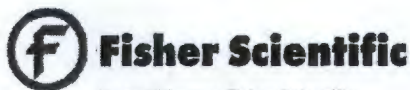


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SB27471

XACT BLOOD TYPING



Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 14-Aug-2009

Revision Date 26-Feb-2014

Revision Number 1

1. Identification

Product Name Calcium chloride
Cat No.: C77-212; C77-500; C614-3; C614-10; C614-500
Synonyms Dowflake; Calpus; Calpac (Anhydrous; Pellets; Certified; Desiccant; 4-20 Mesh and Finer)
Recommended Use Laboratory chemicals
Uses advised against No information available
Details of the supplier of the safety data sheet

Company Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100
Emergency Telephone Number CHEMTREC®, inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Severe Eye Damage/Eye Irritation Category 2

Label Elements

Signal Word Warning

Hazard Statements Causes serious eye irritation



Precautionary Statements

Prevention Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection

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Thermo Fisher Scientific - Calcium chloride

Revision Date 26-Feb-2014

Hazardous Combustion Products Hydrogen chloride gas, Chlorine.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA
Health 2
Flammability 0
Instability 1
Physical hazards NA

3. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.
Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

4. Handling and storage

Handling Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

5. Exposure controls / personal protection

Exposure Guidelines

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Calcium chloride			TWA: 5 mg/m ³

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

6. Physical and chemical properties

Physical State Solid
Appearance Beige
Odor odorless
Odor Threshold No information available.
pH 8-10 100 g/L aq. sol.
Melting Point/Range 782°C / 1439.5°F

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Thermo Fisher Scientific - Calcium chloride

Revision Date 26-Feb-2014

Inhalation

Call a POISON CENTER or doctor/physician if you feel unwell

Eyes

If in EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists. Get medical advice/attention.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Disposal

Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC)

May form combustible dust concentrations in air

7. Composition / information on ingredients

Chemical name	CAS-No	Weight %
Calcium chloride	10043-52-4	>99

8. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
Inhalation Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if symptoms occur.
Ingestion Do not induce vomiting. Obtain medical attention.
Most important symptoms/effects No information available
Notes to Physician Treat symptomatically.

9. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media No information available.
Flash Point No information available.
Flash Point Method No information available.
Autoignition Temperature No information available.
Explosion Limits No data available.
Upper No data available.
Lower No data available.
Sensitivity to mechanical impact No information available.
Sensitivity to static discharge No information available.

Specific Hazards Arising from the Chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

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Thermo Fisher Scientific - Calcium chloride

Revision Date 26-Feb-2014

10. Physical and chemical properties

Boiling Point/Range >1600°C / >2912°F @ 760 mmHg
Flash Point No information available.
Evaporation Rate No information available.
Flammability (solid, gas) No information available.
Flammability or explosive limits No data available.
Upper No data available.
Lower No data available.
Vapor Pressure No information available.
Vapor Density No information available.
Relative Density No information available.
Solubility Soluble in water.
Partition coefficient; n-octanol/water No data available.
Autoignition Temperature No information available.
Decomposition temperature No information available.
Viscosity No information available.
Molecular Formula Ca Cl₂
Molecular Weight 110.99

11. Stability and reactivity

Reactive Hazard None known, based on information available.
Stability Stable under recommended storage conditions. Hygroscopic.
Conditions to Avoid Incompatible products. Exposure to moist air or water. Excess heat. Avoid dust formation.
Incompatible Materials Strong oxidizing agents, Metals.
Hazardous Decomposition Products Hydrogen chloride gas, Chlorine.
Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions None under normal processing.

12. Toxicological information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium chloride	1000 mg/kg (rat)	2000 mg/kg (rat)	Not tested

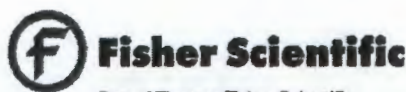
Toxicologically Synergistic Products No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Severe eye irritant
Sensitization No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Health
Calcium chloride	10043-52-4	Not listed	Not listed	Not listed	Not listed	Not listed

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Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date: 24-Feb-2014

Revision Date: 24-Feb-2014

Revision Number: 1

Product Name Magnesium Sulfate Heptahydrate

Cat No.: BP213-1

Synonyms No information available.

Recommended Use Laboratory chemical

Uses advised against No information available

Details of the supplier of the safety data sheet

Company Fisher Scientific
Emergency Telephone Number CHEMTREC®
One Pageant Lane CHEMTREC®, Inside the USA: 800-424-9300
Fair Lawn, NJ 07410 CHEMTREC®, Outside the USA: 001-703-527-3887
Tel: (201) 798-7100

2. Hazard(s) identification

Classification

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Based on available data, the classification criteria are not met

Label Elements

None required.

Hazards not otherwise classified (HNOC)

None identified

3. Composition / Information on ingredients

Ingredient	Component	CAS-No	Weight %
Magnesium sulfate heptahydrate		10294-93-9	>99
Magnesium sulfate		7487-88-9	0

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Thermo Fisher Scientific - Magnesium Sulfate Heptahydrate

Revision Date: 24-Feb-2014

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if symptoms occur.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if symptoms occur.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if symptoms occur.
Ingestion	Do not induce vomiting. Obtain medical attention.
Most important symptoms/effects	No information available
Notes to Physician	Treat symptomatically.

5. Fire-fighting measures

Substance Extinguishing Media	Substance is non-flammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media	No information available.
Flash Point	No information available.
Method	No information available.
Autoignition Temperature	No information available.
Explosion Limits	No data available.
Upper	No data available.
Lower	No data available.
Sensitivity to mechanical impact	No information available.
Sensitivity to static discharge	No information available.

Specific Hazards Arising from the Chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products Sulfur oxides, Magnesium oxides.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

HPA	Health	Flammability	Instability	Physical Hazards
	1	0	1	N/A

6. Accidental release procedures

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation.
Environmental Precautions	Avoid release to the environment. See Section 12 for additional ecological information.
Methods for Containment and Clean Up	Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

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Thermo Fisher Scientific - Magnesium Sulfate Heptahydrate

Revision Date: 24-Feb-2014

7. Handling and storage

Handling Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin and eyes. Do not breathe dust.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/Face Protection	Wear appropriate protective eyewear or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	odorless
Odor Threshold	No information available.
pH	5-8.2 5% aq. sol.
Melting Point/Range	1124°C
Boiling Point/Range	No information available.
Flash Point	No information available.
Evaporation Rate	No information available.
Flammability (solid, gas)	No information available.
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	<0.1 mmHg @ 20 °C
Vapor Density	No information available.
Relative Density	1.875
Solubility	No information available
Partition coefficient, n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	> 150°C
Viscosity	No information available
Molecular Formula	Mg O4 S · 7 H2 O
Molecular Weight	246.48

10. Stability and reactivity

Reactive Hazard None known, based on information available.

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Thermo Fisher Scientific - Magnesium Sulfate Heptahydrate

Revision Date: 24-Feb-2014

Stability	Stable under normal conditions. Hygroscopic.
Conditions to Avoid	Avoid dust formation. Excess heat. Exposure to moist air or water.
Incompatible Materials	None known
Hazardous Decomposition Products	Sulfur oxides, Magnesium oxides
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing

11. Toxicological information

Acute Toxicity

Product Information	No acute toxicity information is available for this product
Oral LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Inhal LD50	Based on ATE data, the classification criteria are not met. ATE > 5 mg/l.

Component Information	No information available.
Toxicologically Synergistic Products	No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	No information available.
Sensitization	No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	HTP	ACGIH	Crit. Eff.	Mutation
Magnesium sulfate heptahydrate	10294-93-9	Not listed	Not listed	Not listed	Not listed	Not listed
Magnesium sulfate	7487-88-9	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects	No information available.
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
STOT - single exposure	None known.
STOT - repeated exposure	None known.
Aspiration hazard	No information available.
Symptoms / effects, both acute and delayed	No information available.
Endocrine Disruptor Information	No information available.
Other Adverse Effects	The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

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FLINN SCIENTIFIC, INC.
Safety Data Sheet (SDS)

SDS #: 395.20
Revision Date: March 25, 2014

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Hydrochloric Acid Solution, 0.1M - 2.4M

Flinn Scientific, Inc. P.O. Box 219, Batavia, IL 60510 (800) 452-1261
CHEMTREC Emergency Phone Number: (800) 424-9300

Hazard Word: DANGER

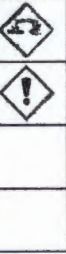
Pictograms

SECTION 2 — HAZARDS IDENTIFICATION

Hazard class: Skin corrosion or irritation (Category 1). Causes severe skin burns and eye damage (H314). Do not breathe mist, vapors or spray (P260).

Hazard class: Specific target organ toxicity, single exposure; respiratory tract irritation (Category 3). May cause respiratory irritation (H335).

Hazard class: Acute toxicity, oral (Category 5). May be harmful if swallowed (H303).



Industrial exposure to hydrochloric acid vapors and mists is listed as a known human carcinogen by IARC (IARC-1).

SECTION 3 — COMPOSITION INFORMATION ON INGREDIENTS

Component Name	CAS Number	Formula	Pure Substance	Concentration
Hydrochloric acid	7647-01-0	HCl	36.46	2-10%
Water	7732-18-5	H ₂ O	18.00	90-98%

SECTION 4 — FIRST AID MEASURES

Call a POISON CENTER or physician if you feel unwell (P312).
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing (P304+P340). If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing (P305+P351+P338). Immediately call a POISON CENTER or physician (P310). If on skin (or hair): Immediately remove all contaminated clothing. Rinse skin with water (P303+P361+P353). Wash contaminated clothing before reuse (P363). If swallowed: Rinse mouth. Do NOT induce vomiting (P301+P330+P331).

SECTION 5 — FIRE FIGHTING MEASURES

Nonflammable, noncombustible solution.
In case of fire: Use a tri-class dry chemical fire extinguisher.

MFPA Code
None
established

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Ventilate area and contain the spill with sand or other inert absorbent material, neutralize with sodium bicarbonate or calcium hydroxide, and deposit in a sealed bag or container. See Sections 8 and 13 for further information.

FLINN SCIENTIFIC, INC.

Safety Data Sheet Hydrochloric Acid Solution, 0.1M - 2.4M

SDS #: 395.20

Revision Date: March 25, 2014

SECTION 7 — HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Inorganic #9. Store with acids, except nitric acid.
Store in a dedicated acid cabinet; if an acid cabinet is not available, store in Flinn Saf-Cube™. Keep containers tightly closed (P233). Use only in a hood or well-ventilated area (P271).

SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Wear protective gloves, protective clothing, and eye protection (P280). Wash hands thoroughly after handling (P264). Use only in a hood or well-ventilated area (P271).
Exposure guidelines: (as concentrated HCl) Ceiling 5 ppm (OSHA); Ceiling 2 ppm (ACGIH); IDLH 50 ppm (OSHA). Irritation threshold is ~5 ppm on any irritation in sign of exposure (per OSHA).

