Conforms to US OSHA Hazard Communication 29CFR1910.1200

SAFETY DATA SHEET

Agilent Technologies

Glycerol Calibration Standards Kit, Part Number G3440-85028

Section 1. Identification

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

Validation date : 2/28/2024

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

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

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

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status :

Glycerol Calibration Standard 1	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Glycerol Calibration Standard 2	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Glycerol Calibration Standard 3	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Glycerol Calibration Standard 4	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Glycerol Calibration Standard 5	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

☑ 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
H319	EYE IRRITATION - Category 2A
H351	CARCINOGENICITY - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

Section 2. Hazards identification

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
H319	EYE IRRITATION - Category 2A
H351	CARCINOGENICITY - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

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
H319	EYE IRRITATION - Category 2A
H351	CARCINOGENICITY - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

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
H319	EYE IRRITATION - Category 2A
H351	CARCINOGENICITY - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

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
H319	EYE IRRITATION - Category 2A
H351	CARCINOGENICITY - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

2.2 GHS 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 vapor.
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.
H351 - Suspected of causing cancer.

Glycerol Calibration Standard 2

H225 - Highly flammable liquid and vapor.
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.
H351 - Suspected of causing cancer.

Glycerol Calibration Standard 3

H225 - Highly flammable liquid and vapor.
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.
H351 - Suspected of causing cancer.

Glycerol Calibration Standard 4

H225 - Highly flammable liquid and vapor.
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.
H351 - Suspected of causing cancer.

Glycerol Calibration Standard 5

H225 - Highly flammable liquid and vapor.
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.

Section 2. Hazards identification

H351 - Suspected of causing cancer.

Precautionary statements

Prevention :

Glycerol Calibration Standard 1	P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating or lighting equipment. P242 - Use non-sparking tools. P243 - Take action to prevent static discharges. P261 - Avoid breathing vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling.
Glycerol Calibration Standard 2	P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating or lighting equipment. P242 - Use non-sparking tools. P243 - Take action to prevent static discharges. P261 - Avoid breathing vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling.
Glycerol Calibration Standard 3	P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating or lighting equipment. P242 - Use non-sparking tools. P243 - Take action to prevent static discharges. P261 - Avoid breathing vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling.
Glycerol Calibration Standard 4	P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating or lighting equipment. P242 - Use non-sparking tools. P243 - Take action to prevent static discharges. P261 - Avoid breathing vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling.
Glycerol Calibration Standard 5	P201 - Obtain special instructions before use.

Section 2. Hazards identification

			P280 - Wear protective gloves, protective clothing and eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating or lighting equipment. P242 - Use non-sparking tools. P243 - Take action to prevent static discharges. P261 - Avoid breathing vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling.
Response	:	Glycerol Calibration Standard 1	P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P302 + P312 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
		Glycerol Calibration Standard 2	P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P302 + P312 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
		Glycerol Calibration Standard 3	P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P302 + P312 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
		Glycerol Calibration Standard 4	P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P302 + P312 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical

Section 2. Hazards identification

			advice or attention.
		Glycerol Calibration Standard 5	P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. P302 + P312 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
Storage	:	Glycerol Calibration Standard 1	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
		Glycerol Calibration Standard 2	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
		Glycerol Calibration Standard 3	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
		Glycerol Calibration Standard 4	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
		Glycerol Calibration Standard 5	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
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.
Supplemental label elements	:	Glycerol Calibration Standard 1	None known.
		Glycerol Calibration Standard 2	None known.
		Glycerol Calibration Standard 3	None known.
		Glycerol Calibration Standard 4	None known.
		Glycerol Calibration Standard 5	None known.

2.3 Other hazards

Hazards not otherwise classified	:	Glycerol Calibration Standard 1	None known.
		Glycerol Calibration Standard 2	None known.
		Glycerol Calibration Standard 3	None known.
		Glycerol Calibration Standard 4	None known.
		Glycerol Calibration Standard 5	None known.

