SAFETY DATA SHEET

1. Identification

Product identifier **WATERMARK® KARL FISCHER COULOMETRIC VESSEL SOLUTION, PYRIDINE-FREE**

Other means of identification

Product code 1612

Recommended use Laboratory reagent for water determination using the Karl Fischer method.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name GFS Chemicals, Inc.

Address P.O. Box 245
Powell
OH
43065
US

Telephone Phone 740-881-5501
Toll Free 800-858-9682
Fax 740-881-5989

Website www.gfschemicals.com

E-mail service@gfschemicals.com

Emergency phone number Emergency Assistance Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 3
	Acute toxicity, dermal	Category 3
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Sensitization, skin	Category 1
	Germ cell mutagenicity	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, single exposure	Category 1 (kidney, liver, respiratory system)
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Specific target organ toxicity, repeated exposure	Category 1 (central nervous system, kidney, liver, respiratory system, thyroid gland, visual organs)

OSHA hazard(s) Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Toxic if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. May cause drowsiness or dizziness. Suspected of causing genetic defects. Suspected of causing cancer. May damage fertility or the unborn child. Causes damage to organs (kidney, liver, respiratory system). Causes damage to organs (central nervous system, kidney, liver, respiratory system, thyroid gland, visual organs) through prolonged or repeated exposure.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting equipment. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

Response In case of fire: Use appropriate media for extinction. Eliminate all ignition sources if safe to do so. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

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

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

Hazard(s) not otherwise classified (HNOC) Static accumulating flammable liquid

Environmental hazards

Hazardous to the aquatic environment, acute hazard	Category 3
Hazardous to the aquatic environment, long-term hazard	Category 3

Supplemental information

Hazard statement Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. These alone may be insufficient to remove static electricity. Avoid release to the environment.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

63% of the mixture consists of component(s) of unknown acute dermal toxicity. 22% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 22% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Hazardous components

Chemical name	CAS number	%
CHLOROFORM	67-66-3	40 - < 50*
METHYL ALCOHOL	67-56-1	30 - < 40*
TRADE SECRET*	Proprietary*	10 - < 20*
SULFUR DIOXIDE	7446-09-5	5 - < 10*
IODINE	7553-56-2	<2.2

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician or poison control center immediately.

Skin contact Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Call a physician or poison control center immediately. Call a POISON CENTER or doctor/physician if you feel unwell. For minor skin contact, avoid spreading material on unaffected skin. If skin irritation or rash occurs: Get medical advice/attention.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately. Get medical attention if irritation develops and persists.

Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Most important symptoms/effects, acute and delayed	Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause allergic skin reaction. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Proteinuria. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. IF exposed or concerned: Get medical advice/attention. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Alcohol resistant foam. Powder.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. By heating and fire, harmful vapors/gases may be formed. Material will float and may ignite on surface of water.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire-fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage.
Specific methods	In the event of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Use standard firefighting procedures and consider the hazards of other involved materials. Move container from fire area if it can be done without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Immediately evacuate personnel to safe areas. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Avoid inhalation of vapors or mists. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Should not be released into the environment. This product is miscible in water. Prevent entry into waterways, sewers, basements or confinec areas.

Large Spills: Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Clean contaminated surface thoroughly. After removal flush contaminated area thoroughly with water. This material and its container must be disposed of as hazardous waste. Following product recovery, flush area with water. Clean up in accordance with all applicable regulations.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.

Environmental precautions

Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Use appropriate containment to avoid environmental contamination. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Vapors may form explosive mixtures with air. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code". DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid contact during pregnancy/while nursing. Do not get this material on clothing. Use personal protective equipment as required. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in cool place. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a well-ventilated place. Keep container tightly closed. Keep in an area equipped with sprinklers. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
CHLOROFORM (CAS 67-66-3)	Ceiling	240 mg/m3
		50 ppm
IODINE (CAS 7553-56-2)	Ceiling	1 mg/m3
		0.1 ppm
METHYL ALCOHOL (CAS 67-56-1)	PEL	260 mg/m3
		200 ppm
SULFUR DIOXIDE (CAS 7446-09-5)	PEL	13 mg/m3
		5 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
CHLOROFORM (CAS 67-66-3)	TWA	10 ppm	
IODINE (CAS 7553-56-2)	STEL	0.1 ppm	Vapor and aerosol.
	TWA	0.01 ppm	Inhalable fraction and vapor.
METHYL ALCOHOL (CAS 67-56-1)	STEL	250 ppm	
	TWA	200 ppm	
SULFUR DIOXIDE (CAS 7446-09-5)	STEL	0.25 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
CHLOROFORM (CAS 67-66-3)	STEL	9.78 mg/m3
		2 ppm
IODINE (CAS 7553-56-2)	Ceiling	1 mg/m3
		0.1 ppm
METHYL ALCOHOL (CAS 67-56-1)	REL	260 mg/m3
		200 ppm
	STEL	325 mg/m3
		250 ppm
SULFUR DIOXIDE (CAS 7446-09-5)	REL	5 mg/m3
		2 ppm
	STEL	13 mg/m3
		5 ppm