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Clear, colorless liquid. Acidic, chlorine color. pH: < 1
Soluble: Water and alcohol

SECTION 10 — STABILITY AND REACTIVITY

Avoid contact with strong oxidizers, bases, amines, and alkali metals. Corrodes metal including stainless steel.
Stable: Good, if stored properly.

SECTION 11 — TOXICOLOGICAL INFORMATION

Acute effects: Eye and skin corrosion. Respiratory irritation, coughing.
Chronic effects: Corrosive to teeth.
Target organs: Respiratory tract, teeth, skin, eyes.
OEL-RBT LD₅₀: 900 mg/kg (as concentrated HCl)
OEL-RAT LC₅₀: 3134 ppm/hour (as concentrated HCl)
SKN-RBT LD₅₀: N.A.

N.A. = Not available, not all health risk data of this substance have been fully investigated.

SECTION 12 — ECOLOGICAL INFORMATION

Does not biodegrade in soil, may be toxic to aquatic life.

SECTION 13 — DISPOSAL CONSIDERATIONS

Please review all federal, state and local regulations that may apply before proceeding.
Flinn Suggested Disposal Method #246 is one option.

SECTION 14 — TRANSPORT INFORMATION

Shipping name: Hydrochloric acid. Hazard class: 8. Corrosive. UN number: UN1789.

N/A = Not applicable

SECTION 15 — REGULATORY INFORMATION

TSCA-listed. FINECS-listed (231-595-7). RCRA code D002.

SECTION 16 — OTHER INFORMATION

This Safety Data Sheet (SDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and does not take liability for any damages resulting therefrom. The data is intended solely for your information, investigation, and verification. The data should not be construed with toxic, flame, or hazard information, regulations, or requirements and CONSTITUTE NO WARRANTY. Any use of this data and information must be determined by the person responsible for its use in accordance with applicable local, state or federal laws and regulations. The conditions or methods of handling, storage, use and disposal of the product(s) described are based on the control of Flinn Scientific, Inc. and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT(S).

Consult your copy of the Flinn Reference Catalog/Reference Manual for additional information about laboratory chemicals.
Revision Date: March 25, 2014

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SAFETY DATA SHEET

Creation Date 25-May-2010

Revision Date 05-Sep-2014

Revision Number 1

1. Identification		
Product Name	Thymol	
Cat No.:	AC150330000; AC150330025; AC150330050; AC150331000; AC150336000	
Synonyms	5-Methyl-2-(1-methylethyl)phenol	
Recommended Use	Laboratory chemicals.	
Uses advised against	No information available	
Details of the supplier of the safety data sheet.		
Company	Entity / Business Name	Emergency Telephone Number
Fisher Scientific	Acros Organics	For information US call: 001-800-ACROS-01
One Reagent Lane	One Reagent Lane	/ Europe call: +32 14 87 52 11
Fair Lawn, NJ 07410	Fair Lawn, NJ 07410	Emergency Number US: 001-201-796-7100 /
Tel: (201) 796-7100		Europe: +32 14 87 58 89
		CHEMTREC Tel. No. US: 001-800-424-9300 /
		Europe: 001-703-527-3887

2. Hazard(s) Identification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation
Specific target organ toxicity (single exposure)
Target Organs - Respiratory system.

Category 4
Category 1 B
Category 1
Category 3

Label ElementsSignal Word
Danger**Hazard Statements**

Harmful if swallowed
Causes severe skin burns and eye damage
May cause respiratory irritation



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Thymol

Revision Date 05-Sep-2014

Autoignition Temperature	280 °C / 545 °F
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Fire dust dispersed in air may ignite. Corrosive material. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO₂)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NEPA

Health	Flammability	Instability	Physical hazards
3	1	0	N/A

6. Environmental Precautions

Personal Precautions Use personal protective equipment. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.
Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Remove all sources of ignition. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and Storage

Handling Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Do not breathe vapors/dust. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

8. Exposure Controls/Personal Protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/Face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 148. Use a NIOSH/MSHA or European Standard EN 148 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Characteristic
Color Threshold	No information available
pH	5-7 0.8 g/L (20°C)

Thymol

Revision Date 05-Sep-2014

Precautionary Statements**Prevention**

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area

Response

Immediately call a POISON CENTER or doctor/physician

Inhalation

If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

If ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Eyes

If IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion

Rinse mouth

Do NOT induce vomiting

Storage

Store locked up

Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazardous not otherwise classified (HNOC)

Toxic to aquatic life with long lasting effects

May form combustible dust concentrations in air

3. Composition / Information on ingredients

Component	CAS-No	Weight %
Thymol	89-83-6	>95

4. First-aid measures**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation

Mv. to fresh air, if breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a resuscitatory medical device. Immediate medical attention is required.

Ingestion

Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of mouth or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the digestive tissue and danger of perforation
Treat symptomatically

Notes to Physician**5. Fire-fighting measures** **Suitable Extinguishing Media**CO₂, dry chemical, dry sand, alcohol-resistant foam.**Unsuitable Extinguishing Media**

No information available

Flash Point

102 °C / 215.6 °F

Method

No information available

Thymol

Revision Date 05-Sep-2014

Melting Point/Range	48 - 52 °C / 118.4 - 125.6 °F
Boiling Point/Range	232 °C / 449.6 °F
Flash Point	102 °C / 215.6 °F
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	2.5 mbar @ 50 °C
Vapor Density	5.2
Relative Density	0.960
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	280 °C / 545 °F
Decomposition Temperature	No information available
Viscosity	4.3 mm ² /s at 50 °C (kinematic)
Molecular Formula	C10 H14 O
Molecular Weight	150.22

10. Stability and reactivity**Reactive Hazard**

None known, based on information available

Stability

Stable under normal conditions.

Conditions to Avoid

Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials

Strong oxidizing agents, Strong bases

Hazardous Decomposition ProductsCarbon monoxide (CO), Carbon dioxide (CO₂)**Hazardous Polymerization**

No information available.

Hazardous Reactions

None under normal processing.

11. Toxicological Information**Acute Toxicity**

No acute toxicity information is available for this product

Product Information

Component Information

Toxicologically Synergistic Products

No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure.

Irritation

Causes burns by all exposure routes

Sensitization

No information available

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	HTP	ACSH	OSHA	Residue
Thymol	89-83-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects

Not mutagenic in Ames Test

Reproductive Effects

No information available.

Developmental Effects

No information available.

Teratogenicity

No information available.

STOT - single exposure

Respiratory system

STOT - repeated exposure

None known

Aspiration hazard

No information available

Thymol

Revision Date 05-Sep-2014

Symptoms / effects, both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated; ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

Subacute/Disruptor Information No information available.

Other Adverse Effects See actual entry in RTECS for complete information.

Environmental Information

Ecotoxicity This product contains the following substance(s) which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Marine	Water Flea
Thymol	Not tested	LC50: 3.5-4.2 mg/L/96h Predicted mortal	Not tested	EC50: 1.7-3.2 mg/L/96h

Persistence and Degradability No information available.

Bioaccumulation/Accumulation No information available.

Stability

Component	Exp. Pres.
Thymol	3.0

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Physical, Chemical, and Toxicological Information

DOT	
UN-No	UN3480
Proper Shipping Name	ALKYLPHENOLS, SOLID, N.O.S.
Hazard Class	8
Packing Group	II
TDS	
UN-No	UN3480
Proper Shipping Name	ALKYLPHENOLS, SOLID, N.O.S.
Hazard Class	8
Packing Group	II
ATA	
UN-No	UN3480
Proper Shipping Name	Alkylphenols, solid, n.o.s
Hazard Class	8
Packing Group	II
MSDS	
UN-No	UN3480
Proper Shipping Name	Alkylphenols, solid, n.o.s
Hazard Class	8
Packing Group	II

International Inventories

Component	TSCA	DSL	MDL	EMEC	ELINCS	MLP	PCCS	ENCS	AICS	ECSC	KECL
Thymol	X	X	-	201-944-8	-	-	X	X	X	X	X

Legend:

X - Listed

F - Indicates a substance that is the subject of a Section 8(f) Consent order under TSCA.

P - Indicates a substance that is the subject of a Section 8(p) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

Thymol

Revision Date 05-Sep-2014

Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Email: EHS@FIS.NA@thermofisher.com

Creation Date

25-May-2010

Revision Date

05-Sep-2014

Print Date

05-Sep-2014

Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for each material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Thymol

Revision Date 05-Sep-2014

P - Indicates a commercial PSM substance.
R - Indicates a substance that is the subject of a Section 8 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule.
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Provisions and Site Reports (40 CFR 716.6).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a copolymer and is made only from reactants included in a specified list of low molecular weight reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 913 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Flam. Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA

Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ): N

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

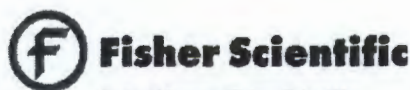
Other International Regulations

India - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHSES Hazard Class D18 Toxic materials
E Corrosive material





Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 14-Sep-2009

Revision Date 06-Nov-2015

Revision Number 2

1. Product Identification	
Product Name	Potassium Iodide
Cat No.:	BP367-500; P410-3; P410-10; P410-100; P410-500; P412-3; P412-10; P412-500
Synonyms	KI (Granular, Free-Flowing/Certified ACS/USP/FC)
Recommended Use	Laboratory chemicals
Use advised against	No information available
Details of the supplier of the safety data sheet	
Company	Emergency Telephone Number
Fisher Scientific	CHEMTREC®, Inside the USA: 800-424-2300
One Ringier Lane	CHEMTREC®, Outside the USA: 001-703-527-3887
Fair Lawn, NJ 07410	
TEL: (201) 706-7100	

2. Hazard(s) Identification	
Classification	
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)	
Based on available data, the classification criteria are not met	
Label Elements	
None required	
Hazard not otherwise classified (NOC)	
None identified	
Other hazards	
May cause pulmonary edema.	

3. Composition / Information on Ingredients		
Component	CAS-No	Weight %
Potassium Iodide	7811-11-0	100

4. Physical and chemical properties		
--------------------------------------------	--	--

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Potassium Iodide Revision Date 06-Nov-2015

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Potassium iodide	TWA: 0.01 ppm		

Component	Quibac	Recon OEL (TWA)	Order TWA/V
Potassium iodide		TWA: 0.01 ppm	

Labels

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eyeface Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 148. Use a NIOSH/MSHA or European Standard EN 148 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

5. Physical and chemical properties	
Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	6-8 5% in water (20°C)
Boiling Point/Range	680 °C / 1256 °F
Boiling Point/Range	1330 °C / 2426 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solids)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 745 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Soluble in water
Partition coefficient, n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	IK
Molecular Weight	166

6. Stability and Reactivity	
Reactive Hazard	None known, based on information available
Stability	Air sensitive. Light sensitive. Hygroscopic.