Section 3. Composition/information on ingredients

Substance/mixture : 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

Ingredient name	%	CAS number
Glycerol Calibration Standard 1		
Pyridine	≥90	110-86-1
Glycerol Calibration Standard 2		
Pyridine	≥90	110-86-1
Glycerol Calibration Standard 3		
Pyridine	≥90	110-86-1
Glycerol Calibration Standard 4		
Pyridine	≥90	110-86-1
Glycerol Calibration Standard 5		
Pyridine	≥90	110-86-1

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

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

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

Section 4. First aid measures

4.1 Description of necessary first aid measures

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.

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.

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.

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

Section 4. First aid measures

medical attention.

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.

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 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 2: 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 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 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.

Section 4. First aid measures

		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 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 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.
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 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 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 necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

		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 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 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 Standard 3	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 4	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the

Section 4. First aid measures

		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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	:	Glycerol Calibration Standard 1	Causes serious eye irritation.
		Glycerol Calibration Standard 2	Causes serious eye irritation.
		Glycerol Calibration Standard 3	Causes serious eye irritation.
		Glycerol Calibration Standard 4	Causes serious eye irritation.
		Glycerol Calibration Standard 5	Causes serious eye irritation.
Inhalation	:	Glycerol Calibration Standard 1	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
		Glycerol Calibration Standard 2	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
		Glycerol Calibration Standard 3	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
		Glycerol Calibration Standard 4	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
		Glycerol Calibration Standard 5	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
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.

Section 4. First aid measures

Ingestion	:	Glycerol Calibration Standard 1	Harmful if swallowed. Can cause central nervous system (CNS) depression.
		Glycerol Calibration Standard 2	Harmful if swallowed. Can cause central nervous system (CNS) depression.
		Glycerol Calibration Standard 3	Harmful if swallowed. Can cause central nervous system (CNS) depression.
		Glycerol Calibration Standard 4	Harmful if swallowed. Can cause central nervous system (CNS) depression.
		Glycerol Calibration Standard 5	Harmful if swallowed. Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact	:	Glycerol Calibration Standard 1	Adverse symptoms may include the following: pain or irritation watering redness
		Glycerol Calibration Standard 2	Adverse symptoms may include the following: pain or irritation watering redness
		Glycerol Calibration Standard 3	Adverse symptoms may include the following: pain or irritation watering redness
		Glycerol Calibration Standard 4	Adverse symptoms may include the following: pain or irritation watering redness
		Glycerol Calibration Standard 5	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	:	Glycerol Calibration Standard 1	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		Glycerol Calibration Standard 2	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		Glycerol Calibration Standard 3	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		Glycerol Calibration Standard 4	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		Glycerol Calibration Standard 5	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue

Section 4. First aid measures

			dizziness/vertigo unconsciousness
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 immediate medical attention and special treatment needed, if necessary

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.
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

Section 4. First aid measures

	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 Standard 5	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.

See toxicological information (Section 11)

Section 5. Fire-fighting 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

Specific hazards arising from the chemical	:	Glycerol Calibration Standard 1	Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
		Glycerol Calibration Standard 2	Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
		Glycerol Calibration Standard 3	Highly flammable liquid and vapor. Runoff to sewer

Section 5. Fire-fighting measures

		may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
	Glycerol Calibration Standard 4	Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
	Glycerol Calibration Standard 5	Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
Hazardous thermal decomposition 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

Section 5. Fire-fighting measures

Special protective actions 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.
		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.
		Glycerol Calibration Standard 3	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
		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.
		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.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Section 6. Accidental release measures

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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
		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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
		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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
		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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
		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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	:	Glycerol Calibration Standard 1	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		Glycerol Calibration Standard 2	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		Glycerol Calibration Standard 3	If specialized clothing is required to deal with the spillage, take note of any information in Section 8

Section 6. Accidental release measures

		on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Glycerol Calibration Standard 4	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Glycerol Calibration Standard 5	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
6.2 Environmental precautions :	Glycerol Calibration Standard 1	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Glycerol Calibration Standard 2	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Glycerol Calibration Standard 3	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Glycerol Calibration Standard 4	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Glycerol Calibration Standard 5	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

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. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

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.

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). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. 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). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. 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). Avoid exposure - obtain special

Section 7. Handling and storage

	instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. 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). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. 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). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Section 7. Handling and storage

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 Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

: 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. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

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. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must

Section 7. Handling and storage

	be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
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. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
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. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
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. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

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.

