Glycerol Calibration Standard 2	Wash with plenty of soap and 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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Glycerol Calibration Standard 3	Wash with plenty of soap and 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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Glycerol Calibration Standard 4	Wash with plenty of soap and 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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Glycerol Calibration Standard 5	Wash with plenty of soap and 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. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Glycerol Calibration Standard 1	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 necessary, call a poison center or 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.
	Glycerol Calibration Standard 2	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 necessary, call a poison center or 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.
	Glycerol Calibration	Wash out mouth with water. Remove dentures if any. If

SECTION 4: First aid measures

Standard 3

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 necessary, call a poison center or 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.

Glycerol Calibration
Standard 4

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 necessary, call a poison center or 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.

Glycerol Calibration
Standard 5

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 necessary, call a poison center or 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.

Protection of first-aiders : Glycerol Calibration
Standard 1

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.

Glycerol Calibration
Standard 2

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.

Glycerol Calibration
Standard 3

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.

Glycerol Calibration
Standard 4

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.

Glycerol Calibration

No action shall be taken involving any personal risk or

SECTION 4: First aid measures

Standard 5

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.

4.2 Most important symptoms and effects, both acute and delayed**Potential acute health effects**

Eye contact	: Glycerol Calibration Standard 1	No known significant effects or critical hazards.
	Glycerol Calibration Standard 2	No known significant effects or critical hazards.
	Glycerol Calibration Standard 3	No known significant effects or critical hazards.
	Glycerol Calibration Standard 4	No known significant effects or critical hazards.
	Glycerol Calibration Standard 5	No known significant effects or critical hazards.
Inhalation	: Glycerol Calibration Standard 1	Harmful if inhaled.
	Glycerol Calibration Standard 2	Harmful if inhaled.
	Glycerol Calibration Standard 3	Harmful if inhaled.
	Glycerol Calibration Standard 4	Harmful if inhaled.
	Glycerol Calibration Standard 5	Harmful if inhaled.
Skin contact	: Glycerol Calibration Standard 1	Harmful in contact with skin.
	Glycerol Calibration Standard 2	Harmful in contact with skin.
	Glycerol Calibration Standard 3	Harmful in contact with skin.
	Glycerol Calibration Standard 4	Harmful in contact with skin.
	Glycerol Calibration Standard 5	Harmful in contact with skin.
Ingestion	: Glycerol Calibration Standard 1	Harmful if swallowed.
	Glycerol Calibration Standard 2	Harmful if swallowed.
	Glycerol Calibration Standard 3	Harmful if swallowed.
	Glycerol Calibration Standard 4	Harmful if swallowed.
	Glycerol Calibration Standard 5	Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact	: Glycerol Calibration Standard 1	No specific data.
	Glycerol Calibration Standard 2	No specific data.
	Glycerol Calibration Standard 3	No specific data.
	Glycerol Calibration Standard 4	No specific data.
	Glycerol Calibration Standard 5	No specific data.

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Inhalation	: Glycerol Calibration Standard 1	No specific data.
	Glycerol Calibration Standard 2	No specific data.
	Glycerol Calibration Standard 3	No specific data.
	Glycerol Calibration Standard 4	No specific data.
	Glycerol Calibration Standard 5	No specific data.

Skin contact	: Glycerol Calibration Standard 1	No specific data.
	Glycerol Calibration Standard 2	No specific data.
	Glycerol Calibration Standard 3	No specific data.
	Glycerol Calibration Standard 4	No specific data.
	Glycerol Calibration Standard 5	No specific data.

Ingestion	: Glycerol Calibration Standard 1	No specific data.
	Glycerol Calibration Standard 2	No specific data.
	Glycerol Calibration Standard 3	No specific data.
	Glycerol Calibration Standard 4	No specific data.
	Glycerol Calibration Standard 5	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	: Glycerol Calibration Standard 1	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.
	Glycerol Calibration Standard 2	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.
	Glycerol Calibration Standard 3	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.
	Glycerol Calibration Standard 4	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.
	Glycerol Calibration Standard 5	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.