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Potassium Iodide

Revision Date 06-Nov-2015

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Inhalation	Breathe in fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
Ingestion	Do not induce vomiting. Obtain medical attention.
Most important symptoms/effects/Notes to Physician	No information available. May cause pulmonary edema. Treat symptomatically.

7. First-aid measures	
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperatures	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Hydrogen Iodide
Protective Equipment and Procedures for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Health	Flammability	Instability	Physical Hazards
1	0	0	Not

8. Accidental release measures	
Personal Precautions	Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. Should not be released into the environment. See Section 12 for additional ecological information.
Environmental Precautions	

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

9. Handling and storage	
Handling	Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Avoid dust formation.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight. Store under an inert atmosphere.

10. Exposure controls / personal protection	
----------------------------------------------------	--

Page 2 / 6

Potassium Iodide Revision Date 06-Nov-2015

Conditions to Avoid

Incompatible products. Excess heat. Avoid dust formation. Exposure to moist air or water. Exposure to air. Exposure to light.

Incompatible Materials

Strong oxidizing agents

Hazardous Decomposition Products

Hydrogen Iodide

Hazardous Polymerization

Hazardous polymerization does not occur.

Hazardous Reactions

None under normal processing.

11. Toxicological information			
Acute Toxicity			

Product Information	LD50 Oral	LD50 Dermal	LD50 Inhalation
Potassium iodide	2770 mg/kg (Rat)	Not tested	Not tested

Toxicologically Synergistic Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure.

Irritation	May cause irritation
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	MTS	ACGIH	OSHA	NIOSH
Potassium iodide	7811-11-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects

No information available.

Reproductive Effects

No information available.

Developmental Effects

No information available.

Teratogenicity

No information available.

STOT - single exposure

None known

STOT - repeated exposure

None known

Aspiration hazard

No information available

Symptoms / effects, both acute and delayed

May cause pulmonary edema

Endocrine Disruptor Information

No information available

Other Adverse Effects

The toxicological properties have not been fully investigated.

12. Ecological information	
Ecotoxicity	

Component	Freshwater Algae	Freshwater Fish	Bees	Water Plo
Potassium iodide	Onchocercus mytilus: LC50: 950 mg/l (Rat)			

Persistence and Degradability

Soluble in water. Persistence is unlikely based on information available.

Bioaccumulation/Accumulation

No information available.

Mobility

Will likely be mobile in the environment due to its water solubility.

Page 4 / 6

Component	See Para
Potassium Iodide	5.14

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

DOT	Not regulated
IDLH	Not regulated
ATA	Not regulated
MSDS/MSD	Not regulated

International Inventories

Component	TSCA	DSL	NDSL	ESNCS	ELNCS	MLP	PCCS	ENCS	ACCS	ECSC	KECL
Potassium Iodide	X	X	-	27-408-1	-	-	X	X	X	X	X

Legend:

X - Listed
E - Indicates a substance that is the subject of a Section 8(a) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 8(b) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a nonregulated PSM substance.
R - Indicates a substance that is the subject of a Section 8 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule.
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base.
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a qualified list of low concern reactants that comprises one of the eligibility or bars for the exemption rule.

U.S. Federal Regulations

TSCA 13(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Gasoline Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Stanko - Grade No information available

Carriage

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Email: EMSOS.PA@thermofisher.com

Creation Date 14-Sep-2008

Revision Date 06-Nov-2015

Print Date 06-Nov-2015

Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

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End of SDS



Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 24-Nov-2010

Revision Date 17-Sep-2014

Revision Number 1

1. Identification	
Product Name	Copper(I) chloride
Cat No.:	C457-500
Synonyms	Cuprous chloride
Recommended Use	Laboratory chemicals
Use advised against	No information available
Details of the supplier of the safety data sheet	
Company	Emergency Telephone Number
Fisher Scientific	CHEMTREC®, Inside the USA: 800-424-9300
One Reagent Lane	CHEMTREC®, Outside the USA: 001-703-527-3887
Fair Lawn, NJ 07410	
Tel: (201) 796-7100	

2. Hazard(s) identification	
Classification	
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)	

Corrosive to metals	Category 1
Acute oral toxicity	Category 3

Label Elements

Signal Word
Danger

Hazard Statements
Toxic if swallowed



Page 1 / 7

Copper(I) chloride

Revision Date 17-Sep-2014

Health	Flammability	Irritability	Physical hazards
2	0	1	N/A

3. Environmental	
Personal Precautions	Use personal protective equipment. Ensure adequate ventilation.
Environmental Precautions	Avoid release to the environment. Collect spillage.
Methods for Containment and Clean Up	Swirl up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment. Avoid dust formation.

4. Handling and storage	
Handling	Do not breathe dust. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Use only in area provided with appropriate exhaust ventilation. Minimize dust generation and accumulation. Wash hands before breaks and immediately after handling the product.
Storage	Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

5. Exposure controls / personal protection	
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.	

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Copper(I) chloride	TWA: 1 mg/m ³		IDLH: 100 mg/m ³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures	Ensure that eyewash stations and safety showers are close to the workstation location.
Personal Protective Equipment	
Eye/Face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.134 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN148. Use a NIOSH/MSHA or European Standard EN148 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

6. Physical and chemical properties	
Physical State	Powder Solid
Appearance	Gray
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	430 °C / 806 °F
Boiling Point/Range	1460 °C / 2714 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available

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Copper(I) chloride

Revision Date 17-Sep-2014

Precautionary Statements

Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product

Response

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

First aid

Rinse mouth

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOCL)

Very toxic to aquatic life with long lasting effects

7. Composition / Information on ingredients		
Component	CAS-No	Weight %
Copper(I) chloride	7758-98-6	99

8. First aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
Inhalation	Remove from exposure. If down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.
Ingestion	Do not induce vomiting. Clean mouth with water. Call a physician or Poison Control Center immediately.
Most important symptoms/effects	No information available
Notes to Physician	Treat symptomatically

9. Fire-fighting measures

Suitable Extinguishing Media	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Non-combustible.

Hazardous Combustion Products

Hydrogen chloride gas

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Page 2 / 7

Copper(I) chloride

Revision Date 17-Sep-2014

Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	4.140
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition temperature	No information available
Viscosity	No information available
Molecular Formula	Cl Cu
Molecular Weight	99

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Moisture sensitive. Light sensitive.
Conditions to Avoid	Exposure to light. Incompatible products. Exposure to moist air or water.
Incompatible Materials	Metals
Hazardous Decomposition Products	Hydrogen chloride gas
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information	No information available
Toxicologically Synergistic	
Products	
Delayed and immediate effects as well as chronic effects from short and long-term exposure	

Irritation	May cause irritation
Sensitization	No information available
Cardiogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	NIH	NTP	ACGIH	OSHA	Muskin
Copper(I) chloride	7758-98-6	Not listed	Not listed	Not listed	Not listed	Not listed
Mutagenic Effects		No information available				
Reproductive Effects		No information available				
Developmental Effects		No information available				
Teratogenicity		No information available				
STOT - single exposure		None known				
STOT - repeated exposure		None known				
Aspiration hazard		No information available				
Symptoms / effects, both acute and delayed		No information available				
Endocrine Disruptor Information		No information available				

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Other Adverse Effects See actual entry in RTECS for complete information.

Acute Toxicity:
Do not empty into drains. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.**Persistence and Degradability:** No information available.**Bioaccumulation/Accumulation:** No information available.**Stability:** No information available.**Waste Disposal Methods:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

ICL	
UN-No	UN3082
Proper Shipping Name	COPPER CHLORIDE
Hazard Class	8
Packing Group	II
IDS	
UN-No	UN3082
Proper Shipping Name	COPPER CHLORIDE
Hazard Class	8
Packing Group	II
ATA	
UN-No	2892
Proper Shipping Name	COPPER CHLORIDE
Hazard Class	8
Packing Group	II
MDG/MSD	
UN-No	2892
Proper Shipping Name	COPPER CHLORIDE
Hazard Class	8
Packing Group	II

International Inventories

Component	TSCA	DSL	MSL	ENCS	ELNCS	NLP	PCCS	ENCS	AICS	ECSC	KICL
Copper(I) chloride	X	X	-	SI-602-4	-	-	X	X	X	X	X

Legend:

- X - Listed
E - Indicates a substance that is the subject of a Section 302(a) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 302(b) Rule under TSCA.
N - Indicates a polymer or substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commercial PBN substance.
S - Indicates a substance that is the subject of a Section 8 risk management rule under TSCA.
T - Indicates a substance that is identified in a proposed or final Significant New Use Rule.
Y - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710.6).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y1 - Indicates an exempt polymer that is a polymer and is made only from monomers included in a specified list of low concern monomers that comprise one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 136(h) Not applicable

SARA 313 Not applicable

Component	CAS-No	Weight %	SARA 313 - Threshold Value %
Copper(I) chloride	7759-99-6	55	1.5

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Copper(I) chloride	-	-	X	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration

Not applicable

CERCLA

Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know Not applicable

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	South Island
Copper(I) chloride	-	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WGHS Hazard Class D1B Toxic material
E Corrosive material

Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date

24-Nov-2010

Revision Date

17-Sep-2014

Print Date

17-Sep-2014

Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

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End of SDS

13. Ecological Information

Ecotoxicity

Do not empty into drains.

Component	Preventative Name	Preventative Path	Microton	Water Flow
Magnesium sulfate	2750 mg/L EC50 = 72 h	2510-5800 mg/L LC50 96 h	18000 mg/L LC50 96 h	1750 mg/L EC50 = 24 h
			94000 mg/L EC50	286.4-417.3 mg/L EC50 48 h
			Proteinaceous phosphorus 30 mm	

Persistence and Degradability No information available.

Bioaccumulation/Accumulation No information available.

Mobility No information available.

14. Physical and Chemical Properties

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

15. Transportation Information

DOT Not regulated

TDG Not regulated

ATA Not regulated

MSDS/MSD Not regulated

16. Regulatory Information

International Inventories

Component	TSCA	DSL	MSL	SNIEC	ELNIEC	MLF	PICCI	SNCS	ACB	CHINA	KICL
Magnesium sulfate heptahydrate	-	X	-	-	-	-	X	X	X	X	-
Magnesium sulfate	X	X	-	201-209-2	-	-	X	X	X	X	X

Legend:

X - Listed

C - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

P - Indicates a substance that is the subject of a Section 6(f) Rule under TSCA.

H - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commercial PHS substance.

R - Indicates a substance that is the subject of a Section 8 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule.

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710.9).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,500 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that complies one of the eligibility criteria for the exemption rule.

Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1610.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for each material used in combination with any other material or in any process, unless specified in the text.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicableCERCLA
Not Applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ): N

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class Non-controlled

17. Other Information

Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Email: EMSOSIAA@thermofisher.com

Creation Date

24-Feb-2014

Revision Date

24-Feb-2014

Print Date

24-Feb-2014

SAFETY DATA SHEET

Creation Date 24-Dec-2009

Revision Date 10-Apr-2015

Revision Number 2

1. Identification		
Product Name	Iron(III) nitrate nonahydrate	
Cat No.:	AC423710000; AC423710030; AC423710050; AC423710100; AC423715000	
Synonyms	Ferric nitrate	
Recommended Use	Laboratory chemicals	
Uses advised against	No information available	
<u>Details of the supplier of the safety data sheet</u>		
Company	Entity / Business Name	Emergency Telephone Number
Fisher Scientific	Acros Organics	For Information US call: 001-800-ACROS-01
One Reagent Lane	One Reagent Lane	/ Europe call: +32 14 57 52 11
Fair Lawn, NJ 07410	Fair Lawn, NJ 07410	Emergency Number US:001-501-796-7100 /
Tel: (201) 796-7100		Europe: +32 14 57 52 88
		CHEMTREC Tel. No US: 001-800-424-9300 /
		Europe: 001-703-527-3887

2. Hazardous Identification		
Classification		
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)		

Caustic solids	Category 3
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system	

Label Elements

Signal Word
Warning

Hazard Statements

May intensify fire; oxidizer
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

Iron(III) nitrate nonahydrate

Revision Date 10-Apr-2015



Precautionary Statements

Prevention

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/aerosol/vapour/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep fire away from clothing/ other combustible materials
Take any precaution to avoid mixing with combustibles

Inhalation

If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell

Skin

If ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention

Eyes

If IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Fire

In case of fire: Use CO2, dry chemical, or foam for extinction

Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant
Hazardous not otherwise classified (HNOC)

None identified

3. Composition / Information on Ingredients

Component	CAS-No	Weight %
Iron(III) nitrate nonahydrate	7783-61-8	>98
Ferric nitrate	10421-48-4	-

4. First-Aid measures

Eye Contact

Rinse as immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Obtain medical attention.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion

Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects

No information available.

Notes to Physician

Treat symptomatically

Iron(III) nitrate nonahydrate

Revision Date 10-Apr-2015

5. Extinguishing measures		
Suitable Extinguishing Media	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.	
Unsuitable Extinguishing Media	No information available	
Flash Point	Not applicable	
Method -	No information available	
Autoignition Temperature	Not applicable	
Explosion Limits	No data available	
Upper	No data available	
Lower	No data available	
Outflowing Properties	Oxidizer	
Sensitivity to Mechanical Impact	No information available	
Sensitivity to Static Discharge	No information available	

Specific Hazards Arising from the Chemical

Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood, paper, oil, clothing, etc.). Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products

Nitrogen oxides (NOx)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NEPA

Health	Flammability	Instability	Physical hazards
2	0	2	OX

6. Accidental release measures		
Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes and clothing.	
Environmental Precautions	Avoid release to the environment. See Section 12 for additional ecological information.	

Methods for Containment and Clean Up
Keep away from clothing and other combustible materials. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal.

7. Handling and Storage		
Handling	Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Do not ingest. Keep away from clothing and other combustible materials.	
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Store under an inert atmosphere.	

8. Exposure controls / personal protection			
Exposure Guidelines			
Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Iron(III) nitrate nonahydrate	TWA: 1 mg/m ³	(Ceiling) TWA: 1 mg/m ³	TWA: 1 mg/m ³
Ferric nitrate	TWA: 1 mg/m ³	(Ceiling) TWA: 1 mg/m ³	TWA: 1 mg/m ³
Component	Quotas	Maxima CEE (TWA)	Ontario TWAEV
Iron(III) nitrate nonahydrate	TWA: 1.0 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³

Iron(III) nitrate nonahydrate

Revision Date 10-Apr-2015

Ferric nitrate	TWA: 1.0 mg/m ³	STEL: 2 mg/m ³	TWA: 1 mg/m ³
		STEL: 2 mg/m ³	

Limits

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location.
Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN 166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

No protective equipment is needed under normal use conditions.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties		
Physical State	Solid	
Appearance	Purple	
Odor	Odorless	
Odor Threshold	No information available	
pH	No information available	
Melting Point/Range	47 °C / 116.6 °F	
Boiling Point/Range	No information available	
Flash Point	Not applicable	
Evaporation Rate	Not applicable	
Flammability (solid, gas)	No information available	
Flammability or explosive limits		
Upper	No data available	
Lower	No data available	
Vapor Pressure	negligible	
Vapor Density	Not applicable	
Relative Density	1.680	
Solubility	Soluble in water	
Partition coefficient; n-octanol/water	No data available	
Autoignition Temperature	Not applicable	
Decomposition Temperature	No information available	
Viscosity	Not applicable	
Molecular Formula	Fe NO ₃ O ₉ · 9 H ₂ O	
Molecular Weight	404	

10. Stability and reactivity

Reactive Hazard

Yes

Stability

Oxidizer: Contact with combustible/organic material may cause fire. Hygroscopic.

Conditions to Avoid

Avoid dust formation. Incompatible products. Excess heat. Combustible material. Exposure to moisture.

Incompatible Materials

Strong oxidizing agents. Combustible material. Organic materials. Strong reducing agents

Hazardous Decomposition Products Nitrogen oxides (NOx)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactivity None under normal processing.

Acute Toxicity

Product Information

Concentration Information

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
-----------	-----------	-------------	-----------------

Iron(III) nitrate nonahydrate 500 mg/kg (1 rat) Not tested

Toxicologically Significant Products

Delayed and immediate effects as well as chronic effects from short and long-term exposures.

Irritation

Irritating to eyes, respiratory system and skin.

Sensitization

No information available.

Carcinogenicity

The list below indicates any ingredient listed as a carcinogen. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	HTP	ACGIH	OSHA	NIOSH
-----------	--------	------	-----	-------	------	-------

Iron(III) nitrate nonahydrate 7782-01-8 Not listed Not listed Not listed Not listed Not listed

Ferric nitrate 10421-48-4 Not listed Not listed Not listed Not listed Not listed

Reproductive Effects

No information available.

Developmental Effects

No information available.

Teratogenicity

No information available.

STOT - single exposure

Respiratory system

STOT - repeated exposure

None known

Aspiration hazard

No information available.

Symptoms / effects, both acute and delayed

No information available.

Excessive Disruptor Information

No information available.

Other Adverse Effects

See actual entry in RTECS for complete information. The toxicological properties have not been fully investigated.

Ecotoxicity

No information available.

Component	Freshwater Algae	Freshwater Fish	Marine Fish	Water Flea
-----------	------------------	-----------------	-------------	------------

Ferric nitrate Not tested 50 mg/L (100 mg/L) Not tested Not tested

Persistence and Degradability Soluble in water. Persistence is unlikely based on information available.

Bioaccumulation/Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

Waste Disposal Methods

On critical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

DOT

UN-No UN1468

Proper Shipping Name FERRIC NITRATE

Hazard Class 5.1

Packing Group II

UN-No UN1468

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Hazard Class 5.1

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Proper Shipping Name Ferric nitrate

Hazard Class 5.1

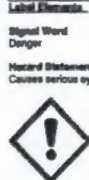
SAFETY DATA SHEET

Creation Date: 09-Jun-2009 Revision Date: 10-Apr-2014 Revision Number: 1

1. Identification
Product Name: Hydrogen Peroxide 3%
Cat No.: H312-4; H312-600; H312P-4; H312SAM-1; H312SAM-2; H312SAM-3; H324-500; XX32455GAL; XXH31212OGAL; XXH31255GA
Synonyms: Hydrogen dioxide; Hyperoxide (USP/Certified)
Recommended Use: Laboratory chemicals
Uses advised against: No information available
Details of the supplier of the safety data sheet:
Company: Fisher Scientific
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100
Emergency Telephone Number:
CHEMTREC®: Inside the USA: 800-424-9300
CHEMTREC®: Outside the USA: 001-703-527-3887

2. Hazardous Identification
Classification:
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious Eye Damage/Eye Irritation Category II
Label Elements:
Signal Word: Danger
Hazard Statements:
Causes serious eye irritation



Precautionary Statements:
Prevention

Hydrogen Peroxide 3% Revision Date: 10-Apr-2014

HEPA
Health: 2 Flammability: 0 Instability: 1 Physical hazards: N/A

3. Environmental Information
Personal Precautions:
Environmental Precautions:
Ensure adequate ventilation. Use personal protective equipment. Should not be released into the environment. See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up: Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

4. Handling and Storage
Handling:
Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation.
Storage:
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight.

5. Exposure Limits (personal protection)

Component	ACGIH TLV	OSHA PEL	NIOSH REL
Hydrogen peroxide	TWA: 1 ppm	(Vacated) TWA: 1 ppm (Vacated) TWA: 1.4 mg/m³ TWA: 1 ppm TWA: 1.4 mg/m³	IDLH: 75 ppm TWA: 1 ppm TWA: 1.4 mg/m³
Acetic acid	TWA: 10 ppm STEL: 15 ppm	(Vacated) TWA: 10 ppm (Vacated) TWA: 25 mg/m³ TWA: 10 ppm TWA: 25 mg/m³	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 27 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hydrogen peroxide	TWA: 1 ppm TWA: 1.4 mg/m³	TWA: 1 ppm TWA: 1.5 mg/m³ STEL: 2 ppm STEL: 3 mg/m³	TWA: 1 ppm
Acetic acid	TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 27 mg/m³	TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 27 mg/m³	TWA: 10 ppm STEL: 15 ppm

Legend:

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH REL: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures:
Ensure that eyewash stations and safety showers are close to the workstation location.
Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection:
Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection:
No protective equipment is needed under normal use conditions.

Hydrogen Peroxide 3%

Revision Date: 10-Apr-2014

Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Skin:
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
Eyes:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Hazardous and otherwise classified (H360DCL).
None identified.

Component	CAS-No.	Weight %
Water	7732-18-9	97
Hydrogen peroxide	7722-84-1	3
Acetic acid	64-19-7	<1

6. Physical and chemical properties

Eye Contact:
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact:
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Inhalation:
Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
Ingestion:
Do not induce vomiting. Obtain medical attention.
Most important symptoms/effects:
Causes eye burns.
Notes to Physician:
Treat symptomatically.

7. Environmental Information

Unstable Extinguishing Media:
No information available.
Flash Point:
No information available.
Self-heating Temperature:
No information available.
Explosion Limits:
Upper:
No data available.
Lower:
No data available.
Sensitivity to Mechanical Impact:
No information available.
Sensitivity to Static Discharge:
No information available.