Biological limit values

US. ACGIH. BEIs. Biological Exposure Indices

Components	Value	Determinant	Sampling Time
METHYL ALCOHOL (CAS 67-56-1)	15 mg/l	Methanol	*

* - For sampling details, please see the source document.

Exposure guidelines

US. ACGIH Threshold Limit Values

METHYL ALCOHOL (CAS 67-56-1) Can be absorbed through the skin.

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

METHYL ALCOHOL; METHANOL (CAS 67-56-1) Can be absorbed through the skin.

US. Minnesota Hazardous Substances List (Minn. Rules 5206.0400).

METHYL ALCOHOL (CAS 67-56-1) Skin designation applies.

US. NIOSH: Pocket Guide to Chemical Hazards

METHYL ALCOHOL (CAS 67-56-1) Can be absorbed through the skin.

US. OSHA Table Z-1-A (29 CFR 1910.1000)

METHYL ALCOHOL (CAS 67-56-1) Can be absorbed through the skin.

US. Rhode Island Hazardous Substances Right-to-Know Act (R.I. Gen. Laws Section 28-21-1 et. seq.)

METHYL ALCOHOL (CAS 67-56-1) Can be absorbed through the skin.

US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A

METHYL ALCOHOL (CAS 67-56-1) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection. Chemical goggles are recommended. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. Wear protective gloves.

Respiratory protection If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

Thermal hazards	Not available.
General hygiene considerations	When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace. Handle in accordance with good industrial hygiene and safety practice. Provide eyewash station and safety shower.

9. Physical and chemical properties

Appearance	Clear.
Physical state	Liquid.
Form	Liquid.
Color	Colorless to light brown.
Odor	Characteristic.
Odor threshold	Not available.
pH	6
Melting point/freezing point	-54 °F (-48 °C) estimated
Initial boiling point and boiling range	201.2 °F (94 °C) estimated
Flash point	51.80 - 73.40 °F (11.00 - 23.00 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	7.3 % estimated
Flammability limit - upper (%)	36 % estimated
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	379.2 hPa estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Miscible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	620 °F (327 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.23 g/cm3 estimated
Flammability class	Flammable IB estimated
Flash point class	Flammable IB
Percent volatile	76 % estimated
Specific gravity	1.23 estimated
VOC (Weight %)	76 % estimated

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Risk of explosion. Stable at normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Avoid temperatures exceeding the flash point.
Incompatible materials	Aluminum. Strong oxidizing agents. Ammonia.
Hazardous decomposition products	Hydrogen chloride. Irritating and/or toxic fumes and gases may be emitted upon the products decomposition. Upon decomposition, this product emits oxides of sulfur, carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Toxic if swallowed. Causes digestive tract burns.
Inhalation	Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. May cause irritation to the respiratory system.
Skin contact	Toxic in contact with skin. Causes severe skin burns. May cause an allergic skin reaction.
Eye contact	Causes severe eye burns. Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result. Narcosis. Edema. Liver enlargement. Jaundice. Proteinuria. Behavioral changes. Decrease in motor functions. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity Causes severe skin burns and eye damage. Toxic if swallowed. Toxic in contact with skin.

Product	Species	Test Results
KARL FISCHER PYRIDINE-FREE VESSEL SOLUTION (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	52666.668 mg/kg, estimated
Inhalation		
LC50	Cat	284.7 mg/l, 4.5 Hours, estimated
		145.6 mg/l, 6 Hours, estimated
	Guinea pig	20000 mg/l, 20 Hours, estimated
		11300 mg/l
		2600 mg/l, 154 Hours, estimated
	Mouse	20000 mg/l, 4 Hours, estimated
		11500 mg/l
		3000 mg/l, 847 Hours, estimated
	Rat	291.6667 mg/l, 6 Hours, estimated
		104 mg/l
		103.7 mg/l, 4 Hours, estimated
Oral		
LD50	Dog	4891 mg/kg
	Monkey	6.6667 g/kg, estimated
	Mouse	1100 g/kg, estimated
		78.26 mg/kg
	Rabbit	20488 mg/kg
		43.7956 g/kg, estimated
	Rat	789.8724 mg/kg, estimated
		700 g/kg, estimated
Other		
LD50	Dog	2173.9131 mg/kg, estimated
	Guinea pig	11853.333 mg/kg, estimated
	Hamster	28516.666 mg/kg, estimated
	Monkey	10 g/kg, estimated
	Mouse	1232.235 mg/kg, estimated
	Rabbit	6086.6665 mg/kg, estimated
	Rat	2697.0247 mg/kg, estimated