Specific treatments	: Glycerol Calibration Standard 1	No specific treatment.
	Glycerol Calibration Standard 2	No specific treatment.
	Glycerol Calibration Standard 3	No specific treatment.
	Glycerol Calibration Standard 4	No specific treatment.
	Glycerol Calibration Standard 5	No specific treatment.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing media	: Glycerol Calibration Standard 1	Use dry chemical, CO ₂ , water spray (fog) or foam.
	Glycerol Calibration Standard 2	Use dry chemical, CO ₂ , water spray (fog) or foam.
	Glycerol Calibration Standard 3	Use dry chemical, CO ₂ , water spray (fog) or foam.
	Glycerol Calibration Standard 4	Use dry chemical, CO ₂ , water spray (fog) or foam.
	Glycerol Calibration Standard 5	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	: Glycerol Calibration Standard 1	Do not use water jet.
	Glycerol Calibration Standard 2	Do not use water jet.
	Glycerol Calibration Standard 3	Do not use water jet.
	Glycerol Calibration Standard 4	Do not use water jet.
	Glycerol Calibration Standard 5	Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	: Glycerol Calibration Standard 1	Highly flammable liquid and vapour. 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.
	Glycerol Calibration Standard 2	Highly flammable liquid and vapour. 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.
	Glycerol Calibration Standard 3	Highly flammable liquid and vapour. 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.
	Glycerol Calibration Standard 4	Highly flammable liquid and vapour. 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.
	Glycerol Calibration Standard 5	Highly flammable liquid and vapour. 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.

SECTION 5: Firefighting measures

Hazardous combustion products	: Glycerol Calibration Standard 1	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	Glycerol Calibration Standard 2	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	Glycerol Calibration Standard 3	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	Glycerol Calibration Standard 4	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	Glycerol Calibration Standard 5	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides

5.3 Advice for firefighters

Special precautions for fire-fighters	: Glycerol Calibration Standard 1	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.
	Glycerol Calibration Standard 2	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.
	Glycerol Calibration Standard 3	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.
	Glycerol Calibration Standard 4	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.
	Glycerol Calibration Standard 5	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.
Special protective equipment for fire-fighters	: Glycerol Calibration Standard 1	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	Glycerol Calibration Standard 2	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves)

SECTION 5: Firefighting measuresGlycerol Calibration
Standard 3

conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Glycerol Calibration
Standard 4

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Glycerol Calibration
Standard 5

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency
personnel**: Glycerol Calibration
Standard 1

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.

Glycerol Calibration
Standard 2

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.

Glycerol Calibration
Standard 3

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.

Glycerol Calibration
Standard 4

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.

Glycerol Calibration
Standard 5

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

SECTION 6: Accidental release measures

		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.
For emergency responders	: Glycerol Calibration Standard 1	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".
	Glycerol Calibration Standard 2	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".
	Glycerol Calibration Standard 3	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".
	Glycerol Calibration Standard 4	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".
	Glycerol Calibration Standard 5	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".
6.2 Environmental precautions	: Glycerol Calibration Standard 1	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).
	Glycerol Calibration Standard 2	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).
	Glycerol Calibration Standard 3	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).
	Glycerol Calibration Standard 4	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).
	Glycerol Calibration Standard 5	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).
6.3 Methods and material for containment and cleaning up		
Methods for cleaning up	: Glycerol Calibration Standard 1	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.
	Glycerol Calibration Standard 2	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.
	Glycerol Calibration Standard 3	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment.

SECTION 6: Accidental release measures

	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.
Glycerol Calibration Standard 4	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.
Glycerol Calibration Standard 5	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.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures	: Glycerol Calibration Standard 1	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. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Glycerol Calibration Standard 2	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. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Glycerol Calibration Standard 3	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

SECTION 7: Handling and storage

		(ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Glycerol Calibration Standard 4	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. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Glycerol Calibration Standard 5	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. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	: Glycerol Calibration Standard 1	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.
	Glycerol Calibration Standard 2	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.
	Glycerol Calibration Standard 3	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.
	Glycerol Calibration Standard 4	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.
	Glycerol Calibration Standard 5	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

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Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage	: Glycerol Calibration Standard 1	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.
	Glycerol Calibration Standard 2	Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from 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.
	Glycerol Calibration Standard 3	Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from 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.
	Glycerol Calibration Standard 4	Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from 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.
	Glycerol Calibration Standard 5	Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from 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.

SECTION 7: Handling and storage

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.