Specific Hazards Arising from the Chemical:
Non-combustible. Containers may explode when heated.

Hazardous Combustion Product:
oxygen

Protective Equipment and Procedures for Firefighters:
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Hydrogen Peroxide 3%

Revision Date: 10-Apr-2014

Hygiene Measures:
Handle in accordance with good industrial hygiene and safety practice.

8. Physical and chemical properties

Physical State:
Liquid.
Appearance:
Clear.
Odor:
Slight.
Odor Threshold:
No information available.
pH:
No information available.
Melting Point/Range:
0 °C / 32 °F.
Boiling Point/Range:
100 °C / 212 °F @ 760mmHg.
Flash Point:
No information available.
Evaporation Rate:
No information available.
Flammability (solid, gas):
Not applicable.
Flammability or explosive limits:
Upper:
No data available.
Lower:
No data available.
Vapor Pressure:
25.3 mmHg @ 30°C.
Vapor Density:
> 1.00 (Air = 1.0).
Relative Density:
1.00.
Solubility:
Soluble in water.
Partition coefficient, n-octanol/water:
No data available.
Auto-ignition Temperature:
No information available.
Decomposition Temperature:
No information available.
Viscosity:
No information available.
Molecular Formula:
H2 O2.
Molecular Weight:
34.

9. Stability and reactivity

Reactive Hazard:
No is known, based on information available.
Stability:
Light sensitive.
Conditions to Avoid:
Incompatible products. Excess heat. Exposure to light.
Incompatible Materials:
Powdered metals. Powdered metal salts.
Hazardous Decomposition Products:
oxygen.
Hazardous Polymerization:
Hazardous polymerization does not occur.
Hazardous Reactions:
None under normal processing.

10. Toxicological Information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrogen peroxide	376 mg/kg (Rat) (80%) 810 mg/kg (Rat) (20-80%) 1518 mg/kg (Rat) (20-25% ac)	>2000 mg/kg (Rabbit)	2 g/m³ (Rat) 4 h
Acetic acid	3310 mg/kg (Rat)	1080 mg/kg (Rabbit)	11.4 mg/L (Rat) 4 h

Toxicologically Synergistic Products:
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure.

Irritation:
Severe eye irritant.

Hydrogen Peroxide 3%

Revision Date 10-Apr-2014

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAR No.	IARC	NTP	ACGIH	OSHA	NIH
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrogen peroxide	7722-84-1	Not listed	Not listed	Not listed	Not listed	Not listed
Acetic acid	64-19-7	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

ACGIH: (American Conference of Governmental Industrial Hygienists)

OSHA: (Occupational Safety and Health Administration)

NIH: (National Institutes of Health)

Mutagenic Effects No information available

Reproductive Effects No information available

Developmental Effects No information available

Teratogenicity No information available

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects See actual entry in RTECS for complete information.

Contains a substance which is: Toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Marine	Water Flea
Hydrogen peroxide	EC50 2.5 mg/L/72h	LC50: 18.4 mg/L/96h	Not listed	EC50 7.7 mg/L/24h
Acetic acid		Paramecium promelas: LC50 = 66 mg/L/96h Lepomis microlophus: LC50 = 75 mg/L/96h	Phosphatium promelas: LC50 = 66 mg/L/96h Phosphatium promelas: LC50 = 66 mg/L/96h Phosphatium promelas: LC50 = 66 mg/L/96h	EC50 = 66 mg/L/24h

Persistence and Degradability Soluble in water. Persistence is unlikely based on information available.

Bioaccumulation/Accumulation No information available.

Stability WE likely to be stable in the environment due to its water solubility.

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Hydrogen Peroxide 3%

Revision Date 10-Apr-2014

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Hydrogen peroxide		TC: 7500 lb

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (49 CFR 302).

Component	Hazardous Substances RQs	CERCLA RQs
Hydrogen peroxide		1000 lb
Acetic acid	5000 lb	

California Proposition 65 This product does not contain any Proposition 65 chemicals.

Component	Massachusetts	New Jersey	Pennsylvania	Michigan	Rhode Island
Water	-	-	X	-	-
Hydrogen peroxide	X	X	X	-	-
Acetic acid	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Hydrogen peroxide	2000 lb DTQ (concentration of at least 30%)

Other International Regulations:

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class GHS Toxic materials



Prepared by Regulatory Affairs

ThermoFisher Scientific

Email: EMS05.RA@thermo.com

Creation Date 09-Jun-2009

Revision Date 10-Apr-2014

Print Date 10-Apr-2014

Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

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Hydrogen Peroxide 3%

Revision Date 10-Apr-2014

Component	Log P
Hydrogen peroxide	-1.1
Acetic acid	-0.2

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

DOT, IATA, IMDG, and other international regulations apply to the transportation of this material.

International Regulations

TSCA, DBL, MOBL, EINECS, ELINCS, NLP, PICCS, ENCS, AICS, ECSC, KECL

Legend:

X - Listed

S - Indicates a substance that is the subject of a Section 5(a) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

H - Indicates a polymer substance containing no free-radical initiator in the inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commercial PMS or other

R - Indicates a substance that is the subject of a Section 5 risk management rule under TSCA.

S - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

30 - Indicates a substance except if it is a polymer under the Inventory Update Rule, I.A. Partial Updating of the TSCA Inventory Data Base

Production and Use Reports (49 CFR 770.6).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from monomers included in a specified list of low concern monomers that comprise one of the slightly-chlorinated for the exemption rule.

U.S. Federal Regulations

TSCA 1204 Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard Yes

Chronic Health Hazard No

Fire Hazard No

Sudden Release of Pressure Hazard No

Reactive Hazard No

Clean Water Act Not applicable

CWA - Hazardous Substances

CWA - Reportable Chemicals

CWA - Toxic Pollutants

CWA - Priority Pollutants

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration

Not applicable

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Hydrogen Peroxide 3%

Revision Date 10-Apr-2014

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for each material used in combination with any other material or in any process, unless specified in the text.

End of SDS

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Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 12-Mar-2009

Revision Date 15-Dec-2015

Revision Number 4

1. Identification

Product Name Nitric acid (65 - 70%)

Cat No.: A196C-212, A200-212, A200-212LC, A200-500, A200-500LC, A200-612GAL, A200C-212, A200S-212, A200S-212LC, A200S-500, A200SI-212, A467-1, A467-2, A467-250, A467-500, A463-212; S719721

Synonyms Azotic acid; Engraver's acid; Aqua fortis

Recommended Use Laboratory chemicals

Uses advised against No information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC® Inside the USA: 800-424-9300
CHEMTREC® Outside the USA: 001-703-627-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive liquids Category 2
Skin Corrosion/Irritation Category 1
Serious Eye Damage/Eye Irritation Category 1
Specific target organ toxicity (single exposure) Category 3
Target Organs - Respiratory system.

Label Elements

Signal Word
Danger

Hazard Statements
May cause fire or explosion; strong oxidizer
May be corrosive to metals
Causes severe skin burns and eye damage
May cause respiratory irritation

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Nitric acid (65 - 70%)

Revision Date 15-Dec-2015

Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.

Inhalation If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove from exposure, lie down. Call a physician immediately.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately.

Most important symptoms/effects Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the digestive tissue and danger of perforation. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Treat symptomatically.

Notes to Physician

3. Environmental considerations

Stable Extinguishing Media CO₂, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point Not applicable

Method - No information available

Autoignition Temperature No information available

Explosion Limits No data available

Upper No data available

Lower No data available

Odorizing Properties Oxidizer

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood, paper, oil, clothing, etc.).

Hazardous Combustion Products
Nitrogen oxides (NOx) Thermal decomposition can lead to release of irritating gases and vapors
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NEPA

Health 4

Flammability 0

Instability 0

Physical hazards 0X

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Nitric acid (65 - 70%)

Revision Date 15-Dec-2015



Precautionary Statements

Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep/Store away from clothing/oil or combustible materials
Take any precaution to avoid mixing with combustibles
Keep only in original container

Response
Immediately call a POISON CENT or doctor/physician

Inhalation
If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
If ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
If IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

ingestion
If SWALLOWED: Rinse mouth. DO NOT induce vomiting

Fire
In case of fire: Use CO₂, dry chemical, or foam for extinction

Spills
Absorb spillage to prevent material damage

Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosion resistant polypropylene container with a resistant liner
Store in a dry place

Disposal
Dispose of contents/container to an approved waste disposal plant
Hazardous not otherwise classified (HNOC)

None identified

Unknown Acute Toxicity
7 percent of the mixture consists of ingredient(s) of unknown acute toxicity

4. Composition / Information on ingredients

Component	CAS-No	Weight %
Nitric acid	7697-37-2	65 - 70
Water	7732-18-6	30 - 35

5. Physical and chemical properties

General Advice
Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

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Nitric acid (65 - 70%)

Revision Date 15-Dec-2015

6. Handling and storage

Handling
Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not ingest. Do not breathe vapors or spray mist. Keep away from clothing and other combustible materials.

Storage
Keep containers tightly closed in a cool, well-ventilated place. Do not store near combustible materials.

7. Exposure controls / personal protection

Component	ACGIH TLV	OSHA PEL	NIOSH REL
Nitric acid	TWA: 2 ppm STEL: 4 ppm	(Vapors) TWA: 2 ppm (Vapors) STEL: 5 mg/m ³ (Vapors) STEL: 4 ppm (Vapors) STEL: 10 mg/m ³ TWA: 2 ppm STEL: 10 mg/m ³	IDLH: 55 ppm TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³

Component	OSHA PEL	NIOSH REL	NIOSH REL
Nitric acid	TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³	TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³	TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH REL: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment
Eye/Face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tightly fitting safety goggles. Face shield.

Skin and body protection
Long sleeved clothing.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures
Keep away from food, drink and animal feeding stuffs. When using, do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. For environmental protection remove and wash all contaminated protective equipment before re-use. Wear suitable gloves and eye/face protection.

8. Physical and chemical properties

Physical State	Liquid
Appearance	Clear Colorless, Light yellow
Odor	Strong Acid
Other Threshold	No information available
pH	< 1.0 (0.1M)

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Nitric acid (65 - 70%)

Revision Date 15-Dec-2015

Boiling Point/Range	-41 °C / -41.8 °F
Boiling Point/Range	Not applicable °C / °F
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (swell/deg)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	0.84 kPa (20°C)
Vapor Density	No information available
Specific Gravity	1.40
Solubility	miscible
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	HNO ₃
Molecular Weight	63.02

11. Reactivity and Incompatibility

Reactive Hazard	Yes
Stability	Outdoor: Contact with combustible/organic material may cause fire.
Conditions to Avoid	Incompatible products. Combustible material. Excess heat. Exposure to air or moisture over prolonged periods.
Incompatible Materials	Combustible material. Strong bases. Reducing agents. Metals. Powdered metals. Organic materials. Aldehydes, Alcohols, Cyanides, Amino acids, Strong reducing agents.
Hazardous Decomposition Products	Nitrogen oxides (NO _x). Thermal decomposition can lead to release of irritating gases and vapors.
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

12. Acute Toxicity

Acute Toxicity

Product Information

Oral LD50

Dermal LD50

Vapor LC50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Based on ATE data, the classification criteria are not met. ATE > 30 mg/L.

