1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Methanol
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.: 1021-15100
SDS No.: 1021-15100

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
- Flammable liquid: Category 2
- Acute toxicity - oral: Category 4
- Serious eye damage/eye irritation: Category 2
- Reproductive toxicity: Category 1B
- Specific target organ toxicity (Single exposure): Category 1 (central nervous system, optic organ, systemic toxicity)
- Specific target organ toxicity (Single exposure): Category 3 (anesthesia)
- Specific target organ toxicity (Repeated exposure): Category 1 (central nervous system, optic organ)

HAZARD SYMBOL:

SIGNAL WORD: Danger

HAZARD STATEMENTS:
- H225: Highly flammable liquid and vapour
- H302: Harmful if swallowed
- H319: Cause serious eye irritation
- H360: May damage fertility or the unborn child
- H370: Cause damage to organs<central nervous system, optic organ, systemic toxicity>
- H336: May cause drowsiness or dizziness
- H372: Cause damage to organs through prolonged or repeated exposure<central nervous system, optic organ>

PRECAUTIONARY STATEMENTS:
- 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.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- 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.
- P303+P361+ P353: IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower.
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P370+P378  In case of fire: Use appropriate media such as chemical powder or carbon dioxide to extinguish.
P301+P312  IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P330     Rinse mouth.
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+P313  IF exposed or concerned: Get medical advice/attention.
P304+P340  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P314   Get medical attention if you feel unwell.
P405  Store locked up.
P501  Dispose of contents/container in accordance with all applicable regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS
CHEMICAL IDENTITY : Methanol
SYNONYMS : Methyl alcohol
CONTENT : > 99 %
CHEMICAL FORMULA : CH3OH
MOLECULAR WEIGHT : 32.04
CAS No. : 67-56-1
TSCA INVENTRY : Listed
EINECS No. : 200-659-6
EC INDEX No. : 603-001-00-X

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 : Cause cough, dizziness, headache, vomiting, torpor, dysopia by inhalation.
Digestion cause visual loss, sometime cause in death.

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 : 100 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**
- approx.65 °C

**MELTING POINT**
- -97.8 °C

**FLASH POINT**
- 12 °C (TCC)

**EXPLOSIVE LIMITS**
- 6.0 ~ 35.6 %

**VAPOR PRESSURE**
- 95.2 mmHg(at 20 °C)

**VAPOR DENSITY**
- 1.11

**SPECIFIC GRAVITY**
- 0.7915 g/cm³ (at 20/4°C)

**SOLUBILITY IN**
- Water : Miscible
- Organic solvent : Miscible

**PARTITION COEFFICIENT ; n-octanol/water**
- log Pow: -0.82/-0.66

**AUTOIGNITION TEMPERATURE**
- 464 °C

**DECOMPOSITION TEMPERATURE**
- No data available

10. STABILITY AND REACTIVITY

**REACTIVITY**
- Stable under recommended storage conditions.

**CHEMICAL STABILITY**
- Deteriorated by sun-light.

**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, CO₂, Cl, HCl may be formed.
11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY -oral-
Acute toxicity of Methanol affects primates stronger than rodents (EHC 196, 1997).
rat; LD50=6200mg/kg, 9100mg/kg (EHC 196, 1997).

SKIN CORROSION/IRRITATION
Not irritating for rabbit (DFGOT vol.16, 2001)

EYE DAMAGE/EYE IRRITATION
Draize score: 2.1 (average), 2.00(4hr), 0.50(72hr) (EHC 196, 1997)

SKIN SENSITIZATION
Negative (DFGOT vol.16, 2001)

GERM CELL MUTAGENICITY
Negative (EHC 196 (1997), DFGOT vol.16(2001), PATTY (5th, 2001))

CARCINOGENICITY
No data available

REPRODUCTIVE TOXICITY
Effect/damage to rat baby by inhalation (PATTY (5th, 2001), EHC 196 (1997), DFGOT vol.16(2001), NTP-CERHR Monograph (2003)).

SPECIFIC TARGET ORGAN TOXICITY - single exposure -
Central nervous depression (acute toxicity), metabolic acidosis, visual defect, blindness, headache, dizziness, vomiting, narcosis, death (DFGOT vol.16, 2001).

SPECIFIC TARGET ORGAN TOXICITY - repeated exposure -
Disorder of the eye, blindness (EHC 196 (1997), ACGIH(7th, 2001)).

ASPIRATION HAZARD
No data available

12. ECOLOGICAL INFORMATION

ECOTOXICITY
Brine shrimp; LC50=1,340 mg/L, 96h (EHC 196, 1998)
Bluegill; LC50=1,540 mg/L, 96h (EHC 196, 1998)

BIODEGRADABILITY
No data available

BIOACCUMULATIVE POTENTIAL
Water solubility; 1,000,000 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: 1230
UN PROPER SHIPPING NAME: Methanol
CLASS: 3, flammable liquid (6.1, toxic substances)
PACKING GROUP: II
ADR/RID: 1230, Methanol, II
DOT: 1230, Methanol, 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.