Seveso Directive - Reporting thresholds
Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
Glycerol Calibration Standard 1 P5c	5000 tonne	50000 tonne
Glycerol Calibration Standard 2 P5c	5000 tonne	50000 tonne
Glycerol Calibration Standard 3 P5c	5000 tonne	50000 tonne
Glycerol Calibration Standard 4 P5c	5000 tonne	50000 tonne
Glycerol Calibration Standard 5 P5c	5000 tonne	50000 tonne

7.3 Specific end use(s)

Recommendations	: Glycerol Calibration Standard 1	Industrial applications, Professional applications.
	Glycerol Calibration Standard 2	Industrial applications, Professional applications.
	Glycerol Calibration Standard 3	Industrial applications, Professional applications.
	Glycerol Calibration Standard 4	Industrial applications, Professional applications.
	Glycerol Calibration Standard 5	Industrial applications, Professional applications.
Industrial sector specific solutions	: Glycerol Calibration Standard 1	Not available.
	Glycerol Calibration Standard 2	Not available.
	Glycerol Calibration Standard 3	Not available.
	Glycerol Calibration Standard 4	Not available.
	Glycerol Calibration Standard 5	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Glycerol Calibration Standard 1 pyridine	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values OELV: 5 ppm 8 hours. OELV: 15 mg/m³ 8 hours. OELV: 10 ppm 15 minutes. OELV: 30 mg/m³ 15 minutes.

SECTION 8: Exposure controls/personal protection

Glycerol Calibration Standard 2 pyridine	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values OELV: 5 ppm 8 hours. OELV: 15 mg/m³ 8 hours. OELV: 10 ppm 15 minutes. OELV: 30 mg/m³ 15 minutes.
Glycerol Calibration Standard 3 pyridine	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values OELV: 5 ppm 8 hours. OELV: 15 mg/m³ 8 hours. OELV: 10 ppm 15 minutes. OELV: 30 mg/m³ 15 minutes.
Glycerol Calibration Standard 4 pyridine	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values OELV: 5 ppm 8 hours. OELV: 15 mg/m³ 8 hours. OELV: 10 ppm 15 minutes. OELV: 30 mg/m³ 15 minutes.
Glycerol Calibration Standard 5 pyridine	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values OELV: 5 ppm 8 hours. OELV: 15 mg/m³ 8 hours. OELV: 10 ppm 15 minutes. OELV: 30 mg/m³ 15 minutes.

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures

: Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Glycerol Calibration Standard 1 pyridine	DNEL	Long term Oral	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.14 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Dermal	0.42 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.6 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	2.5 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	7.5 mg/m³	Workers	Systemic

SECTION 8: Exposure controls/personal protection

Glycerol Calibration Standard 2 pyridine	DNEL	Long term Oral	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.14 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Dermal	0.42 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.6 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	2.5 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	7.5 mg/m ³	Workers	Systemic
Glycerol Calibration Standard 3 pyridine	DNEL	Long term Oral	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.14 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Dermal	0.42 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.6 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	2.5 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	7.5 mg/m ³	Workers	Systemic
Glycerol Calibration Standard 4 pyridine	DNEL	Long term Oral	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.14 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Dermal	0.42 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.6 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	2.5 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	7.5 mg/m ³	Workers	Systemic
Glycerol Calibration Standard 5 pyridine	DNEL	Long term Oral	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.07 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.14 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Dermal	0.42 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.6 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	2.5 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	7.5 mg/m ³	Workers	Systemic

SECTION 8: Exposure controls/personal protection**PNECs**

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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: safety glasses with side-shields.

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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

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.

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 9: Physical and chemical properties

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

9.1 Information on basic physical and chemical properties**Appearance**

Physical state	: Glycerol Calibration Standard 1	Liquid.
	: Glycerol Calibration Standard 2	Liquid.
	: Glycerol Calibration Standard 3	Liquid.
	: Glycerol Calibration	Liquid.

SECTION 9: Physical and chemical properties

	Standard 4	
	Glycerol Calibration	Liquid.
	Standard 5	
Colour	: Glycerol Calibration	Colourless.
	Standard 1	
	Glycerol Calibration	Colourless.
	Standard 2	
	Glycerol Calibration	Colourless.
	Standard 3	
	Glycerol Calibration	Colourless.
	Standard 4	
	Glycerol Calibration	Colourless.
	Standard 5	
Odour	: Glycerol Calibration	Unpleasant.
	Standard 1	
	Glycerol Calibration	Unpleasant.
	Standard 2	
	Glycerol Calibration	Unpleasant.
	Standard 3	
	Glycerol Calibration	Unpleasant.
	Standard 4	
	Glycerol Calibration	Unpleasant.
	Standard 5	
Odour threshold	: Glycerol Calibration	Not available.
	Standard 1	
	Glycerol Calibration	Not available.
	Standard 2	
	Glycerol Calibration	Not available.
	Standard 3	
	Glycerol Calibration	Not available.
	Standard 4	
	Glycerol Calibration	Not available.
	Standard 5	
Melting point/freezing point	: Glycerol Calibration	-42°C
	Standard 1	
	Glycerol Calibration	-42°C
	Standard 2	
	Glycerol Calibration	-42°C
	Standard 3	
	Glycerol Calibration	-42°C
	Standard 4	
	Glycerol Calibration	-42°C
	Standard 5	
Initial boiling point and boiling range	: Glycerol Calibration	115°C
	Standard 1	
	Glycerol Calibration	115°C
	Standard 2	
	Glycerol Calibration	115°C
	Standard 3	
	Glycerol Calibration	115°C
	Standard 4	
	Glycerol Calibration	115°C
	Standard 5	
Flammability	: Glycerol Calibration	Not applicable.
	Standard 1	
	Glycerol Calibration	Not applicable.
	Standard 2	
	Glycerol Calibration	Not applicable.
	Standard 3	
	Glycerol Calibration	Not applicable.
	Standard 4	
	Glycerol Calibration	Not applicable.
	Standard 5	

