

# SAFETY DATA SHEET

SDS No.1021-58020

Date

March 14, 2019

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## 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Mix standard, VOC 9 compounds, 100ppm each in Ethanol  
NAME OF SUPPLIER : GL Sciences Inc.  
ADDRESS : 22-1 Nishishinjuku 6-chome Shinjuku-ku Tokyo 163-1130, Japan  
CHARGE SECTION : International Sales Section  
TELEPHONE No. : +81-3-5323-6620  
FACSIMILE No. : +81-3-5323-6621  
PRODUCT No. : 1021-58020  
SDS No. : 1021-58020  
Research use only.

## 2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION : Flammable liquid : Category 2  
Serious eye damage/eye irritation : Category 2A  
Carcinogenicity : Category 1A  
Reproductive toxicity : Category 1A  
Specific target organ toxicity  
(Single exposure) : Category 3 (respiratory irritation,  
Narcotic effects)  
Specific target organ toxicity  
(Repeated exposure) : Category 1(Liver)  
: Category 2(Central nervous system)

HAZARD SYMBOL :



SIGNAL WORD : Danger

HAZARD STATEMENTS :

H225 Highly flammable liquid and vapour  
H319 Cause serious eye irritation  
H350 May cause cancer  
H360 May damage fertility or the unborn child  
H335 May cause respiratory irritation  
H336 May cause drowsiness or dizziness  
H372 Cause damage to organs through prolonged or repeated exposure<liver>  
H373 May cause damage to organs through prolonged or repeated exposure, central nervous system>

PRECAUTIONARY STATEMENTS :

[Prevention]

P202 Do not handle until all safety precautions have been read and understood.  
P210 Keep away from heat/sparks/open flames/hot surfaces. –No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ventilating/lighting/equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe fume/gas/mist/vapours.  
P264 Wash hands thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.

[Response]

P303+P361+ P353 IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 P305+ P351+ P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P308+P313 IF exposed or concerned: Get medical advice/attention.  
 P314 Get medical attention if you feel unwell.  
 P337+P313 If eye irritation persists: Get medical attention.  
 P370+P378 In case of fire: Use appropriate media such as chemical powder or carbon dioxide to extinguish.

[Storage]

P403+ P233+P235 Store in a well-ventilated place. Keep container tightly closed. Keep cool.  
 P405 Store locked up.

[Disposal]

P501 Dispose of contents/container in accordance with all applicable regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL IDENTITY : Mixture

CHEMICAL NAME	CONTENT	CHEMICAL FORMULA	CAS RN	TSCA INVENTORY	EINECS No.
Ethanol	≥ 99.89%	C <sub>2</sub> H <sub>5</sub> OH	64-17-5	Listed	200-578-6
Formaldehyde	0.01%	HCHO	50-00-0	Listed	200-001-8
Acetaldehyde	0.01%	CH <sub>3</sub> CHO	75-07-0	Listed	200-836-8
Toluene	0.01%	C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub>	108-88-3	Listed	203-625-9
Ethylbenzene	0.01%	C <sub>2</sub> H <sub>5</sub> C <sub>6</sub> H <sub>5</sub>	100-41-4	Listed	202-849-4
o-Xylene	0.01%	C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub>	95-47-6	Listed	202-422-2
m-Xylene	0.01%	C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub>	108-38-3	Listed	203-576-3
p-Xylene	0.01%	C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub>	106-42-3	Listed	203-396-5
Styrene	0.01%	C <sub>6</sub> H <sub>5</sub> CH=CH <sub>2</sub>	100-42-5	Listed	202-851-5
n-Tetradecane	0.01%	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>12</sub> CH <sub>3</sub>	629-59-4	Listed	211-096-0

4. FIRST AID MEASURES

GENERAL ADVICE : Consult a physician. Show this safety data sheet to the doctor in attendance.  
 INHALATION : Move victim to fresh air. If breathing is difficult, give oxygen. If irritation persists, consult a physician.  
 SKIN CONTACT : Remove contaminated clothes and shoes, rinse skin with plenty of water or shower. Use soap to help assure removal. Consult a physician immediately.  
 EYE CONTACT : Flush eyes well with flooding large amounts of running water for at least 15 minutes. Assure adequate flushing by separating the eyelids with sterile fingers. If possible, remove any contact lenses. Consult a physician immediately.  
 INGESTION : Rinse mouth, give plenty of water to dilute the substance. Do not induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician immediately.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA : Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.  
 FIRE & EXPLOSION HAZARDS : Toxic, irritating, dust/fume/smoke may be emitted. Carbon monoxide may be foamed.  
 SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS : Firemen should wear normal protective equipment(full bunker gear) and positive-pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