Component Information

Component

LD50 Oral

LD50 Dermal

LC50 Inhalation

Nitric acid

Not listed

Not listed

LC50 = 2000 ppm (Pne) 1h

Water

-

Not listed

Not listed

Toxicological Synergistic Products

No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposures

Irritation

Causes severe burns by all exposure routes

Sensitization

No information available

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component

CAS-No.

LMC

HTP

ACGIH

OSHA

Merck

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Nitric acid (65 - 70%)

Revision Date 15-Dec-2015

Component	2002-20-2	Not listed	Not listed	Not listed	Not listed	Not listed
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Mutagenic Effects	No information available					
Reproductive Effects	No information available					
Developmental Effects	No information available					
Teratogenicity	No information available					
STOT - single exposure	Respiratory system					
STOT - repeated exposure	None known					
Aspiration hazard	No information available					
Symptoms / effects, both acute and delayed	Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated.					
Endocrine Disruptor Information	No information available					
Other Adverse Effects	The toxicological properties have not been fully investigated.					

13. Environmental Information

<p>Ecotoxicity: Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.</p>					
Component	Freeze/Thaw	Freeze/Thaw	Freeze/Thaw	Water	Water
Nitric acid	Not listed	LC50 = 72 mg/L, 48h (Benthic dafnia)	Not listed	Not listed	Not listed
Persistence and Degradability	Miscible with water. Persistence is unlikely based on information available.				
Bioaccumulation/Accumulation	No information available.				
Mobility	Will likely be mobile in the environment due to its water solubility.				
Component	Not listed			Water	
	Not listed			Not listed	

14. Waste Disposal Methods

Waste Disposal Methods	Or critical waste generation must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
UN-No	UN2031
Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	8.1
Packing Group	II
UN-No	UN2031
Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	8.1
Packing Group	II
UN-No	UN2031

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Nitric acid (65 - 70%)

Revision Date 15-Dec-2015

Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	8.1
Packing Group	II
UN-No	UN2031
Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	8.1
Packing Group	II

All of the components in the product are on the following inventory list: X = listed

Component	TSCA	DSL	NSL	SEHCs	ELNCS	NLP	PCOS	ENCS	AICS	ECSC	KECL
Nitric acid	X	X	-	201-714-2	-	-	X	X	X	X	X
Water	X	X	-	201-781-2	-	-	X	-	X	X	X

Legend:	
X - Listed	
E - Indicates a substance that is the subject of a Section 101(a) Consent order under TSCA.	
F - Indicates a substance that is the subject of a Section 101(a) Order under TSCA.	
N - Indicates a polymer or substance containing no free-radical initiator in its inventory name but is established to cover the designated polymer made with any free-radical initiator regardless of the amount used.	
P - Indicates a commercial PBT substance.	
R - Indicates a substance that is the subject of a Section 8 risk management rule under TSCA.	
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule.	
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.	
201 - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base.	
202 - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base.	
V1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.	
V2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of few concern reactants that comprises one of the eligibility criteria for the exemption rule.	

U.S. Federal Regulations

TSCA 106(a)	Not applicable
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Component	CAS-No	Weight %	SDS 201 - Threshold Value %
Nitric acid	7697-07-2	65 - 70	1.5

SDS 201/212 Hazard Categories	
Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No
Corrosive Hazard	Yes

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nitric acid	X	1000 lb	-	-

Clean Air Act

Not applicable

OSHA Occupational Safety and Health Administration

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Nitric acid (65 - 70%)

Revision Date 15-Dec-2015

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals			
Nitric acid	-	TC: 800 lb			
Water	-	-			
CERCLA					
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)					
Component	Hazardous Substances RQs	CERCLA EHS RQs			
Nitric acid	1000 lb	1000 lb			
Water	-	-			
California Proposition 65	This product does not contain any Proposition 65 chemicals				
U.S. State Right-to-Know Regulations					
Component	Massachusetts	New Jersey	Pennsylvania	Rhode Island	Waste Island
Nitric acid	X	X	X	X	X
Water	-	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (PQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Component	DHS Chemical Priority Anti-Terrorism Standard
Nitric acid	2000 lb ETO

Other International Regulations

Material - Grade	No information available
------------------	--------------------------

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information often required by the CPR.

WHS Hazard Class

C	Corrosive material
E	Explosive material
D	Toxic material



Prepared By

Thermo Fisher Scientific
Email: EMSDS.AA@thermofisher.com

Creation Date	12-Mar-2008
Revision Date	15-Dec-2015
Print Date	15-Dec-2015
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current hazard label under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the time of publication.

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SAFETY DATA SHEET

Creation Date 15-Feb-2010 Revision Date 10-Apr-2015 Revision Number 2

Product Name Potassium thiocyanate
Cell No.: P317-100; P317-500
Synonyms Potassium rhodanate; Potassium isothiocyanate; Potassium thiocyanide; Potassium isothiocyanate (Crystalline/Certified ACS)
Recommended Use Laboratory chemicals
Uses advised against No information available
Details of the supplier of the safety data sheet
Company Fisher Scientific
Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300
One Reagent Lotion CHEMTREC®, Outside the USA: 001-703-527-3887
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity Category 4
Acute dermal toxicity Category 4
Acute inhalation toxicity - Dusts and Mists Category 4

Label Elements

Signal Word Warning

Hazard Statements
Harmful if swallowed
Harmful in contact with skin
Harmful if inhaled



Potassium thiocyanate Revision Date 10-Apr-2015

Odouring Properties Not odouring
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Nitrogen oxides (NOx), Sulfur oxides, Potassium oxides
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NEPA
Health 4 **Flammability** 1 **Instability** 1 **Physical hazards** N/A

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.
Environmental Precautions Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

Handling Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from acids.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Potassium thiocyanate		(Respirable) TWA: 5 mg/m ³	IDLH: 25 mg/m ³

Component	OSHA PEL	NIOSH IDLH
Potassium thiocyanate	5 mg/m ³ (TWA)	25 mg/m ³ (IDLH)

Notes

OSHA - Occupational Safety and Health Administration
NIOSH IDLH - The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eyeface Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN1861.

Potassium thiocyanate Revision Date 10-Apr-2015

Precautionary Statements

Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/face protection
Avoid breathing dust/fume/gas/aerosol/vapour/spray
Use only outdoors or in a well-ventilated area
Inhalation
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
If ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor/physician if you feel unwell
Wash contaminated clothing before reuse
Ingestion
If SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazardous (not otherwise classified) (P303)
Harmful to aquatic life with long lasting effects
Contact with acids liberates very toxic gas

3. Composition / information on ingredients

Component	CAS-No.	Weight %
Potassium thiocyanate	335-80-0	>99

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.
Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.
Most important symptoms/effects Metalloids may release cyanide, which may result in headache, dizziness, weakness, nausea, unconsciousness, and possible death. May cause cyanide (bluish discoloration of skin due to deficient oxygenation of the blood)
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available
Flash Point No information available
Method No information available
Autoignition Temperature No applicable
Exposure Limits No data available
Upper No data available
Lower No data available

Potassium thiocyanate Revision Date 10-Apr-2015

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

6. Physical and chemical properties

Physical State Crystalline Solid
Appearance Colorless - White
Odor Odorless
Odor Threshold No information available
pH 5.3-8.7 5% aq solution
Melting Point/Range 170 - 179 °C / 336 - 354.2 °F
Boiling Point/Range Decomposes
Flash Point No information available
Evaporation Rate Not applicable
Flammability (solid, gas) No information available
Flammability or explosive limits
Upper No data available
Lower No data available
Vapor Pressure <1 hPa @ 20 °C
Vapor Density Not applicable
Relative Density 1.886
Bulk Density 750 - 1000 kg/m³
Solubility Soluble in water
Partition coefficient: n-octanol/water No data available
Autoignition Temperature Not applicable
Decomposition Temperature 500 °C
Viscosity Not applicable
Molecular Formula C K N S
Molecular Weight 87.18

10. Stability and reactivity

Reactive Hazard Yes
Stability Light sensitive. Moisture sensitive. Air sensitive.
Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. Exposure to light. Exposure to moist air or water. Exposure to air.
Incompatible Materials Strong oxidizing agents. Acids. Strong bases
Hazardous Decomposition Products Nitrogen oxides (NOx), Sulfur oxides, Potassium oxides
Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions Contact with acids liberates very toxic gas.

11. Toxicological information

Acute Toxicity

Product Information	Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
Potassium thiocyanate	884 mg/kg (Rat)	Not tested	Not tested	Not tested
Toxicologically Synergistic	No information available			

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure.

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	AMC	WTP	ACGIH	OSHA	NIOSH
Potassium Thiocyanate	325-39-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available

Developmental Effects No information available

Teratogenicity No information available

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood).

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

13. Environmental Information

Toxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous to the environment.

Component	Freshwater Algae	Freshwater Fish	Invertebrates	Water Flea
Potassium Thiocyanate	Not listed	Chronic toxicity: LC50: 11 mg/L/96h	Not listed	Chronic toxicity: EC50: 2.8 mg/L/96h

Persistence and Degradability Soluble in water. Persistence is unlikely based on information available.

Bioaccumulation/Accumulation No information available.

Mobility WS likely to be mobile in the environment due to its water solubility.

14. Waste Disposal Information

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

15. Regulatory Information

DOT

Not regulated

TDQ

Not regulated

ATA

Not regulated

MSDS/MSD

Not regulated

16. International Information

International Inventories

This product does not contain any DHS chemicals.

Other International Regulations

Hazard - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

D1B Toxic materials
F Dangerously reactive material
OEA Very toxic materials



Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date

15-Feb-2010

Revision Date

10-Apr-2015

Print Date

10-Apr-2015

Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Component	TSCA	DSL	NDSL	ENRECS	ELINCS	NLP	PRCS	ENCS	AICS	RECS	KECL
Potassium thiocyanate	X	X	-	200-370-1	-	-	X	X	X	X	X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

P - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commercial PBN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

30 - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base

Production and Use Reports (40 CFR 710.10)

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprise one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Value %
Potassium Thiocyanate	325-39-0	>65	1.5

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No
Corrosive Hazard	Yes

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Potassium Thiocyanate	-	-	X	X

Clean Air Act

Component	HAPs Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Potassium Thiocyanate	X	-	-

OSHA Occupational Safety and Health Administration

Not applicable

CERCLA

Not applicable

California Proposition 65

This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Potassium Thiocyanate	-	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	Y
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security

FLINN SCIENTIFIC, INC.