SECTION 9: Physical and chemical properties

Upper/lower flammability or explosive limits	:	Glycerol Calibration Standard 1	Lower: 1.8%
			Upper: 12.5%
		Glycerol Calibration Standard 2	Lower: 1.8%
			Upper: 12.4%
		Glycerol Calibration Standard 3	Lower: 1.8%
			Upper: 12.4%
Flash point	:	Glycerol Calibration Standard 4	Lower: 1.8%
			Upper: 12.4%
		Glycerol Calibration Standard 5	Lower: 1.8%
			Upper: 12.4%
		Glycerol Calibration Standard 1	Closed cup: 19.85°C
		Glycerol Calibration Standard 2	Closed cup: 18.667°C
Auto-ignition temperature		Glycerol Calibration Standard 3	Closed cup: 18.67°C
		Glycerol Calibration Standard 4	Closed cup: 18.67°C
		Glycerol Calibration Standard 5	Closed cup: 18.67°C
	:	Glycerol Calibration Standard 2	250°C
		Glycerol Calibration Standard 3	250°C
		Glycerol Calibration Standard 4	250°C
Decomposition temperature		Glycerol Calibration Standard 5	250°C
pH	:		

Viscosity	: Glycerol Calibration Standard 1	Not available.
	Glycerol Calibration Standard 2	Not available.
	Glycerol Calibration Standard 3	Not available.
	Glycerol Calibration Standard 4	Not available.
	Glycerol Calibration Standard 5	Not available.

Partition coefficient: n-octanol/water	Glycerol Calibration Standard 1	Not applicable.
	Glycerol Calibration Standard 2	Not applicable.
	Glycerol Calibration Standard 3	Not applicable.
	Glycerol Calibration Standard 4	Not applicable.
	Glycerol Calibration Standard 5	Not applicable.

Ingredient name	Vapour Pressure at 20 °C			Vapour pressure at 50 °C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Glycerol Calibration Standard 1						
pyridine	15.00122	2	-	-	-	-

<i>Date of issue</i> / <i>Date of revision</i> : 28/02/2024 <i>Date of previous issue</i> : No previous validation <i>Version</i> : 1 26/40				
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SECTION 9: Physical and chemical properties

