

1. Identification

Product identifier	WATERMARK® KARL FISCHER COULOMETRIC VESSEL SOLUTION, FOR KETONES AND ALDEHYDES	
Other means of identification		
Product code	1619	
Recommended use	Laboratory reagent for water determination using the Karl Fischer method.	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	GFS Chemicals, Inc.	
Address	P.O. Box 245 Powell, OH 43065 United States	
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 3
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 3
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3
OSHA defined hazards	Not classified.	

Label elements



Signal word

Danger

Hazard statement

Flammable liquid and vapor. Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Toxic if inhaled. May cause respiratory irritation. Suspected of causing cancer. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.

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. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting 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. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response

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. Immediately call a POISON CENTER or doctor/physician. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. In case of fire: Use appropriate media to extinguish.

Storage

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

Disposal

Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

1-3% of the mixture consists of component(s) of unknown acute oral toxicity. 35-50% of the mixture consists of component(s) of unknown acute dermal toxicity. 55-80% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 55-80% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
CHLOROFORM	TRICHLOROMETHANE	67-66-3	30 - < 40*
ETHYLENEGLYCOLMONOMETHYL ETHER	METHYL CELLOSOLVE ETHYLENE GLYCOL MONOMETHYL ETHER 2-METHOXYETHANOL	109-86-4	30 - < 40*
2,2,2-TRIFLUOROETHANOL		75-89-8	20 - < 30*
IMIDAZOLE	1H-IMIDAZOLE 1,3-DIAZA-2,4-CYCLOPENTADIENE Glyoxalin	288-32-4	5 - < 10*
SULFUR DIOXIDE		7446-09-5	1 - < 3*
IODINE		7553-56-2	<2.2
BENZOIC ACID		65-85-0	0.4

*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. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion

Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed

Headache. Dizziness. Nausea. Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Stop leak if you can do so without risk. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Use water spray to reduce vapors or divert vapor cloud drift. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. This product is miscible in water. Should not be released into the environment. Prevent entry into waterways, sewer, basements or confined areas. Clean up in accordance with all applicable regulations.

Large Spills: Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

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. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. 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 in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known 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
ETHYLENEGLYCOLMONOME THYL ETHER (CAS 109-86-4)	PEL	50 ppm 80 mg/m3
IODINE (CAS 7553-56-2)	Ceiling	25 ppm 1 mg/m3
SULFUR DIOXIDE (CAS 7446-09-5)	PEL	0.1 ppm 13 mg/m3
		5 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
CHLOROFORM (CAS 67-66-3)	TWA	10 ppm
ETHYLENEGLYCOLMONOME THYL ETHER (CAS 109-86-4)	TWA	0.1 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
ETHYLENEGLYCOLMONOME THYL ETHER (CAS 109-86-4)	TWA	2 ppm 0.3 mg/m3
IODINE (CAS 7553-56-2)	Ceiling	0.1 ppm 1 mg/m3
SULFUR DIOXIDE (CAS 7446-09-5)	STEL	0.1 ppm 13 mg/m3
	TWA	5 ppm 5 mg/m3 2 ppm

US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
2,2,2-TRIFLUOROETHANOL (CAS 75-89-8)	TWA	0.3 ppm

Biological limit values**US. ACGIH. BEIs. Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
ETHYLENEGLYCOLMONOME THYL ETHER (CAS 109-86-4)	1 mg/g	2-Methoxyacetic acid	Creatinine in urine	*

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

Exposure guidelines**US - Tennessee OELs: Skin designation**

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4) Can be absorbed through the skin.

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

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4) Can be absorbed through the skin.

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

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4) Skin designation applies.

US. NIOSH: Pocket Guide to Chemical Hazards

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4) Can be absorbed through the skin.

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

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Chemical respirator with organic vapor cartridge.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance Clear.

Physical state Liquid.

Form Liquid.

Color Yellow.

Odor Characteristic.

Odor threshold Not available.

pH 5 approximately

Melting point/freezing point -70 °F (-57 °C) estimated

Initial boiling point and boiling range 140 °F (60 °C) estimated

Flash point 119 °F (48 °C) estimated

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) 3.6 % estimated

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 109.26 hPa estimated

Vapor density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water) Miscible

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature 700 °F (371 °C) estimated

Decomposition temperature Not available.

Viscosity Not available.

Other information

Density 1.20 g/cm³ estimated

Explosive properties Not explosive.

