

# SAFETY DATA SHEET

SDS No.1021-31261

Date

November 6, 2017

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## 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Methyl ethyl ketone (MEK)  
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. : 1021-31261  
SDS No. : 1021-31261  
Research use only.

## 2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION : Flammable liquid : Category 2  
Acute toxicity - inhalation; vapor - : Category 4  
Skin corrosion/irritation : Category 2  
Eye damage/irritation : Category 2  
Specific target organ toxicity (Single exposure)  
: Category 2(kidney)  
Specific target organ toxicity (Single exposure)  
: Category 3(respiratory irritation, an  
esthesia)  
Specific target organ toxicity (Repeated exposure)  
: Category 1(central nervous system)

HAZARD SYMBOL :



SIGNAL WORD : Danger

HAZARD STATEMENTS :

H225 High flammable liquid and vapour  
H332 Harmful if inhaled  
H315 Cause skin irritation  
H319 Cause serious eye irritation  
H371 May cause damage to organs  
H335 May cause respiratory irritation  
H336 May cause drowsiness or dizziness  
H372 Cause damage to organs through prolonged or repeated exposure

PRECAUTIONARY STATEMENTS :

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 breathing dust/fume/gas/mist/vapours/spray.  
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.  
P303+P361+P353 IF ON SKIN or hair: Take off immediately all contaminated clothing. Rinse skin with water.  
P370+P378 In case of fire: Use appropriate medias to extinguish.  
P332+P313 If skin irritation occurs: Get medical attention.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P314	Get medical attention if you feel unwell.
P305+ P351+ P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical attention.
P308+P311	IF exposed or concerned: Call a POISON CENTER or doctor.
P403+ P233+P235	Store in a well-ventilated place. Keep container tightly closed. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with all applicable regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL IDENTITY	: Methyl ethyl ketone (MEK)
SYNONYMS	: 2-Butanone, 2-oxobutane, Ethyl Methyl Ketone
CONTENT	: > 99 %
CHEMICAL FORMULA	: CH <sub>3</sub> CH <sub>2</sub> COCH <sub>3</sub>
MOLECULAR WEIGHT	: 72.11
CAS No.	: 78-93-3
TSCA INVENTORY	: Listed
EINECS No.	: 201-159-0
EC INDEX No.	: 606-002-00-3

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.

MOST IMPORTANT SYMPTOMS AND EFFECTS

: inhalation; inhalation, cough, shortness of breath  
 skin/eye; dryness, redness, pain  
 digestion; nausea, vomiting, diarrhea, irritating to digestion system  
 excessive exposure; anesthetic action, headache, dizziness, narrowing of the visual field, nausea, diarrhea and loss of consciousness.

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 PRECAUTIONS	: 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.  
 Wear protections when cutting ample and treating this product.
- 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
- CONTROL PARAMETERS**
- ACGIH : 200 ppm  
 OSHA : 200 ppm  
 NIOSH : 200 ppm
- 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

9. PHYSICAL AND CHEMICAL PROPERTIES

- APPEARANCE** : Colorless, clear liquid
- ODOR** : characteristic odor
- pH** : No data available
- BOILING POINT** : 80 °C
- MELTING POINT** : -86 °C
- FLASH POINT** : -9 °C (TCC)
- EXPLOSIVE LIMITS** : 1.8 ~ 11.5 vol %
- VAPOR PRESSURE** : 10.5 kPa (at 20°C)
- VAPOR DENSITY** : 2.41
- SPECIFIC GRAVITY** : 0.805 g/cm<sup>3</sup> (at 20/20°C)
- SOLUBILITY IN**
- Water : Miscible  
 Organic solvent : Miscible
- PARTITION COEFFICIENT ; n-octanol/water** : log Pow: 0.29
- AUTOIGNITION TEMPERATURE** : 475 °C
- DECOMPOSITION TEMPERATURE** : No data available

10. STABILITY AND REACTIVITY

- REACTIVITY** : Highly flammable liquid, may form the explosive peroxide by contacting to air.  
 React with strong oxidizers and strong reducing agents. React with aldehyde and oxidizers.
- CHEMICAL STABILITY** : Stable under normal conditions
- 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>

**11. TOXICOLOGICAL INFORMATION**

ACUTE TOXICITY	: Oral; rat LC50=2,737 ~ 6,000 mg/kg (PATTY(6th,2012) etc.) Dermal; rabbit LD50= >5,000 ~ > 13,000 mg/kg (PATTY(6th,2012) etc.)
ACUTE TOXICITY - inhalation; vapor-	: rat LC50=11,700 ppm (PATTY(6th,2012) etc.)
SKIN CORROSION/IRRITATION	: Rabbit; mild to moderate or mild irritating (SIDS,2011 etc.) Human; not irritating by inhalation (PATTY(6th,2012))
EYE DAMAGE/EYE IRRITATION	: Rabbit; sever irritating or mild irritating (SIDS,2011 etc.) Human; irritating or not irritating (PATTY(6th,2012))
SENSITIZATION	: No data available
GERM CELL MUTAGENICITY	: in vivo/in vitro; negative (NTP DB(Access on October 2014 etc.))
CARCINOGENICITY	: This material is classified in Category I(inadequate) by EPA (IRIS,2003)
REPRODUCTIVE TOXICITY	: rat/mouse; negative (PATTY(6th,2012) etc.)
SPECIFIC TARGET ORGAN TOXICITY - single exposure -	: This material has a respiratory irritation and dizziness. Effect to human (headache, nausea, dizziness, ataxia, blurred vision, wobble, hyperventilation, lethargy, central nervous system depressant action, metabolic acidosis, loss of consciousness)(ACGIH(7th,2001) etc.)
SPECIFIC TARGET ORGAN TOXICITY - repeated exposure -	: Effect to human central and peripheral nervous system (ACGIH(7th,2001) etc.)
ASPIRATION HAZARD	: This material is one of the Ketone substances. Kinematic viscosity = 0.50 mm <sup>2</sup> /sec (25°C, CERI-calculated).

**12. ECOLOGICAL INFORMATION**

ECOTOXICITY	: Pseudokirchneriella subcapitata; ErC50> 1,200 mg/L,72h Daphnia magna; LC50> 1,000 mg/L,48h Oncorhynchus mykiss; LC50 > 100 mg/L,96h (Ecological impact test of Ministry of Environment of Japan, 1996 etc.)
BIODEGRADABILITY	: BOD=89 %( Ecological impact test of Ministry of Environment of Japan, 1996 etc.)
BIOACCUMULATIVE POTENTIAL	: Solubility in water = 223,000 mg/L (PHYSPROP Database, 2009)
MOBILITY IN SOIL	: No data available
OTHER ADVERSE EFFECTS	: Not listed in Montreal Protocol list.

**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).

**14. TRANSPORT INFORMATION**

IATA	
UN NUMBER	: 1193
UN PROPER SHIPPING NAME	: Ethyl methyl ketone (Methyl ethyl ketone)
CLASS	: 3, flammable liquid
PACKING GROUP	: II
ADR/RID	: 1193, Ethyl methyl ketone, II
DOT	: 1193, Ethyl methyl ketone, II
MARINE POLLUTANT	: No

**15. REGULATORY INFORMATION**

US REGULATIONS	: Labeling according to EC Directives; See section 2
EU REGULATIONS	: Labeling according to EC Directives; See section 2

**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.