Section 7. Handling and storage

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

Ingredient name	Exposure limits
Glycerol Calibration Standard 1	
Pyridine	**ACGIH TLV (United States, 1/2023).** TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **NIOSH REL (United States, 10/2020).** TWA: 5 ppm 10 hours. TWA: 15 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** TWA: 15 mg/m³ 8 hours. TWA: 5 ppm 8 hours.
Glycerol Calibration Standard 2	
Pyridine	**ACGIH TLV (United States, 1/2023).** TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **NIOSH REL (United States, 10/2020).** TWA: 5 ppm 10 hours. TWA: 15 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** TWA: 15 mg/m³ 8 hours. TWA: 5 ppm 8 hours.
Glycerol Calibration Standard 3	
Pyridine	**ACGIH TLV (United States, 1/2023).** TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **NIOSH REL (United States, 10/2020).** TWA: 5 ppm 10 hours. TWA: 15 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** TWA: 15 mg/m³ 8 hours. TWA: 5 ppm 8 hours.

Section 8. Exposure controls/personal protection

Glycerol Calibration Standard 4 Pyridine	**ACGIH TLV (United States, 1/2023).** TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **NIOSH REL (United States, 10/2020).** TWA: 5 ppm 10 hours. TWA: 15 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** TWA: 15 mg/m³ 8 hours. TWA: 5 ppm 8 hours.
Glycerol Calibration Standard 5 Pyridine	**ACGIH TLV (United States, 1/2023).** TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **NIOSH REL (United States, 10/2020).** TWA: 5 ppm 10 hours. TWA: 15 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 5 ppm 8 hours. TWA: 15 mg/m³ 8 hours. **CAL OSHA PEL (United States, 5/2018).** TWA: 15 mg/m³ 8 hours. TWA: 5 ppm 8 hours.

Biological exposure indices

No exposure indices known.

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, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

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.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

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

Appearance

Physical state :	Glycerol Calibration Standard 1	Liquid.
	Glycerol Calibration Standard 2	Liquid.
	Glycerol Calibration Standard 3	Liquid.
	Glycerol Calibration Standard 4	Liquid.
	Glycerol Calibration Standard 5	Liquid.
Color :	Glycerol Calibration Standard 1	Colorless.
	Glycerol Calibration Standard 2	Colorless.
	Glycerol Calibration Standard 3	Colorless.
	Glycerol Calibration Standard 4	Colorless.
	Glycerol Calibration Standard 5	Colorless.
Odor :	Glycerol Calibration Standard 1	Unpleasant.
	Glycerol Calibration Standard 2	Unpleasant.
	Glycerol Calibration Standard 3	Unpleasant.
	Glycerol Calibration Standard 4	Unpleasant.
	Glycerol Calibration Standard 5	Unpleasant.
Odor threshold :	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.
pH :	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 9. Physical and chemical properties and safety characteristics

Melting point/freezing point :
Glycerol Calibration Standard 1 -42°C (-43.6°F)
Glycerol Calibration Standard 2 -42°C (-43.6°F)
Glycerol Calibration Standard 3 -42°C (-43.6°F)
Glycerol Calibration Standard 4 -42°C (-43.6°F)
Glycerol Calibration Standard 5 -42°C (-43.6°F)

Boiling point, initial boiling point, and boiling range :
Glycerol Calibration Standard 1 115°C (239°F)
Glycerol Calibration Standard 2 115°C (239°F)
Glycerol Calibration Standard 3 115°C (239°F)
Glycerol Calibration Standard 4 115°C (239°F)
Glycerol Calibration Standard 5 115°C (239°F)

Flash point :
Glycerol Calibration Standard 1 Closed cup: 19.85°C (67.7°F)
Glycerol Calibration Standard 2 Closed cup: 18.667°C (65.6°F)
Glycerol Calibration Standard 3 Closed cup: 18.67°C (65.6°F)
Glycerol Calibration Standard 4 Closed cup: 18.67°C (65.6°F)
Glycerol Calibration Standard 5 Closed cup: 18.67°C (65.6°F)

Evaporation rate :
Glycerol Calibration Standard 1 1.37 (butyl acetate = 1)
Glycerol Calibration Standard 2 Not available.
Glycerol Calibration Standard 3 Not available.
Glycerol Calibration Standard 4 Not available.
Glycerol Calibration Standard 5 Not available.