- PERSONAL PRECAUTIONS : Remove ignition sources and ventilate the area. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid raising dust and avoid contact with skin and eyes.
- ENVIRONMENTAL PRECATIONS : Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
- METHODS FOR CLEAN UP : Do not touch spilled material without suitable protection. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

- HANDLING : Keep away from ignition sources and ventilate the area –No smoking. In case of insufficient ventilation, wear suitable respiratory equipment.  
Avoid contact with eyes, skin, and clothing. Avoid inhalation of vapour or mist. Avoid prolonged or repeated exposure. Handle this product with suitable protection.
- STORAGE : Store away from sunlight, heat and all ignition sources in well-ventilated dry place. Keep container tightly closed. Keep cool(2 ~ 10°C).
- INCOMPATIBLE PRODUCTS : Strong oxidizers, acids

8. EXPOSURE CONTROL/PERSONAL PROTECTION

- ENGINEERING MEASURES : Use exhaust ventilation to keep airborne concentrations below exposure limits. Use adequate ventilation.
- VENTILATION : Local Exhaust ; Necessary, Mechanical(General) ; Necessary
- PERSONAL PROTECTION
- Respiratory protection : Use respirators approved under appropriate government standards and follow all regulations.
- HAND PROTECTION : Chemical resistant gloves
- EYE PROTECTION : Safety glasses(goggles)
- SKIN PROTECTION : Protective clothing
- CONTROL PARAMETERS

CHEMICAL NAME	ACGIH	OSHA Final Limits	NIOSH REL
Ethanol	TWA= 1000 ppm	TWA= 1000 ppm	TWA= 1000 ppm
Formaldehyde	Ceiling 0.3 ppm	3 ppm	Not established
Acetaldehyde	25 ppm	Not established	
Toluene	50 ppm	TWA 200 ppm	TWA 100 ppm
Ethylbenzene	100 ppm	TWA 100 ppm	TWA 100 ppm
o-Xylene	100 ppm		
m-Xylene			
p-Xylene			
Styrene	20 ppm	TWA 100 ppm	TWA 50 ppm
n-Tetradecane	Not established		

9. PHYSICAL AND CHEMICAL PROPERTIES

- APPEARANCE : Liquid
- PHYSICAL STATE : Colorless, Clear
- ODOR : Characteristic odor
- pH : No data available
- BOILING POINT : approx.78 °C(Ethanol)
- MELTING POINT : -117 °C(Ethanol)
- FLASH POINT : 12.8 °C (TCC)(Ethanol)
- EXPLOSIVE LIMITS : 3.3% (lower), 19 % (upper)(Ethanol)
- VAPOR PRESSURE : 5.33 kPa (at 20°C)(Ethanol)
- VAPOR DENSITY : 1.6(Ethanol)
- SPECIFIC GRAVITY : 0.81 g/cm<sup>3</sup> (at 20°C)(Ethanol)
- SOLUBILITY IN(Ethanol)
- Water : Miscible
- Organic solvent : Miscible

PARTITION COEFFICIENT ; n-octanol/water : log Pow: -0.32(Ethanol)  
 AUTOIGNITION TEMPERATURE : 371 - 427 °C(Ethanol)  
 DECOMPOSITION TEMPERATURE : No data available(Ethanol)

10. STABILITY AND REACTIVITY

REACTIVITY : Stable under recommended storage conditions.  
 CHEMICAL STABILITY : Reacts with strong oxidizers.  
 CONDITION TO AVOID : Sunlight, heat, open flames, high temperature, sparks, static electrical charge, other ignition sources, moisture  
 INCOMPATIBLE MATERIALS : Oxidizers and strong acids  
 HAZARDOUS DECOMPOSITION PRODUCTS : CO, CO<sub>2</sub> may be formed.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY : oral, dermal, inhalation; This mixture is not classified by ethanol.  
 SKIN CORROSION/IRRITATION : This mixture is not classified by ethanol.  
 EYE DAMAGE/EYE IRRITATION : This mixture is classified in category 2.  
 (Ethanol) : rabbit; moderate irritating (SIDS,2005)  
 SENSITIZATION : Falls under Not classified since the substance contains more than the concentration limit of ingredients that fall under the hazard category.  
 GERM CELL MUTAGENICITY : The classification is not possible in this mixture by ethanol.  
 CARCINOGENICITY : This mixture is classified in category 1 by ethanol.  
 (Ethanol) : ACGIH: Group A3(ACGIH(7th,2012))

In IARC (2010), many epidemiological data on the carcinogenicity of alcoholic beverages indicate that ingestion of ethanol in alcoholic beverages induces malignancies in the esophagus. Ingestion of ethanol before birth in humans is known to cause congenital malformations in neonates called fetal alcohol syndrome. Malformations include microcephaly, short palpebral fissures, joint, limb, and cardiac abnormalities, behavioral and cognitive dysfunction during development (PATTY (6th, 2012)).