Components	Species	Test Results
CHLOROFORM (CAS 67-66-3)		
Acute		
Inhalation		
LC50	Rat	47.702 mg/l, 4 Hours
Oral		
LD50	Dog	2250 mg/kg
	Mouse	36 mg/kg
	Rabbit	9827 mg/kg
	Rat	2180 mg/kg
		1117 mg/kg
		908 mg/kg
		444 mg/kg
Other		
LD50	Dog	1000 mg/kg
	Mouse	623 mg/kg
	Rat	2000 mg/kg
IODINE (CAS 7553-56-2)		
Acute		
Oral		
LD50	Mouse	22 g/kg
	Rabbit	10 g/kg
	Rat	14 g/kg
METHYL ALCOHOL (CAS 67-56-1)		
Acute		
Dermal		
LD50	Rabbit	15800 mg/kg
Inhalation		
LC50	Cat	85.41 mg/l, 4.5 Hours
		43.68 mg/l, 6 Hours
	Rat	64000 mg/l, 4 Hours
		87.5 mg/l, 6 Hours
Oral		
LD50	Dog	8000 mg/kg
	Monkey	2 g/kg
	Mouse	7300 mg/kg
	Rabbit	14.4 g/kg
	Rat	5628 mg/kg
Other		
LD50	Guinea pig	3556 mg/kg
	Hamster	8555 mg/kg
	Monkey	3 g/kg
	Mouse	4100 mg/kg
	Rabbit	1826 mg/kg
	Rat	2131 mg/kg
SULFUR DIOXIDE (CAS 7446-09-5)		
Acute		
Inhalation		
LC50	Guinea pig	1000 mg/l, 20 Hours
		130 mg/l, 154 Hours

Components	Species	Test Results
	Mouse	1000 mg/l, 4 Hours
		150 mg/l, 847 Hours
TRADE SECRET (CAS Proprietary)		
Acute		
Oral		
LD50	Rat	970 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes severe eye burns. Causes serious eye damage.

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity Suspected of causing genetic defects.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

CHLOROFORM (CAS 67-66-3) 2B Possibly carcinogenic to humans.
SULFUR DIOXIDE (CAS 7446-09-5) 3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

CHLOROFORM (CAS 67-66-3)

Reproductive toxicity May damage fertility or the unborn child.

Specific target organ toxicity - single exposure May cause irritation to the respiratory system. Narcotic effects. Causes damage to organs (kidney, liver, respiratory system).

Specific target organ toxicity - repeated exposure Causes damage to organs (central nervous system, kidney, liver, respiratory system, thyroid gland, visual organs) through prolonged or repeated exposure.

Aspiration hazard Due to lack of data the classification is not possible.

Chronic effects Prolonged exposure may cause chronic effects. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects. Components of this product are hazardous to aquatic life. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
KARL FISCHER PYRIDINE-FREE VESSEL SOLUTION (CAS Mixture)			
Crustacea	EC50	Daphnia	63500 mg/l, 48 Hours
			337 mg/l, 24 Hours
	LC50	Daphnia	655 mg/l, 216 Hours
			183 mg/l, 72 Hours
			173 mg/l, 24 Hours
			107 mg/l, 48 Hours
			35.59 mg/l, 96 Hours
			4.7826 mg/l, 1 Hours
Fish	LC50	Fish	77125 mg/l, 72 Hours
			561 mg/l, 10 Days
			256 mg/l, 48 Hours
			97.69 mg/l, 12 Hours
			94.79 mg/l, 24 Hours
			61.02 mg/l, 96 Hours
			4.413 mg/l, 7 Days
			4.0652 mg/l, 32 Days
			3.6087 mg/l, 28 Days