Safety Data Sheet (SDS)

SDS #: 363.00

Revision Date: February 6, 2014

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Gelatin

Flinn Scientific, Inc. P.O. Box 219, Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

Signal Word N/A

Pictograms

SECTION 2 — HAZARDS IDENTIFICATION

This chemical is considered nonhazardous according to GHS classifications for the Hazard Communication Standard. Treat all laboratory chemicals with caution.

Although this material is considered to be nonhazardous, unpredictable reactions among chemicals are always possible. Prudent laboratory practices should be observed.

Product should be treated as a chemical and is not for consumption as it has been stored with other nonfood-grade chemicals.

SECTION 3 — COMPOSITION, INFORMATION ON INGREDIENTS

Component Name	CAS Number	Formula	Formula Weight	Concentration
Gelatin	9000-70-8	Unspecified	Unspecified	

SECTION 4 — FIRST AID MEASURES

Call a POISON CENTER or physician if you feel unwell.

If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.

If on skin: Wash with plenty of water.

If swallowed: Rinse mouth. Call a POISON CENTER or physician if you feel unwell.

SECTION 5 — FIRE FIGHTING MEASURES

Nonflammable, noncombustible solid.

When heated to decomposition, may emit toxic fumes.

In case of fire: Use a tri-class dry chemical fire extinguisher.

NFPA CODE

None
established

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Sweep up the spill, place in a sealed bag or container, and dispose. Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

SECTION 7 – HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Organic #2. Store with alcohols, glycols, amines and amides.
Moisture sensitive. Store tightly closed in a cool, dry place.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes. Wash hands thoroughly after handling.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Light amber granules. Faint, sour, animal-like odor.
Soluble: Hot water. Insoluble in most organic solvents.

Not for human consumption.

SECTION 10 – STABILITY AND REACTIVITY

Stable nonhazardous substance.
Shelf life: Indefinite, if kept dry.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute effects: N.A.
Chronic effects: N.A.
Target organs: N.A.

ORL-RAT LD₅₀: N.A.
IHL-RAT LC₅₀: N.A.
SKN-RBT LD₅₀: N.A.

N.A. = Not available, not all health aspects of this substance have been fully investigated.

SECTION 12 – ECOLOGICAL INFORMATION

Shelf life:

SECTION 13 – DISPOSAL CONSIDERATIONS

Please review all federal, state and local regulations that may apply before proceeding.
Flinn Suggested Disposal Method #26a is one option.

SECTION 14 – TRANSPORT INFORMATION

Shipping name: Not regulated. Hazard class: N/A. UN number: N/A.

N/A = Not applicable

SECTION 15 – REGULATORY INFORMATION

Not listed.

SECTION 16 – OTHER INFORMATION

This Safety Data Sheet (SDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. The data should not be confused with local, state, federal or insurance mandates, regulations, or requirements and CONSTITUTE NO WARRANTY. Any use of this data and information must be determined by the science instructor to be in accordance with applicable local, state or federal laws and regulations. The conditions or methods of handling, storage, use and disposal of the product(s) described are beyond the control of Flinn Scientific, Inc. and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT(S).

Consult your copy of the *Flinn Science Catalog/Reference Manual* for additional information about laboratory chemicals.

Revision Date: February 6, 2014

SDS SAFETY DATA SHEET
RUPERT, GIBBON & SPIDER PO BOX 425, HEALDSBURG, CA, 95448 TEL: (707) 433-9777 FAX: (707) 433-4966

Name: Green Label Silk Dyes

SDS No: NL Colors Date: 6/6/15

1. Chemical Product and Company Identification

Product Name: Silk Colors Green Label
Catalog Codes: NA
CAS#: NA
TSCA: COMPLIANCE
CM: NA
Synonym: REACTIVE DYESTUFF
Chemical Name: Vinyl Sulphones
Chemical Formula: 701, 703, 706, 710, 712, 714, 715, 717, 718, 721, 722, 723, 725, 730, 732, 735, 736, 745, 750, 759

Contact Information:
Rupert Gibbon & Spider
1147 Healdsburg Rd
Healdsburg, CA 95448
800-442-0455
CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300
International CHEMTREC, call: 1-703-527-3887
For non-emergency assistance, call: 800-442-0455

2. Composition and Information on Ingredients

Composition:
Name CAS # % by Weight
REACTIVE DYESTUFF
ACIDIC ACID 1.5%

Toxicological Data on Ingredients:

3. Hazards Identification

Routes of Entry: INHALATION: YES, SKIN ABSORPTION: NO, INGESTION: NO
SKIN CONTACT: YES, EYE CONTACT: YES
Potential Acute Health Effects: When tested on guinea pigs, this product has shown a positive skin sensitization potential. This product has caused respiratory sensitization in some individual cases after repeated exposure.
Signs and Symptoms of Exposure: Skin sensitization may include one or more of the following: redness, swelling, itching, rash and hives. Respiratory sensitization can range from runny nose, cough, and irritated eyes to asthmatic symptoms. These effects can lead to shock and cardiovascular collapse and are potentially lethal.
Medical Conditions Aggravated: Persons with any pre-existing skin or eye conditions may be more susceptible to the effects of this product.
Carcinogenic: IARC: NO, NTP: NO, OSHA: NO, ACGIH: NO

4. First Aid Measures

General Information: Immediately remove all contaminated clothing
Eye Contact: Wash immediately with large amounts of water for 15 minutes, lifting the upper and lower lids until no evidence of product remains. Get medical attention immediately. Do not wear contact lenses while handling.
Ingestion: Dilute with water. Get medical attention. Never give fluids or induce vomiting if patient is unconscious or has convulsions.

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RUPERT, GIBBON & SPIDER PO BOX 425, HEALDSBURG, CA, 95448 TEL: (707) 433-9777 FAX: (707) 433-4966

pH (1% solution): Approx. 4.0 - 5.0
Boiling Point: NA
Melting Point: NA
Critical Temperature: >240 C
Specific Gravity: NA
Vapor Pressure: NA
Vapor Density: NA
Volatility: NA
Odor Threshold: NA
Water/Oil Dist. Coeff.: NA
Ioncity (in Water): NA
Dispersion Properties: NA
Solubility: +/- 70-100 g/L

Section 10: Stability and Reactivity Data

Stability: stable
Instability Temperature: No thermal decomposition when stored and handled correctly.
Conditions of Instability: NA
Incompatibility with various substances: NA
Corrosivity: Corrosive
Special Remarks on Reactivity: None expected
Special Remarks on Corrosivity: NA
Polymerization: NA

Section 11: Toxicological Information

Routes of Entry: Not available
Toxicity to Animals:
Animal Toxicity Oral - LD50 (Ingestion), >3000 mg/L (rats)
Fish, LC50, >100 mg/L (48 hour, Kribfish)
Eye Effects - Non-irritant
Skin Effects - Non-irritant
Sensitization - May cause sensitization by skin contact (Guinea Pig).
Chronic Effects on Humans: Not available
Other Toxic Effects on Humans: Not available
Special Remarks on Toxicity to Animals: None
Special Remarks on Chronic Effects on Humans: None
Special Remarks on other Toxic Effects on Humans: None

Section 12: Ecological Information

Ecotoxicity: NA
BOD5 and COD: NA
Products of Biodegradation: NA
Toxicity of the Products of Biodegradation: NA
Special Remarks on the Products of Biodegradation: NA

Section 13: Disposal Considerations

Waste Disposal:
Product: If utilization or recycling of the product is not possible, it should be disposed of in accordance with existing federal, state and local environmental regulations, e.g. by incineration in a suitable plant.
Uncleaned Packaging: Soiled, empty containers are to be treated in the same way as the contents.

Section 14: Transport Information

SDS SAFETY DATA SHEET
RUPERT, GIBBON & SPIDER PO BOX 425, HEALDSBURG, CA, 95448 TEL: (707) 433-9777 FAX: (707) 433-4966

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. If breathing is difficult, give oxygen. Call a physician.
Skin Contact: Remove all contaminated clothing immediately. Wash immediately with soap and plenty of water. If a temporary skin reaction occurs, it should be treated as allergic contact dermatitis. Launder contaminated clothing before reuse.

Section 5: Fire and Explosion Data

Flammability of the Product: NA
Auto-Ignition Temperature: NA
Flash Points: Not Applicable
Flammable Limits: NA
Products of Combustion: NA
Fire Hazards In Presence of Various Substances: NA
Explosion Hazards In Presence of Various Substances: NA
Fire Fighting Media and Instructions: CO2, Dry Chemical, Foam, Water
Special Remarks on Fire & Explosion Hazards: Firefighters should be equipped with protective clothing & self-contained breathing apparatus to protect against potentially toxic & irritation fumes. In case of fire or explosion, keep unnecessary people away. Isolate hazard area & any entry. Stay upwind, out of low areas, and ventilate closed spaces before entering.

Section 6: Accident / Release Measures

Large or Small Spill: Do not empty into drains or waters. Do not touch or walk through the spilled material; stop leak if you can do it without risk. Take up with sand or other non-combustible absorbent material or suitable vacuum and place into labeled sealable containers. For further disposal measures see section 13.

Section 7: Handling and Storage

Precautions: In accord with good industrial practice. Handle with care and avoid personal contact.
Storage: In accord with good industrial practice. Handle with care and avoid personal contact.