Flammability :
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.

Lower and upper explosion limit/flammability limit :
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%
Glycerol Calibration Standard 4 Lower: 1.8%
Upper: 12.4%
Glycerol Calibration Standard 5 Lower: 1.8%
Upper: 12.4%

Vapor pressure :
Glycerol Calibration Standard 2 2.7 kPa (20 mm Hg)
Glycerol Calibration Standard 3 2.7 kPa (20 mm Hg)
Glycerol Calibration Standard 4 2.7 kPa (20 mm Hg)
Glycerol Calibration Standard 5 2.7 kPa (20 mm Hg)

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

Relative vapor 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]

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

Section 9. Physical and chemical properties and safety characteristics

Solubility(ies) :

Media	Result
Glycerol Calibration Standard 1	
water	Soluble
Glycerol Calibration Standard 2	
water	Soluble
Glycerol Calibration Standard 3	
water	Soluble
Glycerol Calibration Standard 4	
water	Soluble
Glycerol Calibration Standard 5	
water	Soluble

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.

Auto-ignition temperature :

Glycerol Calibration Standard 2	250°C (482°F)
Glycerol Calibration Standard 3	250°C (482°F)
Glycerol Calibration Standard 4	250°C (482°F)
Glycerol Calibration Standard 5	250°C (482°F)

Ingredient name	°C	°F	Method
Glycerol Calibration Standard 1			
Pyridine	482	899.6	-

Decomposition temperature :

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.

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.

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.

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.

Section 10. Stability and reactivity

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 pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
		Glycerol Calibration Standard 2	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
		Glycerol Calibration Standard 3	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
		Glycerol Calibration Standard 4	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
		Glycerol Calibration Standard 5	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
10.5 Incompatible materials	:	Glycerol Calibration Standard 1	Reactive or incompatible with the following materials: oxidizing materials
		Glycerol Calibration Standard 2	Reactive or incompatible with the following materials: oxidizing materials
		Glycerol Calibration Standard 3	Reactive or incompatible with the following materials: oxidizing materials
		Glycerol Calibration Standard 4	Reactive or incompatible with the following materials: oxidizing materials
		Glycerol Calibration Standard 5	Reactive or incompatible with the following materials: oxidizing materials

Section 10. Stability and reactivity

10.6 Hazardous decomposition products :

Glycerol Calibration Standard 1	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Glycerol Calibration Standard 2	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Glycerol Calibration Standard 3	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Glycerol Calibration Standard 4	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Glycerol Calibration Standard 5	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 Vapor	Rat	9010 ppm	1 hours
Glycerol Calibration Standard 2				
Pyridine	LC50 Inhalation Vapor	Rat	9010 ppm	1 hours
Glycerol Calibration Standard 3				
Pyridine	LC50 Inhalation Vapor	Rat	9010 ppm	1 hours
Glycerol Calibration Standard 4				
Pyridine	LC50 Inhalation Vapor	Rat	9010 ppm	1 hours
Glycerol Calibration Standard 5				
Pyridine	LC50 Inhalation Vapor	Rat	9010 ppm	1 hours

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	-

Section 11. Toxicological information

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	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Glycerol Calibration Standard 1 Pyridine	-	2B	-
Glycerol Calibration Standard 2 Pyridine	-	2B	-
Glycerol Calibration Standard 3 Pyridine	-	2B	-
Glycerol Calibration Standard 4 Pyridine	-	2B	-
Glycerol Calibration Standard 5 Pyridine	-	2B	-

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Glycerol Calibration Standard 1 Pyridine	Category 3	-	Narcotic effects
Glycerol Calibration Standard 2 Pyridine	Category 3	-	Narcotic effects
Glycerol Calibration Standard 3 Pyridine	Category 3	-	Narcotic effects

Section 11. Toxicological information

Glycerol Calibration Standard 4 Pyridine	Category 3	-	Narcotic effects
Glycerol Calibration Standard 5 Pyridine	Category 3	-	Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the 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

Eye contact :

Glycerol Calibration Standard 1	Causes serious eye irritation.
Glycerol Calibration Standard 2	Causes serious eye irritation.
Glycerol Calibration Standard 3	Causes serious eye irritation.
Glycerol Calibration Standard 4	Causes serious eye irritation.
Glycerol Calibration Standard 5	Causes serious eye irritation.