Components		Species	Test Results
CHLOROFORM (CAS 67-66-3)			
Aquatic			
Crustacea	EC50	Brine shrimp (Artemia salina)	34.3 - 39.9 mg/l, 24 hours
		Water flea (Daphnia magna)	602 mg/l, 24 hours
			79 mg/l, 24 hours
	LC50	Northern pink shrimp (Penaeus duorarum)	96.3 - 187 mg/l, 24 hours
			62.8 - 106 mg/l, 48 hours
		Ramshorn snail (Helisoma trivolvis)	232.4 mg/l, 96 hours
		Rotifer (Brachionus calyciflorus)	1.8 - 2.2 mg/l, 1 hours
		Scud (Gammarus minus)	199.2 - 301.4 mg/l, 96 hours
		Water flea (Ceriodaphnia dubia)	200 - 512 mg/l, 48 hours
			179 - 315 mg/l, 216 hours
		Water flea (Daphnia magna)	200 - 512 mg/l, 216 hours
			70.5 - 85.9 mg/l, 24 hours
			61.6 - 71.9 mg/l, 48 hours
			58.6 - 71.6 mg/l, 24 hours
			54.3 - 78 mg/l, 48 hours
			19 - 47 mg/l, 24 hours
			19 - 47 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus)	107 - 143 mg/l, 48 hours
			96 - 148 mg/l, 24 hours
			72 - 140 mg/l, 48 hours
			72 - 140 mg/l, 96 hours
			16.2 mg/l, 12 hours
			16.2 - 24.4 mg/l, 12 hours
			16.2 - 24.2 mg/l, 24 hours
			16.2 mg/l, 24 hours
			14.6 mg/l, 48 hours
			14.6 - 23.1 mg/l, 48 hours
			13.3 mg/l, 96 hours
			13.3 - 20.8 mg/l, 96 hours
			2.03 mg/l, 7 days
		Carp (Cyprinus carpio)	95 - 99 mg/l
		Carp (Leuciscus idus melanotus)	162 mg/l, 48 hours
		Channel catfish (Ictalurus punctatus)	126 mg/l, 12 hours
			126 mg/l, 24 hours
			101 mg/l, 48 hours
			75 mg/l, 96 hours
		Fathead minnow (Pimephales promelas)	8.47 - 94.87 mg/l, 96 hours
		Guppy (Poecilia reticulata)	300 mg/l, 96 hours
		Ide, silver or golden orfe (Leuciscus idus)	92 mg/l
		Largemouth bass (Micropterus salmoides)	45.4 mg/l, 12 hours
			45.4 mg/l, 24 hours
			45.4 mg/l, 48 hours
			45.4 mg/l, 96 hours
		Medaka, high-eyes (Oryzias latipes)	500 mg/l, 24 hours

Components		Species	Test Results
			500 mg/l, 48 hours
			132 - 384 mg/l, 10 days
		Rainbow trout,donaldson trout (Oncorhynchus mykiss)	24.5 - 37.1 mg/l, 12 hours
			20 mg/l, 24 hours
			20 - 26.1 mg/l, 24 hours
			18.6 mg/l, 48 hours
			18.6 - 23.6 mg/l, 48 hours
			15.1 - 22.1 mg/l, 96 hours
			15.1 mg/l, 96 hours
			1.24 mg/l, 28 days
			0.95 - 3.75 mg/l, 28 days
			0.95 - 3.75 mg/l, 32 days
			0.62 - 2.16 mg/l, 28 days
			0.62 - 2.16 mg/l, 32 days
		Zebra danio (Danio rerio)	121 mg/l, 96 hours
			> 100 mg/l, 48 hours
			100 mg/l, 48 hours
IODINE (CAS 7553-56-2)			
Aquatic			
Crustacea	LC50	Water flea (Daphnia magna)	0.55 - 1.32 mg/l, 96 hours
			0.03 - 1 mg/l, 48 hours
Fish	LC50	Guppy (Poecilia reticulata)	3 mg/l, 24 hours
		Rainbow trout,donaldson trout (Oncorhynchus mykiss)	> 0.01 mg/l, 96 hours
METHYL ALCOHOL (CAS 67-56-1)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	20450 - 29350 mg/l, 48 hours
			> 10000 mg/l, 24 hours
			> 10000 mg/l, 48 hours
		Water flea (Daphnia obtusa)	22800 - 24400 mg/l, 24 hours
	LC50	Brine shrimp (Artemia salina)	> 10000 mg/l, 24 hours
			703.7 - 1723.9 mg/l, 24 hours
		Cockle (Cerastoderma edule)	3300 - 10000 mg/l, 96 hours
			1000 mg/l, 48 hours
		Common bay mussel,blue mussel (Mytilus edulis)	13400 - 17300 mg/l, 96 hours
		Common shrimp, sand shrimp (Crangon crangon)	2500 mg/l, 48 hours
			1700 mg/l, 96 hours
		Harpacticoid copepod (Nitocra spinipes)	11500 - 12500 mg/l, 96 hours
		Mussel (Anodonta imbecillis)	37.02 mg/l, 48 hours
		Oligochaete, worm (Lumbriculus variegatus)	> 100 mg/l, 96 hours
		Ramshorn snail (Helisoma trivolvis)	> 100 mg/l, 96 hours
		Scud (Gammarus fasciatus)	> 100 mg/l, 96 hours
		Water flea (Daphnia magna)	3616 - 6414 mg/l, 24 hours
			2461 - 4395 mg/l, 48 hours
			> 100 mg/l, 96 hours

