1. IDENTIFICATION

Product name: Cyclohexane [for HPLC Solvent]
Product code: C0818
Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company: TCI America
9211 N. Harborgate Street
Portland, OR 97203 U.S.A.
Telephone: +1-800-423-8616 / +1-503-283-1681
Fax: +1-888-520-1075 / +1-503-283-1987
E-mail: sales-US@TCIchemicals.com
www.TCIchemicals.com

2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200:
WHMIS 2015:
- Skin Corrosion/Irritation [Category 2]
- Eye Damage/Irritation [Category 2A]
- Toxic to Reproduction [Category 2]
- Specific Target Organ Toxicity (Single Exposure) [Category 3]
- Specific Target Organ Toxicity (Single Exposure) [Category 2]
- Flammable Liquids [Category 2]
- Aquatic Hazard (Acute) [Category 1]
- Aquatic Hazard (Long-Term) [Category 1]

Signal word: Danger!

Hazard Statement(s):
- Highly flammable liquid and vapor
- Causes skin irritation
- Causes serious eye irritation
- Suspected of damaging fertility or the unborn child
- Very toxic to aquatic life
- Very toxic to aquatic life with long lasting effects
- May cause damage to organs: Blood Vessels
- May cause respiratory irritation. May cause drowsiness or dizziness.

Pictogram(s) or Symbol(s):

[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 and hot surfaces. – No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist, vapors or spray. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Wear protective gloves, protective clothing, face protection.

[Response]

If on skin: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention. If exposed or concerned: Call a poison center or doctor. In case of fire: Use dry chemical, dry sand or foam to extinguish. Collect spillage. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

[Storage]
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance/mixture:</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components:</td>
<td>Cyclohexane [for HPLC Solvent]</td>
</tr>
<tr>
<td>Percent:</td>
<td>&gt;99.5%(GC)</td>
</tr>
<tr>
<td>CAS RN:</td>
<td>110-82-7</td>
</tr>
<tr>
<td>Molecular Weight:</td>
<td>84.16</td>
</tr>
<tr>
<td>Chemical Formula:</td>
<td>C₆H₁₂</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

Description of first aid measures
- Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.
- Skin contact: Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Call a POISON CENTER or doctor/physician.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Call a POISON CENTER or doctor/physician.
- Ingestion: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do NOT induce vomiting.

Symptoms/effects:
- Delayed: May have effects on the respiratory tract.

Indication of any immediate medical attention:
Not available.
Notes to physician:
No data available

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media: Dry chemical, foam, carbon dioxide.
- Unsuitable extinguishing media: Water (It may scatter and spread fire.)
- Hazardous combustion products: Carbon oxides
- Other specific hazards: These products may explode from heat of a fire.
- Advice for firefighters: Wear self-contained breathing apparatus if possible.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures: Use extra personal protective equipment (self-contained breathing apparatus). Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the spill area by roping off, etc.
- Environmental precautions: Be careful not to let it flow into rivers, etc., since adverse effects on the environment are concerned.
- Methods and materials for containment and cleaning up: Absorb spilled material in dry sand or inert absorbent before recovering it into an airtight container. In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed off, in accordance with appropriate laws and regulations.
- Prevention of secondary hazards: Remove all sources of ignition. Fire-extinguishing devices should be prepared in case of a fire. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE

- Precautions for safe handling: Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Keep away from heat/sparks/open flame/hot surfaces. -No smoking. Take measures to prevent the build up of electrostatic charge. Use explosion-proof equipment. Wash hands and face thoroughly after handling.
- Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Store in a cool, dark and well-ventilated place. Store locked up. Store away from incompatible materials such as oxidizing agents.
- Packaging material: Comply with laws.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits:
- ACGIH TLV(TWA): 100 ppm
- OSHA PEL(TWA): 300 ppm
- JSOH OELs(TWA): 150 ppm

Appropriate engineering controls: Follow safe industrial engineering/laboratory practices when handling any chemical. Install a closed system or local exhaust. Also install safety shower and eye bath.