Material name: WATERMARK® KARL FISCHER COULOMETRIC VESSEL SOLUTION, FOR KETONES AND ALDEHYDES

Flammability class	Combustible II estimated
Flash point class	Combustible II
Oxidizing properties	Not oxidizing.
Percent volatile	> 65 %
Specific gravity	1.2 estimated
VOC	> 65 % estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Caustics.
Hazardous decomposition products	Hydrogen chloride. Irritating and/or toxic fumes and gases may be emitted upon the product's 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

Inhalation	Toxic if inhaled. May cause damage to organs through prolonged or repeated exposure by inhalation.
Skin contact	Causes severe skin burns. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Headache. Dizziness. Nausea. Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity Toxic if inhaled. Harmful if swallowed.

Product	Species	Test Results
WATERMARK® KARL FISCHER COULOMETRIC VESSEL SOLUTION, FOR KETONES AND ALDEHYDES		
Acute		
Dermal		
LD50	Rabbit	99999 mg/kg
Inhalation		
LC50	Guinea pig	25682 mg/l
	Mouse	26136 mg/l
	Rat	6.2105 mg/l
Oral		
LD50	Cat	99999 mg/kg
	Dog	6706 mg/kg
	Mouse	109 mg/kg
	Rabbit	28342 mg/kg
	Rat	748 mg/kg
Other		
LD50	Mouse	99999 mg/kg
Components		
2,2,2-TRIFLUOROETHANOL (CAS 75-89-8)		
Acute		
Oral		
LD50	Rat	240 mg/kg
Other		
LD50	Rat	1680 mg/kg Dermal

Components	Species	Test Results
BENZOIC ACID (CAS 65-85-0)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
		> 5000 mg/kg
Oral		
LD50	Cat	2000 mg/kg
	Dog	2000 mg/kg
	Mouse	1940 mg/kg
	Rat	1700 mg/kg
Other		
LD50	Mouse	1460 mg/kg
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
ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4)		
Acute		
Dermal		
LD50	Rabbit	1280 mg/kg
Inhalation		
LC50	Rat	1500 mg/l 7 hours
Oral		
LD50	Guinea pig	950 mg/kg
	Mouse	2560 mg/kg
	Rabbit	890 mg/kg
	Rat	2370 mg/kg
Other		
LD50	Mouse	2147 mg/kg
	Rat	2140 mg/kg
IMIDAZOLE (CAS 288-32-4)		
Acute		
Oral		
LD50	Rat	970 mg/kg
IODINE (CAS 7553-56-2)		
Acute		
Oral		
LD50	Mouse	22 g/kg

Components	Species	Test Results
	Rabbit	10 g/kg
	Rat	14 g/kg
SULFUR DIOXIDE (CAS 7446-09-5)		
Acute		
Inhalation		
LC50	Guinea pig	1000 ppm, 20 Hours 1000 mg/l, 20 Hours 130 ppm, 154 Hours 130 mg/l, 154 Hours
	Mouse	1000 mg/l, 4 Hours 1000 ppm, 4 Hours 150 ppm, 847 Hours 150 mg/l, 847 Hours

* 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 serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

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.

US OSHA Hazard Categories (1)

Not regulated.

US OSHA Hazard Categories (10)

Not regulated.

US OSHA Hazard Categories (2)

Not regulated.

US OSHA Hazard Categories (3)

Not regulated.

US OSHA Hazard Categories (4)

Not regulated.

US OSHA Hazard Categories (5)

Not regulated.

US OSHA Hazard Categories (6)

Not regulated.

US OSHA Hazard Categories (7)

Not regulated.

US OSHA Hazard Categories (8)

Not regulated.

US OSHA Hazard Categories (9)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

CHLOROFORM (CAS 67-66-3)

Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity May damage fertility or the unborn child.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard Not an aspiration hazard.

Chronic effects

Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information**Ecotoxicity**

Harmful to aquatic life with long lasting effects.

Product	Species	Test Results
WATERMARK® KARL FISCHER COULOMETRIC VESSEL SOLUTION, FOR KETONES AND ALDEHYDES		
Aquatic		
Fish	LC50	Fish 71.632 mg/l, 96 hours estimated
Components	Species	Test Results
2,2,2-TRIFLUOROETHANOL (CAS 75-89-8)		
Aquatic		
Fish	LC50	Fathead minnow (Pimephales promelas) 105 - 135 mg/l, 96 hours
BENZOIC ACID (CAS 65-85-0)		
Aquatic		
Fish	LC50	Western mosquitofish (Gambusia affinis) 180 mg/l, 96 hours
CHLOROFORM (CAS 67-66-3)		
Aquatic		
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss) 15.1 mg/l, 96 hours
ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4)		
Aquatic		
Fish	LC50	Bluegill (Lepomis macrochirus) > 10000 mg/l, 96 hours
IODINE (CAS 7553-56-2)		
Aquatic		
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss) 0.48 - 0.58 mg/l, 96 hours 0.48 - 0.58 mg/l, 96 hours

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

Persistence and degradability**Bioaccumulative potential****Partition coefficient n-octanol / water (log Kow)**

BENZOIC ACID	1.87
CHLOROFORM	1.97
ETHYLENEGLYCOLMONOMETHYL ETHER	-0.77
IODINE	2.49

Mobility in soil

No data available.