Components		Species	Test Results
Fish	LC50	Bleak (Alburnus alburnus)	> 28000 mg/l, 96 hours
			28000 mg/l, 96 hours
		Bluegill (Lepomis macrochirus)	17400 - 21000 mg/l, 24 hours
			17300 - 21100 mg/l, 48 hours
			15510 - 20240 mg/l, 72 hours
			13500 - 17600 mg/l, 96 hours
		Carp (Leuciscus idus melanotus)	> 10000 mg/l, 48 hours
		Fathead minnow (Pimephales promelas)	29000 - 30500 mg/l, 24 hours
			29000 - 30500 mg/l, 48 hours
			28500 - 30400 mg/l, 96 hours
			27600 - 29200 mg/l, 72 hours
		Medaka, high-eyes (Oryzias latipes)	1400 mg/l, 48 hours
		Rainbow trout,donaldson trout (Oncorhynchus mykiss)	19800 - 20700 mg/l, 24 hours
			19500 - 20700 mg/l, 48 hours
			19500 - 20700 mg/l, 96 hours
Other	LC50	Turbellarian, flatworm (Dugesia tigrina)	> 100 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

METHYL ALCOHOL	-0.77
CHLOROFORM	1.97
IODINE	2.49

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Not available.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F
D022: Waste chloroform

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (METHYL ALCOHOL RQ = 16667 LBS)
Transport hazard class(es)	3
Subsidary class(es)	Not available.
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Labels required	3
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150

Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (METHYL ALCOHOL)
Transport hazard class(es)	3
Subsidary class(es)	-
Packaging group	II
Environmental hazards	No
Labels required	3
ERG Code	Not available.
Special precautions for user	Not available.

IMDG

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (METHYL ALCOHOL)
Transport hazard class(es)	3
Subsidary class(es)	-
Packaging group	II
Environmental hazards	
Marine pollutant	No
Labels required	3
EmS	Not available.
Special precautions for user	Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available.
General information	DOT Regulated Marine Pollutant.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

CHLOROFORM (CAS 67-66-3)	LISTED
METHYL ALCOHOL (CAS 67-56-1)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

CHLOROFORM (CAS 67-66-3)
METHYL ALCOHOL (CAS 67-56-1)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

CHLOROFORM (CAS 67-66-3)
SULFUR DIOXIDE (CAS 7446-09-5)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

IODINE (CAS 7553-56-2) 2.2 %WV

DEA Exempt Chemical Mixtures Code Number

IODINE (CAS 7553-56-2) 6699

Food and Drug Administration (FDA) Not regulated.

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

CHLOROFORM (CAS 67-66-3)
IODINE (CAS 7553-56-2)
METHYL ALCOHOL (CAS 67-56-1)
SULFUR DIOXIDE (CAS 7446-09-5)

US. New Jersey Worker and Community Right-to-Know Act

CHLOROFORM (CAS 67-66-3) 500 LBS
METHYL ALCOHOL (CAS 67-56-1) 500 LBS
SULFUR DIOXIDE (CAS 7446-09-5) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

CHLOROFORM (CAS 67-66-3)
IODINE (CAS 7553-56-2)
METHYL ALCOHOL (CAS 67-56-1)
SULFUR DIOXIDE (CAS 7446-09-5)

US. Rhode Island RTK

CHLOROFORM (CAS 67-66-3)
IODINE (CAS 7553-56-2)
METHYL ALCOHOL (CAS 67-56-1)
SULFUR DIOXIDE (CAS 7446-09-5)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

CHLOROFORM (CAS 67-66-3)
METHYL ALCOHOL (CAS 67-56-1)
SULFUR DIOXIDE (CAS 7446-09-5)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date	November-01-2012
Revision date	November-01-2012
Version #	02
Further information	Not available.
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.
Revision Information	Hazards Identification: US Hazard Categories Hazard(s) identification: GHS Symbols First-aid measures: Most important symptoms/effects, acute and delayed Physical & Chemical Properties: Multiple Properties GHS: Classification