Relative density	: Glycerol Calibration Standard 1	Not available.
	Glycerol Calibration Standard 2	0.978
	Glycerol Calibration Standard 3	0.978
	Glycerol Calibration Standard 4	0.978
	Glycerol Calibration Standard 5	0.978
Vapour density	: Glycerol Calibration Standard 1	2.73 [Air = 1]
	Glycerol Calibration Standard 2	2.72 [Air = 1]
	Glycerol Calibration Standard 3	2.71 [Air = 1]
	Glycerol Calibration Standard 4	2.72 [Air = 1]
	Glycerol Calibration Standard 5	2.72 [Air = 1]
Explosive properties	: Glycerol Calibration Standard 1	Not available.
	Glycerol Calibration Standard 2	Non-explosive in the presence of the following materials or conditions: oxidising materials.
	Glycerol Calibration Standard 3	Not available.
	Glycerol Calibration Standard 4	Non-explosive in the presence of the following materials or conditions: oxidising materials.
	Glycerol Calibration Standard 5	Not available.
Oxidising properties	: Glycerol Calibration Standard 1	Not available.
	Glycerol Calibration Standard 2	Not available.
	Glycerol Calibration Standard 3	Not available.
	Glycerol Calibration Standard 4	Not available.
	Glycerol Calibration Standard 5	Not available.
Particle characteristics		
Median particle size	: Glycerol Calibration Standard 1	Not applicable.
	Glycerol Calibration Standard 2	Not applicable.
	Glycerol Calibration Standard 3	Not applicable.
	Glycerol Calibration Standard 4	Not applicable.
	Glycerol Calibration Standard 5	Not applicable.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: Glycerol Calibration Standard 1	No specific test data related to reactivity available for this product or its ingredients.
	Glycerol Calibration Standard 2	No specific test data related to reactivity available for this product or its ingredients.
	Glycerol Calibration Standard 3	No specific test data related to reactivity available for this product or its ingredients.
	Glycerol Calibration Standard 4	No specific test data related to reactivity available for this product or its ingredients.
	Glycerol Calibration Standard 5	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Glycerol Calibration Standard 1	The product is stable.
	Glycerol Calibration Standard 2	The product is stable.
	Glycerol Calibration Standard 3	The product is stable.
	Glycerol Calibration Standard 4	The product is stable.
	Glycerol Calibration Standard 5	The product is stable.
10.3 Possibility of hazardous reactions	: Glycerol Calibration Standard 1	Under normal conditions of storage and use, hazardous reactions will not occur.
	Glycerol Calibration Standard 2	Under normal conditions of storage and use, hazardous reactions will not occur.
	Glycerol Calibration Standard 3	Under normal conditions of storage and use, hazardous reactions will not occur.
	Glycerol Calibration Standard 4	Under normal conditions of storage and use, hazardous reactions will not occur.
	Glycerol Calibration Standard 5	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Glycerol Calibration Standard 1	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.
	Glycerol Calibration Standard 2	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.
	Glycerol Calibration Standard 3	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.
	Glycerol Calibration Standard 4	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.
	Glycerol Calibration Standard 5	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.
10.5 Incompatible materials	: Glycerol Calibration Standard 1	Reactive or incompatible with the following materials: oxidising materials
	Glycerol Calibration Standard 2	Reactive or incompatible with the following materials: oxidising materials
	Glycerol Calibration	Reactive or incompatible with the following materials:

SECTION 10: Stability and reactivity

Standard 3

oxidising materials

Glycerol Calibration
Standard 4

Reactive or incompatible with the following materials:

Glycerol Calibration
Standard 5

oxidising materials

Reactive or incompatible with the following materials:

oxidising materials

10.6 Hazardous decomposition products

: Glycerol Calibration
Standard 1
Glycerol Calibration
Standard 2
Glycerol Calibration
Standard 3
Glycerol Calibration
Standard 4
Glycerol Calibration
Standard 5

Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Glycerol Calibration Standard 1 pyridine	LC50 Inhalation Vapour	Rat	9010 ppm	1 hours
Glycerol Calibration Standard 2 pyridine	LC50 Inhalation Vapour	Rat	9010 ppm	1 hours
Glycerol Calibration Standard 3 pyridine	LC50 Inhalation Vapour	Rat	9010 ppm	1 hours
Glycerol Calibration Standard 4 pyridine	LC50 Inhalation Vapour	Rat	9010 ppm	1 hours
Glycerol Calibration Standard 5 pyridine	LC50 Inhalation Vapour	Rat	9010 ppm	1 hours

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Glycerol Calibration Standard 1 Glycerol Calibration Standard 1 pyridine	891.9 891	1121.1 1120	N/A N/A	12.9 12.9	N/A N/A
Glycerol Calibration Standard 2 Glycerol Calibration Standard 2 pyridine	891.1 891	1120.1 1120	N/A N/A	12.9 12.9	N/A N/A
Glycerol Calibration Standard 3 Glycerol Calibration Standard 3 pyridine	891.1 891	1120.1 1120	N/A N/A	12.9 12.9	N/A N/A

SECTION 11: Toxicological information

Glycerol Calibration Standard 4 Glycerol Calibration Standard 4 pyridine	891.1 891	1120.1 1120	N/A N/A	12.9 12.9	N/A N/A
Glycerol Calibration Standard 5 Glycerol Calibration Standard 5 pyridine	891.1 891	1120.1 1120	N/A N/A	12.9 12.9	N/A N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Glycerol Calibration Standard 1 pyridine	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Glycerol Calibration Standard 2 pyridine	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Glycerol Calibration Standard 3 pyridine	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Glycerol Calibration Standard 4 pyridine	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Glycerol Calibration Standard 5 pyridine	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

Sensitiser

Conclusion/Summary : 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.