Other adverse effects

The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations**Disposal instructions**

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

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

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

14. Transport information**DOT**

UN number UN1992

Material name: WATERMARK® KARL FISCHER COULOMETRIC VESSEL SOLUTION, FOR KETONES AND ALDEHYDES

UN proper shipping name Flammable liquids, toxic, n.o.s. (ETHYLENEGLYCOLMONOMETHYL ETHER, CHLOROFORM RQ = 30 LBS)

Transport hazard class(es)

Class 3

Subsidiary risk 6.1(PGIII)

Label(s) 3, 6.1

Packing group III

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Special provisions B1, IB3, T7, TP1, TP28

Packaging exceptions 150

Packaging non bulk 203

Packaging bulk 242

IATA

UN number UN1992

UN proper shipping name Flammable liquid, toxic, n.o.s. (ETHYLENEGLYCOLMONOMETHYL ETHER, CHLOROFORM)

Transport hazard class(es)

Class 3

Subsidiary risk 6.1(PGIII)

Packing group III

Environmental hazards No.

ERG Code 3P

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft Allowed with restrictions.

Cargo aircraft only Allowed with restrictions.

IMDG

UN number UN1992

UN proper shipping name FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHYLENEGLYCOLMONOMETHYL ETHER, CHLOROFORM)

Transport hazard class(es)

Class 3

Subsidiary risk 6.1(PGIII)

Packing group III

Environmental hazards

Marine pollutant No.

EmS F-E, S-D

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

DOT



IATA; IMDG



15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4) 1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

BENZOIC ACID (CAS 65-85-0) Listed.
CHLOROFORM (CAS 67-66-3) Listed.

SARA 304 Emergency release notification

CHLOROFORM (CAS 67-66-3) 10 LBS
SULFUR DIOXIDE (CAS 7446-09-5) 500 LBS

US OSHA Hazard Categories (1)

Not regulated.

US OSHA Hazard Categories (2)

Not regulated.

US OSHA Hazard Categories (3)

Not regulated.

US OSHA Hazard Categories (4)

Not regulated.

US OSHA Hazard Categories (5)

Not regulated.

US OSHA Hazard Categories (6)

Not regulated.

US OSHA Hazard Categories (7)

Not regulated.

US OSHA Hazard Categories (8)

Not regulated.

US OSHA Hazard Categories (9)

Not regulated.

US OSHA Hazard Categories (10)

Not regulated.

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

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
CHLOROFORM	67-66-3	10	10000		
SULFUR DIOXIDE	7446-09-5	500	500		

SARA 311/312 No

Hazardous chemical

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
CHLOROFORM	67-66-3	30 - < 40
ETHYLENEGLYCOLMONOMETHYL ETHER	109-86-4	30 - < 40

Other federal regulations

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

CHLOROFORM (CAS 67-66-3)

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 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

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

Material name: WATERMARK® KARL FISCHER COULOMETRIC VESSEL SOLUTION, FOR KETONES AND ALDEHYDES

DEA Exempt Chemical Mixtures Code Number

IODINE (CAS 7553-56-2)

6699

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

SULFUR DIOXIDE (CAS 7446-09-5)

High priority

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 - California Proposition 65 - CRT: Listed date/Carcinogenic substance

CHLOROFORM (CAS 67-66-3)

Listed: October 1, 1987

US - California Proposition 65 - CRT: Listed date/Developmental toxin

CHLOROFORM (CAS 67-66-3)

Listed: August 7, 2009

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4)

Listed: January 1, 1989

SULFUR DIOXIDE (CAS 7446-09-5)

Listed: July 29, 2011

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4)

Listed: January 1, 1989

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

CHLOROFORM (CAS 67-66-3)

ETHYLENEGLYCOLMONOMETHYL ETHER (CAS 109-86-4)

IMIDAZOLE (CAS 288-32-4)

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
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)	No
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 that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

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

June-04-2015

Revision date

December-20-2016

Version #

02

Disclaimer

GFS Chemicals, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.