Personal protective equipment
- Respiratory protection: Half or full facepiece respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
- Hand protection: Impervious gloves.
- Eye protection: Safety goggles. A face-shield, if the situation requires.
- Skin and body protection: Impervious protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state (20°C):</td>
<td>Liquid</td>
</tr>
<tr>
<td>Form</td>
<td>Clear</td>
</tr>
<tr>
<td>Colour:</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odour:</td>
<td>Pungent</td>
</tr>
<tr>
<td>Odour threshold:</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold:</td>
<td>No data available</td>
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<tr>
<td>Melting point/freezing point</td>
<td>6°C (Freezing point) (43°F)</td>
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<tr>
<td>Boiling point/range:</td>
<td>81°C (178°F)</td>
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<td>Decomposition temperature:</td>
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<tr>
<td>Relative density:</td>
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<tr>
<td>Kinematic viscosity:</td>
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<tr>
<td>Log Pow:</td>
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<tr>
<td>pH:</td>
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<tr>
<td>Vapour pressure:</td>
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<tr>
<td>Vapour density:</td>
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<tr>
<td>Dynamic Viscosity:</td>
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<td>Evaporation rate(Butyl Acetate=1):</td>
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<td>Flash point:</td>
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<td>Flammability(solid, gas):</td>
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<td>Autoignition temperature:</td>
<td>245°C (473°F)</td>
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<tr>
<td>Flammability or explosive limits:</td>
<td>Lower: 1.3%</td>
</tr>
<tr>
<td></td>
<td>Upper: 8.4%</td>
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<tr>
<td>Solubility(ies):</td>
<td>Insoluble</td>
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<tr>
<td>[Water]</td>
<td></td>
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<tr>
<td>[Other solvents]</td>
<td>Ether, Alcohols, Benzene, Acetone</td>
</tr>
<tr>
<td>Soluble:</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity:</td>
<td>No data available</td>
</tr>
<tr>
<td>Chemical stability:</td>
<td>Stable under proper conditions.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions:</td>
<td>No special reactivity has been reported.</td>
</tr>
<tr>
<td>Conditions to avoid:</td>
<td>Spark, Open flame, Static discharge</td>
</tr>
<tr>
<td>Incompatible materials:</td>
<td>Oxidizing agents</td>
</tr>
<tr>
<td>Hazardous decomposition products:</td>
<td>Carbon dioxide, Carbon monoxide</td>
</tr>
</tbody>
</table>
11. TOXICOLOGICAL INFORMATION

RTECS Number: GU6300000

Acute Toxicity:
- orl-rat LD50: 6240 mg/kg
- ihl-rat LC50: >9500 ppm/4H
- skn-rbt LD50: >2000 mg/kg

Skin corrosion/irritation:
- No data available

Serious eye damage/irritation:
- No data available

Respiratory or skin sensitization:
- No data available

Germ cell mutagenicity:
- dna-esc 10 umol/L

Carcinogenicity:
- No data available

IARC: No data available
NTP: No data available
OSHA: No data available

Reproductive toxicity:
- ihl-rat TCLo: 6000 ppm (7-16D preg)

Target organ(s):
- May cause damage to organs: Blood Vessels
- May cause respiratory irritation.
- May cause drowsiness or dizziness.

12. ECOLOGICAL INFORMATION

Ecotoxicity:
- Fish: 48h LC50: 9.0 ppm (Oryzias latipes)
- Crustacea: No data available
- Algae: No data available

Persistence / degradability:
- 0 % (by BOD), 8 % (by GC)

Bioaccumulative potential (BCF):
- 31 - 102 (conc. 100 ppb), 37 - 129 (conc. 10 ppb)

Mobility in soil:
- Log Pow: 3.4
- Soil adsorption (Koc): No data available
- Henry's Law (PaM³/mol): No data available

13. DISPOSAL CONSIDERATIONS

Disposal of product:
- Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.

Disposal of container:
- Dispose of as unused product. Do not re-use empty containers.

Other considerations:
- Observe all federal, state and local regulations when disposing of the substance.
14. TRANSPORT INFORMATION

DOT (US)
UN number: UN1145
Proper Shipping Name: Cyclohexane
Class or Division: 3 Flammable liquid
Packing Group: II

IATA
UN number: UN1145
Proper Shipping Name: Cyclohexane
Class or Division: 3 Flammable liquid
Packing Group: II

IMDG
UN number: UN1145
Proper Shipping Name: Cyclohexane
Class or Division: 3 Flammable liquid
Packing Group: II

EmS number: F-E, S-D
Reportable Quantity: 1000 Pounds (454 Kilograms)

15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations
CERCLA Hazardous substance and Reportable Quantity:
SARA 313: Listed
SARA 302: Not Listed

State Regulations
State Right-to-Know
Massachusetts: Listed
New Jersey: Listed
Pennsylvania: Listed
California Proposition 65: Not Listed

Other Information
NFPA Rating:
Health: 2
Flammability: 3
Instability: 0
HMIS Classification:
Health: 2
Flammability: 3
Physical: 0

International Inventories
Canada: DSL
EC-No: 203-806-2

16. OTHER INFORMATION

Revision date: 07/06/2018
Revision number: 1
TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.