SECTION 11: Toxicological information

Information on likely routes of exposure	: Glycerol Calibration Standard 1	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Glycerol Calibration Standard 2	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Glycerol Calibration Standard 3	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Glycerol Calibration Standard 4	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Glycerol Calibration Standard 5	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Inhalation	: Glycerol Calibration Standard 1	Harmful if inhaled.
	Glycerol Calibration Standard 2	Harmful if inhaled.
	Glycerol Calibration Standard 3	Harmful if inhaled.
	Glycerol Calibration Standard 4	Harmful if inhaled.
	Glycerol Calibration Standard 5	Harmful if inhaled.
Ingestion	: Glycerol Calibration Standard 1	Harmful if swallowed.
	Glycerol Calibration Standard 2	Harmful if swallowed.
	Glycerol Calibration Standard 3	Harmful if swallowed.
	Glycerol Calibration Standard 4	Harmful if swallowed.
	Glycerol Calibration Standard 5	Harmful if swallowed.
Skin contact	: Glycerol Calibration Standard 1	Harmful in contact with skin.
	Glycerol Calibration Standard 2	Harmful in contact with skin.
	Glycerol Calibration Standard 3	Harmful in contact with skin.
	Glycerol Calibration Standard 4	Harmful in contact with skin.
	Glycerol Calibration Standard 5	Harmful in contact with skin.
Eye contact	: Glycerol Calibration Standard 1	No known significant effects or critical hazards.
	Glycerol Calibration Standard 2	No known significant effects or critical hazards.
	Glycerol Calibration Standard 3	No known significant effects or critical hazards.
	Glycerol Calibration Standard 4	No known significant effects or critical hazards.
	Glycerol Calibration Standard 5	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	: Glycerol Calibration Standard 1	No specific data.
	Glycerol Calibration Standard 2	No specific data.
	Glycerol Calibration Standard 3	No specific data.
	Glycerol Calibration Standard 4	No specific data.
	Glycerol Calibration Standard 5	No specific data.

SECTION 11: Toxicological information

Ingestion	: Glycerol Calibration Standard 1	No specific data.
	Glycerol Calibration Standard 2	No specific data.
	Glycerol Calibration Standard 3	No specific data.
	Glycerol Calibration Standard 4	No specific data.
	Glycerol Calibration Standard 5	No specific data.
Skin contact	: Glycerol Calibration Standard 1	No specific data.
	Glycerol Calibration Standard 2	No specific data.
	Glycerol Calibration Standard 3	No specific data.
	Glycerol Calibration Standard 4	No specific data.
	Glycerol Calibration Standard 5	No specific data.
Eye contact	: Glycerol Calibration Standard 1	No specific data.
	Glycerol Calibration Standard 2	No specific data.
	Glycerol Calibration Standard 3	No specific data.
	Glycerol Calibration Standard 4	No specific data.
	Glycerol Calibration Standard 5	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

Conclusion/Summary : Not available.

General	: Glycerol Calibration Standard 1	No known significant effects or critical hazards.
	Glycerol Calibration Standard 2	No known significant effects or critical hazards.
	Glycerol Calibration Standard 3	No known significant effects or critical hazards.
	Glycerol Calibration Standard 4	No known significant effects or critical hazards.
	Glycerol Calibration Standard 5	No known significant effects or critical hazards.

SECTION 11: Toxicological information

Carcinogenicity	: Glycerol Calibration Standard 1	No known significant effects or critical hazards.
	Glycerol Calibration Standard 2	No known significant effects or critical hazards.
	Glycerol Calibration Standard 3	No known significant effects or critical hazards.
	Glycerol Calibration Standard 4	No known significant effects or critical hazards.
	Glycerol Calibration Standard 5	No known significant effects or critical hazards.
Mutagenicity	: Glycerol Calibration Standard 1	No known significant effects or critical hazards.
	Glycerol Calibration Standard 2	No known significant effects or critical hazards.
	Glycerol Calibration Standard 3	No known significant effects or critical hazards.
	Glycerol Calibration Standard 4	No known significant effects or critical hazards.
	Glycerol Calibration Standard 5	No known significant effects or critical hazards.
Reproductive toxicity	: Glycerol Calibration Standard 1	No known significant effects or critical hazards.
	Glycerol Calibration Standard 2	No known significant effects or critical hazards.
	Glycerol Calibration Standard 3	No known significant effects or critical hazards.
	Glycerol Calibration Standard 4	No known significant effects or critical hazards.
	Glycerol Calibration Standard 5	No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Glycerol Calibration Standard 1	Adverse symptoms may include the following: Narcotic effects: central nervous system depression, nausea or vomiting , headache , kidney abnormalities . Over-exposure may cause serious liver disorders.
Glycerol Calibration Standard 2	Adverse symptoms may include the following: Narcotic effects: central nervous system depression , nausea or vomiting , headache , kidney abnormalities. Over-exposure may cause serious liver disorders.
Glycerol Calibration Standard 3	Adverse symptoms may include the following: Narcotic effects: central nervous system depression, nausea or vomiting, headache , kidney abnormalities. Over-exposure may cause serious liver disorders.
Glycerol Calibration Standard 4	Adverse symptoms may include the following: Narcotic effects: central nervous system depression, nausea or vomiting, kidney abnormalities. Over-exposure may cause serious liver disorders.
Glycerol Calibration Standard 5	Adverse symptoms may include the following: Narcotic effects: central nervous system depression , nausea or vomiting , headache, kidney abnormalities. Over-exposure may cause serious liver disorders.