Inhalation :

Glycerol Calibration Standard 1	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Glycerol Calibration Standard 2	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Glycerol Calibration Standard 3	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Glycerol Calibration Standard 4	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Glycerol Calibration Standard 5	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

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. Can cause central nervous system (CNS) depression.
Glycerol Calibration Standard 2	Harmful if swallowed. Can cause central nervous system (CNS) depression.
Glycerol Calibration Standard 3	Harmful if swallowed. Can cause central nervous system (CNS) depression.
Glycerol Calibration Standard 4	Harmful if swallowed. Can cause central nervous system (CNS) depression.
Glycerol Calibration Standard 5	Harmful if swallowed. Can cause central nervous system (CNS) depression.

Section 11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	:	Glycerol Calibration Standard 1	Adverse symptoms may include the following: pain or irritation watering redness
		Glycerol Calibration Standard 2	Adverse symptoms may include the following: pain or irritation watering redness
		Glycerol Calibration Standard 3	Adverse symptoms may include the following: pain or irritation watering redness
		Glycerol Calibration Standard 4	Adverse symptoms may include the following: pain or irritation watering redness
		Glycerol Calibration Standard 5	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	:	Glycerol Calibration Standard 1	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		Glycerol Calibration Standard 2	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		Glycerol Calibration Standard 3	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		Glycerol Calibration Standard 4	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		Glycerol Calibration Standard 5	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
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.

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.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General :

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.

Carcinogenicity :

Glycerol Calibration Standard 1	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Glycerol Calibration Standard 2	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Glycerol Calibration Standard 3	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Glycerol Calibration Standard 4	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Glycerol Calibration Standard 5	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

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.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)

Section 11. Toxicological information

Glycerol Calibration Standard 1					
Glycerol Calibration Standard 1	891.9	1121.1	N/A	12.9	N/A
Pyridine	891	1120	N/A	12.9	N/A
Glycerol Calibration Standard 2					
Glycerol Calibration Standard 2	891.1	1120.1	N/A	12.9	N/A
Pyridine	891	1120	N/A	12.9	N/A
Glycerol Calibration Standard 3					
Glycerol Calibration Standard 3	891.1	1120.1	N/A	12.9	N/A
Pyridine	891	1120	N/A	12.9	N/A
Glycerol Calibration Standard 4					
Glycerol Calibration Standard 4	891.1	1120.1	N/A	12.9	N/A
Pyridine	891	1120	N/A	12.9	N/A
Glycerol Calibration Standard 5					
Glycerol Calibration Standard 5	891.1	1120.1	N/A	12.9	N/A
Pyridine	891	1120	N/A	12.9	N/A

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	Algae - *Selenastrum sp.*	96 hours
	Acute LC50 182000 µg/l Fresh water	Crustaceans - *Gammarus pulex*	48 hours
	Acute LC50 520000 µg/l Fresh water	Daphnia - *Daphnia pulex*	48 hours
	Acute LC50 26000 µg/l Fresh water	Fish - *Cyprinus carpio*	96 hours
Glycerol Calibration Standard 2			
Pyridine	Acute EC50 110000 µg/l Fresh water	Algae - *Selenastrum sp.*	96 hours
	Acute LC50 182000 µg/l Fresh water	Crustaceans - *Gammarus pulex*	48 hours
	Acute LC50 520000 µg/l Fresh water	Daphnia - *Daphnia pulex*	48 hours
	Acute LC50 26000 µg/l Fresh water	Fish - *Cyprinus carpio*	96 hours
Glycerol Calibration Standard 3			
Pyridine	Acute EC50 110000 µg/l Fresh water	Algae - *Selenastrum sp.*	96 hours
	Acute LC50 182000 µg/l Fresh water	Crustaceans - *Gammarus pulex*	48 hours
	Acute LC50 520000 µg/l Fresh water	Daphnia - *Daphnia pulex*	48 hours
	Acute LC50 26000 µg/l Fresh water	Fish - *Cyprinus carpio*	96 hours
Glycerol Calibration Standard 4			
Pyridine	Acute EC50 110000 µg/l Fresh water	Algae - *Selenastrum sp.*	96 hours
	Acute LC50 182000 µg/l Fresh water	Crustaceans - *Gammarus pulex*	48 hours
	Acute LC50 520000 µg/l Fresh water	Daphnia - *Daphnia pulex*	48 hours
	Acute LC50 26000 µg/l Fresh water	Fish - *Cyprinus carpio*	96 hours
Glycerol Calibration Standard 5			
Pyridine	Acute EC50 110000 µg/l Fresh water	Algae - *Selenastrum sp.*	96 hours
	Acute LC50 182000 µg/l Fresh water	Crustaceans - *Gammarus pulex*	48 hours
	Acute LC50 520000 µg/l Fresh water	Daphnia - *Daphnia pulex*	48 hours
	Acute LC50 26000 µg/l Fresh water	Fish - *Cyprinus carpio*	96 hours