REPRODUCTIVE TOXICITY : This mixture is classified in category 1 by Ethanol.  
 (Ethanol) : These may be convincing evidence for the reproductive toxicity of ethanol to humans. Fetal alcohol syndrome is associated with alcoholic women who drink large amounts of alcohol chronically during pregnancy. There are no reports of fetal alcohol syndrome following industrial oral, dermal, or inhalation exposure. In animal studies, malformations have also been observed in pregnant rats after oral administration.

SPECIFIC TARGET ORGAN TOXICITY - single exposure -  
 (Ethanol) : This mixture is classified in Category 3 by Ethanol.  
 : Symptoms of eye and respiratory tract irritation have been reported following inhalation exposure in humans. Increased concentrations of ethanol in the blood have been associated with mild intoxication (muscle-coordinated hypokinesia, mood, personality, behavioral changes, moderate intoxication (vision impairment, sensory paralysis, reaction-time delay, speech disturbance), severe intoxication (vomiting, lethargy, hypothermia, hypoglycemia, respiratory depression, etc.), and death as a result of gastric aspiration due to respiratory or circulatory insufficiency or absence of pharyngeal reflexes (PATTY (6th, 2012)) in experimental animals as well as humans (SIDS (2005)).

SPECIFIC TARGET ORGAN TOXICITY - repeated exposure -  
 (Ethanol) : This mixture is classified in Category 1 and 2 by Ethanol.  
 : Long-term ingestion of large amounts of alcohols in humans adversely affects almost all organs, but the most potent target organ is the liver, and the disorder begins with fatty degeneration and progresses to liver cirrhosis through the stages of necrosis and fibrosis (DFGOT vol. 12 (1999)). In addition, the U.S. Food and Drug Administration has HSDB(Access on June 2013 approved three therapeutic agents for the treatment of alcoholic abuse and addiction patients. The occurrence of adverse effects was not very marked in animal studies, and fatty degeneration was reported as an effect on the liver in a 90-day repeated oral dose study in rats at high doses well above the guidance values (SIDS (2005), PATTY (6th, 2012)).

ASPIRATION HAZARD : Classification is not possible in this mixture.

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**12. ECOLOGICAL INFORMATION**

Hazardous to the aquatic environment - Acute hazard (Fish)	: This mixture is classified in Category 3 by 7 components. 4.02 mg/L (Ethylbenzene), 0.35 mg/L (Dibutyl phthalate)
(Crustacea)	: 0.4 mg/L (Ethylbenzene), 3.78 mg/L (Toluene), 2.3 mg/L (m-Xylene), 1.7 mg/L (p-Xylene)
(Algae)	: 0.8 mg/L (o-Xylene)
Hazardous to the aquatic environment - Chronic hazard	: This mixture is not classified.
BIODEGRADABILITY	: No data available.
BIOACCUMULATIVE POTENTIAL	: No data available
MOBILITY IN SOIL	: No data available
OTHER ADVERSE EFFECTS	: Not listed in Montreal Protocol list.

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**13. DISPOSAL INFORMATION**

Dispose in a hazardous-waste site in accordance with all applicable regulations. Any disposal practice must be in compliance with country, local, state, and federal laws and regulations (contact country, local or state environment agency for specific rules).

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**14. TRANSPORT INFORMATION**

IATA	
UN NUMBER	: 1170
UN PROPER SHIPPING NAME	: Ethanol solution
CLASS	: 3, flammable liquid
PACKING GROUP	: II
ADR/RID	: 1170, Ethanol solution
DOT	: 1170, Ethanol solution
MARINE POLLUTANT	: Not classified

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**15. REGULATORY INFORMATION**

For classification and labeling of chemicals in accordance with the applicable rules and regulations in the EU or each country, refer to GHS classification of this product (See Section 2).

US REGULATION	: OSHA HCS 2012/29 CFR 1910.1200
EU REGULATION	: CLP Regulation ((EC) No. 1272/2008)

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**16. OTHER INFORMATION****NOTICE:**

The information contained in the SDS description is applicable exclusively to the chemical substance identified herein and for its intended use as an analytical reference standard or reagent and to the unit quantity intended for that purpose. The information does not relate to, and may not be appropriate for, any application or larger quantity of the substance described. Our products are intended for the use by individuals possessing sufficient technical skill and qualification on use the material potential hazardous chemical. Accordingly, no representation or warranty, express or implied, with respect to merchantability and fitness for a particular purpose is made with respect to the information contained herein.

**Attention:**

This product in terms of chemical identity and the unit amount provide is intended for use in chemical analysis and not for human consumption, nor any other purpose.