SECTION 12: Ecological information

12.1 Toxicity

SECTION 12: Ecological information

Product/ingredient name	Result	Species	Exposure
Glycerol Calibration Standard 1 pyridine	Acute EC50 110000 µg/l Fresh water Acute LC50 182000 µg/l Fresh water Acute LC50 520000 µg/l Fresh water Acute LC50 26000 µg/l Fresh water	Algae - <i>Selenastrum sp.</i> Crustaceans - <i>Gammarus pulex</i> Daphnia - <i>Daphnia pulex</i> Fish - <i>Cyprinus carpio</i>	96 hours 48 hours 48 hours 96 hours
Glycerol Calibration Standard 2 pyridine	Acute EC50 110000 µg/l Fresh water Acute LC50 182000 µg/l Fresh water Acute LC50 520000 µg/l Fresh water Acute LC50 26000 µg/l Fresh water	Algae - <i>Selenastrum sp.</i> Crustaceans - <i>Gammarus pulex</i> Daphnia - <i>Daphnia pulex</i> Fish - <i>Cyprinus carpio</i>	96 hours 48 hours 48 hours 96 hours
Glycerol Calibration Standard 3 pyridine	Acute EC50 110000 µg/l Fresh water Acute LC50 182000 µg/l Fresh water Acute LC50 520000 µg/l Fresh water Acute LC50 26000 µg/l Fresh water	Algae - <i>Selenastrum sp.</i> Crustaceans - <i>Gammarus pulex</i> Daphnia - <i>Daphnia pulex</i> Fish - <i>Cyprinus carpio</i>	96 hours 48 hours 48 hours 96 hours
Glycerol Calibration Standard 4 pyridine	Acute EC50 110000 µg/l Fresh water Acute LC50 182000 µg/l Fresh water Acute LC50 520000 µg/l Fresh water Acute LC50 26000 µg/l Fresh water	Algae - <i>Selenastrum sp.</i> Crustaceans - <i>Gammarus pulex</i> Daphnia - <i>Daphnia pulex</i> Fish - <i>Cyprinus carpio</i>	96 hours 48 hours 48 hours 96 hours
Glycerol Calibration Standard 5 pyridine	Acute EC50 110000 µg/l Fresh water Acute LC50 182000 µg/l Fresh water Acute LC50 520000 µg/l Fresh water Acute LC50 26000 µg/l Fresh water	Algae - <i>Selenastrum sp.</i> Crustaceans - <i>Gammarus pulex</i> Daphnia - <i>Daphnia pulex</i> Fish - <i>Cyprinus carpio</i>	96 hours 48 hours 48 hours 96 hours

12.2 Persistence and degradability

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Glycerol Calibration Standard 1 pyridine	-	-	Readily
Glycerol Calibration Standard 2 pyridine	-	-	Readily
Glycerol Calibration Standard 3 pyridine	-	-	Readily
Glycerol Calibration Standard 4 pyridine	-	-	Readily
Glycerol Calibration Standard 5 pyridine	-	-	Readily

SECTION 12: Ecological information

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Glycerol Calibration Standard 1 pyridine	0.64	-	Low
Glycerol Calibration Standard 2 pyridine	0.64	-	Low
Glycerol Calibration Standard 3 pyridine	0.64	-	Low
Glycerol Calibration Standard 4 pyridine	0.64	-	Low
Glycerol Calibration Standard 5 pyridine	0.64	-	Low

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods




Product

- Methods of disposal** : 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.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.
- Packaging**
- Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 13: Disposal considerations

Special precautions : 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. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number or ID number	UN1282	UN1282	UN1282
14.2 UN proper shipping name	PYRIDINE solution	PYRIDINE solution	Pyridine solution
14.3 Transport hazard class(es)	3 	3 	3 
14.4 Packing group	II	II	II
14.5 Environmental hazards	No.	No.	No.