12.2 Persistence and degradability

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.

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

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Section 13. Disposal considerations

Ingredient	CAS #	Status	Reference number
Glycerol Calibration Standard 1			
Pyridine	110-86-1	Listed	U196
Glycerol Calibration Standard 2			
Pyridine	110-86-1	Listed	U196
Glycerol Calibration Standard 3			
Pyridine	110-86-1	Listed	U196
Glycerol Calibration Standard 4			
Pyridine	110-86-1	Listed	U196
Glycerol Calibration Standard 5			
Pyridine	110-86-1	Listed	U196

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

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

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

Section 14. Transport information

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

Additional information

Remarks: De minimis quantities

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

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

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

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

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

Section 15. Regulatory information

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification :

Glycerol Calibration Standard 1	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Glycerol Calibration Standard 2	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Glycerol Calibration Standard 3	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Glycerol Calibration Standard 4	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Glycerol Calibration Standard 5	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

Composition/information on ingredients

Name	%	Classification
Glycerol Calibration Standard 1		
Pyridine	≥90	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Glycerol Calibration Standard 2		
Pyridine	≥90	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4

Section 15. Regulatory information

		ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Glycerol Calibration Standard 3		
Pyridine	≥90	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Glycerol Calibration Standard 4		
Pyridine	≥90	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Glycerol Calibration Standard 5		
Pyridine	≥90	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	**Glycerol Calibration Standard 1** Pyridine	110-86-1	≥90
	Glycerol Calibration Standard 2 Pyridine	110-86-1	≥90
	Glycerol Calibration Standard 3 Pyridine	110-86-1	≥90
	Glycerol Calibration Standard 4 Pyridine	110-86-1	≥90
	Glycerol Calibration Standard 5 Pyridine	110-86-1	≥90
Supplier notification	**Glycerol Calibration Standard 1** Pyridine	110-86-1	≥90
	Glycerol Calibration Standard 2 Pyridine	110-86-1	≥90
	Glycerol Calibration Standard 3 Pyridine	110-86-1	≥90

Section 15. Regulatory information

	Glycerol Calibration Standard 4 Pyridine	110-86-1	≥90
	Glycerol Calibration Standard 5 Pyridine	110-86-1	≥90

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: PYRIDINE

New York : The following components are listed: Pyridine

New Jersey : The following components are listed: PYRIDINE

Pennsylvania : The following components are listed: PYRIDINE

California Prop. 65

⚠ **WARNING**: This product can expose you to Pyridine, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
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	-	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Canada : Not determined.

China : Not determined.

Section 15. Regulatory information

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.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
Glycerol Calibration Standard 1	
FLAMMABLE LIQUIDS - Category 2	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (dermal) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
Glycerol Calibration Standard 2	
FLAMMABLE LIQUIDS - Category 2	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (dermal) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
Glycerol Calibration Standard 3	
FLAMMABLE LIQUIDS - Category 2	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (dermal) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
Glycerol Calibration Standard 4	
FLAMMABLE LIQUIDS - Category 2	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (dermal) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
Glycerol Calibration Standard 5	
FLAMMABLE LIQUIDS - Category 2	On basis of test data

Section 16. Other information

ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (dermal) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method

History

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

Date of previous issue : 06/01/2021

Version : 7

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

Indicates information that has changed from previously issued version.

Notice to reader

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