Section 8: Exposure Controls/Personal Protection

General Protective Measures: Avoid contact with eyes and skin. Immediately remove all contaminated clothing.
Personal Protection:
Eyes: Employees should wear protective eye-goggles with side protection shield.
Skin: Employees should avoid skin contact by wearing protective clothing. Long sleeve shirts, pants, gloves e.g. PVC or nitrile rubber, and boots are recommended. Additional protections such as impervious suits are recommended when the potential of dermal contact is significant. Employees should wash their hands and face before eating and drinking and shower thoroughly before leaving work. Keep away from food and drink stuffs.
Respiratory: Inhalation of dust and aerosols must be absolutely prevented by the use of a NIOSH approved dust respirator.
Ventilation: Use local ventilation.
Other: Wear overalls, apron or other protective clothing.
Personal Protection in Case of a Large Spill: Gloves, & other protective clothing
Exposure Limits: NA

Section 9: Physical and Chemical Properties

Physical state and appearance: Powder
Odor: None
Taste: NA
Molecular Weight: NA
Color: Ranges from Yellow to Dark Brown

SDS SAFETY DATA SHEET
RUPERT, GIBBON & SPIDER PO BOX 425, HEALDSBURG, CA, 95448 TEL: (707) 433-9777 FAX: (707) 433-4966

DOT Classification: 1 - regulated
Identification: Non-hazardous Ink Material
Special Provisions to Transport:
Frt. Class Package: 5

Section 15: Other Regulatory Information

Federal and State Regulations:
TSCA: The components of the product are listed on the TSCA inventory
SARA 313: This product is not subject SARA Title III Section 313 reporting requirements under 40 CFR 372.
SARA 312:
Immediate (acute) health hazard - Yes
Delayed (chronic) health hazard - Yes
Fire hazard - No
Sudden Release of Pressure - No
Reactivity - No
California Proposition 65: This product does not contain any components currently on the California List of Known Carcinogens and reproductive toxins.
Other Regulations: Label in accordance with the EEC directives:
Hazard Symbols: Xn Harmful
R 42/43: May cause sensitization by inhalation and skin contact
S22: Do not breath dust
S24: Avoid contact with skin
S37: Wear suitable gloves
This product is not subject to the German Ordinance that bans certain azo dyes or the 19th Amendment of the Council Directive 76/769/EEC
Other Classifications:
WHMIS (Canada):
DSEL (EEC):

HMIS (U.S.A.):
Health Hazard: Yes (Acute)
Fire Hazard: NA
Reactivity: NA
Personal Protection: Gloves
National Fire Protection Association (U.S.A.): NA
Health: NA
Flammability: NA
Reactivity: NA

Specific hazard: NA
Protective Equipment: NA

Section 16: Other Information

The information contained in this SDS is based on data from sources considered to be reliable but Rupert, Gibbon & Spider Inc. does not guarantee the accuracy or completeness thereof. Rupert, Gibbon & Spider Inc. urges each customer or recipient of this SDS to study it carefully to become aware of and understand the hazards associated with this product. The reader should consider consulting reference works or individuals who are experts in ventilation, toxicology or fire and understand the data in this SDS.

1. PRODUCT AND COMPANY IDENTIFICATION

- 1.1 Product identifiers
Product name : Sodium azide
- Product Number : 13412
Brand : Sigma-Aldrich
Index-No. : 011-004-00-7
- CAS-No. : 28528-22-8
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses : Laboratory chemicals, Synthesis of substances
- 1.3 Details of the supplier of the safety data sheet
Company : Sigma-Aldrich
3080 Spruce Street
SAINT LOUIS MO 63103
USA
- Telephone : +1 800-325-5832
Fax : +1 800-325-5052
- 1.4 Emergency telephone number
Emergency Phone # : (314) 776-8555

2. HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1610 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 1), H310
Specific target organ toxicity - repeated exposure, Oral (Category 2), Brain, H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410
- For the full text of the H-Statements mentioned in this Section, see Section 16.
- 2.2 GHS Label elements, including precautionary statements
Pictogram
- Signal word : Danger
- Hazard statement(s)
H300 + H310
H373
H410
- Precautionary statement(s)
P280
P282
P284
- Fatal if swallowed or in contact with skin
May cause damage to organs (Brain) through prolonged or repeated exposure if swallowed.
Very toxic to aquatic life with long lasting effects.
- Do not breathe dust/fume/gas/mist/vapours/spray.
Do not get in eyes, on skin, or on clothing.
Wash skin thoroughly after handling.

Sigma-Aldrich - 13412

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3. FIREFIGHTING MEASURES

- 3.1 Extinguishing media
Suitable extinguishing media
Dry powder
- 3.2 Special hazards arising from the substance or mixture
Sodium azide
- 3.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.
- 3.4 Further information
No data available

4. ACCIDENTAL RELEASE MEASURES

- 4.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.
- 4.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
- 4.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal.
- 4.4 Reference to other sections
For disposal see section 13.

5. HANDLING AND STORAGE

- 5.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.
- 5.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage. Do not store near acids.
- Heat sensitive.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials
- 5.3 Specific and use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

6. EXPOSURE CONTROLS/PERSONAL PROTECTION

6.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	State
Sodium azide	28528-22-8	C	0.100000 ppm	USA, NIOSH Recommended Exposure Limits
	Remarks	Potential for dermal absorption		
		C	0.300000 mg/m ³	USA, NIOSH Recommended Exposure Limits
		Potential for dermal absorption		

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P270

P273

P280

P301 + P310 + P330

P302 + P350 + P310

P314

P362

P391

P405

P601

Do not eat, drink or smoke when using this product.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash before reuse.

Collect spillage.

Store locked up.

Dispose of contents/ container to an approved waste disposal plant.

2.3

Hazards not otherwise classified (HNOC) or not covered by GHS

Contact with acids liberates very toxic gas.

Sodium Azide may react with lead and copper plumbing to form highly explosive metal azides. Rapidly absorbed through skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : N₃H
Molecular weight : 65.01 g/mol
CAS-No. : 28528-22-8
EC-No. : 247-682-1
Index-No. : 011-004-00-7

Hazardous components

Component	Classification	Concentration
Sodium azide	Acute Tox. 2; Acute Tox. 1; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H300 + H310, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.In case of eye contact
Flush eyes with water as a precaution.If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3

Indication of any immediate medical attention and special treatment needed

No data available

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	C	0.110000 ppm	USA, ACGIH Threshold Limit Values (TLV)
		Lung damage Cardiac Impairment Not classifiable as a human carcinogen	
	C	0.280000 mg/m ³	USA, ACGIH Threshold Limit Values (TLV)
		Lung damage Cardiac Impairment Not classifiable as a human carcinogen	
	C	0.110000 ppm	USA, ACGIH Threshold Limit Values (TLV)
		Lung damage Cardiac Impairment Not classifiable as a human carcinogen	
	C	0.280000 mg/m ³	USA, ACGIH Threshold Limit Values (TLV)
		Lung damage Cardiac Impairment Not classifiable as a human carcinogen	
	C	0.11 ppm	USA, ACGIH Threshold Limit Values (TLV)
		Lung damage Cardiac Impairment Not classifiable as a human carcinogen	
	C	0.28 mg/m ³	USA, ACGIH Threshold Limit Values (TLV)
		Lung damage Cardiac Impairment Not classifiable as a human carcinogen	
	C	0.1 ppm	USA, NIOSH Recommended Exposure Limits
		Potential for dermal absorption	
	C	0.3 mg/m ³	USA, NIOSH Recommended Exposure Limits
		Potential for dermal absorption	
	C	0.1 ppm	USA, OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation	
	C	0.3 mg/m ³	USA, OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation	

6.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 188(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm

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Break through time: 480 min
Material tested: Dermabond (KCL 740 / Aldrich Z877272, Size M)

Splash contact
Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermabond (KCL 740 / Aldrich Z877272, Size M)

data source: KCL GmbH, D-36124 Eichenrast, phone +49 (0)5509 87300, e-mail sales@kcl.de, test method: EN574

If used in solution, or mixed with other substances, and under conditions which differ from EN 574, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: crystalline Colour: white
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	10 at 65 g/l at 25 °C (77 °F)
e) Melting point/freezing point	275 °C (527 °F)
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	The product is not flammable. - Flammability (solids)
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	0.01 hPa (0.01 mmHg) at 20 °C (68 °F)
l) Vapour density	No data available
m) Relative density	1.850 g/cm3
n) Water solubility	65 g/l at 20 °C (68 °F) - completely soluble
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	309 °C (588 °F) at 1,013 hPa (760 mmHg)

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q) Decomposition temperature	300 °C (572 °F) -
r) Viscosity	No data available
s) Explosive properties	Not explosive
t) Oxidizing properties	No data available
9.2 Other safety information	
Bulk density	0.8 kg/m3

10. STABILITY AND REACTIVITY

10.1 Reactivity	No data available
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	No data available
10.4 Conditions to avoid	An explosion occurred when a mixture of sodium azide, methylene chloride, dimethyl sulfoxide, and sulfuric acid were being concentrated on a rotary evaporator.
10.5 Incompatible materials	Halogenated hydrocarbon, Metals, Acids, Acid chlorides, Hydrazine, Dimethyl sulfoxide, inorganic acid chlorides
10.6 Hazardous decomposition products	Other decomposition products - No data available In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	No data available
Inhalation	No data available
Dermal	No data available
No data available	
Skin corrosion/irritation	Skin - reconstructed human epidermis (PHE) Result: No skin irritation - 15 min
Serious eye damage/eye irritation	Eyes - Bovine cornea Result: No eye irritation - 4 h (OECD Test Guideline 437)
Respiratory or skin sensitisation	In vivo assay - Mouse Result: Does not cause skin sensitization. (OECD Test Guideline 429)
Genes cell mutagenicity	No data available
Carcinogenicity	Carcinogenicity - Rat - male and female - Oral No significant adverse effects were reported
IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as

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probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OEHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OEHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Oral - May cause damage to organs through prolonged or repeated exposure. - Brain

Aspiration hazard

No data available

Additional information

Repeated dose Rat - male and female - Oral - LOAEL: 5 mg/kg

toxicity

RTECS: VY800000

Nausea, Headache, Vomiting. Laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, degeneration of myelinated nerve fibers in the central nervous system, testicular damage, diarrhoea, effects of rigidity, and hepatic and cerebral edema. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish mortality LC50 - Pimephales promelas (fathead minnow) - 0.49 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to algae static test EC50 - Pseudokirchneriella subcapitata - 0.35 mg/l - 96 h
(OECD Test Guideline 201)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

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14. TRANSPORT INFORMATION

DOT (US)			
UN number: 1857	Class: 6.1	Packing group: II	
Proper shipping name: Sodium azide			
Reportable Quantity (RQ): 1000 lbs			
Poison Inhalation Hazard: No			
IMDG			
UN number: 1857	Class: 6.1	Packing group: II	EMS-No: F-A, S-A
Proper shipping name: SODIUM AZIDE			
Marine pollutant: yes			
IATA			
UN number: 1857	Class: 6.1	Packing group: II	
Proper shipping name: Sodium azide			

15. REGULATORY INFORMATION

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:
Sodium azide
CAS-No. 26928-22-8
Revision Date 2007-07-01

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:
Sodium azide
CAS-No. 26928-22-8
Revision Date 2007-07-01

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

Sodium azide
CAS-No. 26928-22-8
Revision Date 2007-07-01

Pennsylvania Right To Know Components

Sodium azide
CAS-No. 26928-22-8
Revision Date 2007-07-01

New Jersey Right To Know Components

Sodium azide
CAS-No. 26928-22-8
Revision Date 2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H300	Fatal if swallowed.
H300 + H310	Fatal if swallowed or in contact with skin
H310	Fatal in contact with skin.
H373	May cause damage to organs through prolonged or repeated exposure if swallowed.
H400	Very toxic to aquatic life.

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HMS Rating

Health hazard: 4
Chronic Health Hazard: 0
Flammability: 0
Physical Hazard: 0

NFPA Rating

Health hazard: 4
Fire Hazard: 0
Reactivity Hazard: 0

Further Information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10

Revision Date: 06/21/2015

Print Date: 01/22/2016