Additional information

Remarks: De minimis quantities

ADR/RID : **Hazard identification number** 33
Limited quantity 1 L
Tunnel code (D/E)

IMDG : **Emergency schedules** F-E, S-D

IATA : **Quantity limitation** Passenger and Cargo Aircraft: 5 L. Packaging instructions: 353. Cargo Aircraft Only: 60 L. Packaging instructions: 364. Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.

14.6 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.

14.7 Transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

SECTION 15: Regulatory information

Product / Ingredient name	Identifiers	Designation [Usage]
Glycerol Calibration Standard 1 Glycerol Calibration Standard 1		3
Glycerol Calibration Standard 2 Glycerol Calibration Standard 2		3
Glycerol Calibration Standard 3 Glycerol Calibration Standard 3		3
Glycerol Calibration Standard 4 Glycerol Calibration Standard 4		3
Glycerol Calibration Standard 5 Glycerol Calibration Standard 5		3

Label	:	Glycerol Calibration Standard 1	Not applicable.
		Glycerol Calibration Standard 2	Not applicable.
		Glycerol Calibration Standard 3	Not applicable.
		Glycerol Calibration Standard 4	Not applicable.
		Glycerol Calibration Standard 5	Not applicable.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
Glycerol Calibration Standard 1 P5c
Glycerol Calibration Standard 2 P5c
Glycerol Calibration Standard 3 P5c
Glycerol Calibration Standard 4 P5c
Glycerol Calibration Standard 5 P5c

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

SECTION 15: Regulatory information

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada	: Not determined.
China	: Not determined.
Eurasian Economic Union	: Russian Federation inventory: All components are listed or exempted.
Japan	: Japan inventory (CSCL): Not determined. Japan inventory (ISHL): All components are listed or exempted.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: Not determined.
Viet Nam	: All components are listed or exempted.

15.2 Chemical safety assessment	: This product contains substances for which Chemical Safety Assessments might still be required.
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SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms	: ATE = Acute Toxicity Estimate CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement N/A = Not available PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number vPvB = Very Persistent and Very Bioaccumulative
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Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Glycerol Calibration Standard 1 Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332	On basis of test data Calculation method Calculation method Calculation method
Glycerol Calibration Standard 2 Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332	On basis of test data Calculation method Calculation method Calculation method

SECTION 16: Other information

<p>Glycerol Calibration Standard 3 Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332</p> <p>Glycerol Calibration Standard 4 Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332</p> <p>Glycerol Calibration Standard 5 Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332</p>	<p>On basis of test data Calculation method Calculation method Calculation method</p> <p>On basis of test data Calculation method Calculation method Calculation method</p> <p>On basis of test data Calculation method Calculation method Calculation method</p>
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Full text of abbreviated H statements

<p>Glycerol Calibration Standard 1 H225 H302 H312 H332</p> <p>Glycerol Calibration Standard 2 H225 H302 H312 H332</p> <p>Glycerol Calibration Standard 3 H225 H302 H312 H332</p> <p>Glycerol Calibration Standard 4 H225 H302 H312 H332</p> <p>Glycerol Calibration Standard 5 H225 H302 H312 H332</p>	<p>Highly flammable liquid and vapour. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.</p> <p>Highly flammable liquid and vapour. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.</p> <p>Highly flammable liquid and vapour. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.</p> <p>Highly flammable liquid and vapour. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.</p> <p>Highly flammable liquid and vapour. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.</p>
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Full text of classifications [CLP/GHS]

<p>Glycerol Calibration Standard 1 Acute Tox. 4 Flam. Liq. 2</p> <p>Glycerol Calibration Standard 2 Acute Tox. 4 Flam. Liq. 2</p> <p>Glycerol Calibration Standard 3 Acute Tox. 4 Flam. Liq. 2</p>	<p>ACUTE TOXICITY - Category 4 FLAMMABLE LIQUIDS - Category 2</p> <p>ACUTE TOXICITY - Category 4 FLAMMABLE LIQUIDS - Category 2</p> <p>ACUTE TOXICITY - Category 4 FLAMMABLE LIQUIDS - Category 2</p>
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SECTION 16: Other information

Glycerol Calibration Standard 4 Acute Tox. 4 Flam. Liq. 2	ACUTE TOXICITY - Category 4 FLAMMABLE LIQUIDS - Category 2
Glycerol Calibration Standard 5 Acute Tox. 4 Flam. Liq. 2	ACUTE TOXICITY - Category 4 FLAMMABLE LIQUIDS - Category 2

Date of issue/ Date of revision : 28/02/2024

Date of previous issue : No previous validation

Version : 1

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