G.J. CHEMICAL COMPANY, INC.   SAFETY DATA SHEET

1. PRODUCT IDENTIFIER

PRODUCT NAME ------------------------> Hexylene Glycol all Grades

PRODUCT NUMBER(S)-----------------> 175500, 175540, 175550

TRADE NAMES AND SYNONYMS--> 2-Methyl-2,4-pentanediol

CAS-No: 107-41-5 CHEMICAL FAMILY: Diol

RECOMMENDED USE: Manufacture of Substances; Laboratory Chemicals
USES ADVISED AGAINST: No information available

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET
Company: G.J. CHEMICAL CO., INC.
Address: 40 VERONICA AVENUE
          SOMERSET, NJ 08873
Telephone: 1-973-589-1450
Fax: 1-973-589-3072

Emergency Telephone Number
Emergency Phone: 1-800-424-9300 (CHEMTREC)

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29CFR 1910 (OSHA HCS)
Skin irritation (Category 2)
Eye irritation (Category 2A)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Warning

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ eye protection/ face protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No.</th>
<th>% by WT.</th>
<th>CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexylene Glycol</td>
<td>107-41-5</td>
<td>99</td>
<td>Skin irritation (Category 2)</td>
</tr>
<tr>
<td></td>
<td>EC-No.203-489-0</td>
<td></td>
<td>Eye irritation (Category 2A)</td>
</tr>
<tr>
<td></td>
<td>Index-No.603-053-00-3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST-AID PROCEDURES

INHALATION: Hexylene glycol

**FIRST AID- Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Use oxygen if necessary. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.**
SKIN CONTACT: Hexylene glycol
**FIRST AID**- Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts or water until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.

EYE CONTACT: Hexylene glycol
**FIRST AID**- Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Remove contact lenses, if worn, after initial flush. Consult a physician if irritation persists.

INGESTION: Hexylene glycol
**FIRST AID**- Do not induce vomiting. Never give anything by mouth to an unconscious person. Have patient drink several glasses of water. Consult a physician or poison control center, treat symptomatically.

§. FIRE FIGHTING MEASURES

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL.

UNIFORM FIRE CODE: Combustible Liquid: III-B

Flash Point: 201°F

LEL %: 1.3

UEL %: 7.4

Auto-ignition Temp: 583°F

SUITABLE EXTINGUISHING MEDIA: Foam--> x CO2--> x Dry Chemical--> x Water-fog--> x Other-->

ADVICE FOR FIREFIGHTERS: Shut off source. Water spray should be used to cool fir-exposed structures and vessels. Water spray can be used to reduce the intensity of flames and to dilute spills to a non-flammable mixture. Oxidizing chemicals may accelerate the burning rate in a fire situation. Wear NIOSH approved self-contained breathing apparatus and protective clothing. Thoroughly decontaminate bunker gear and other fire-fighting equipment before re-use.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep containers tightly closed. This material may produce a floating fire hazard in extreme fire conditions. Burning can produce Carbon Monoxide and Carbon Dioxide. Carbon Monoxide is highly toxic if inhaled.

Sensitivity to Mechanical Impact: No

Sensitivity to Static Discharge: No

HAZARDOUS COMBUSTION PRODUCTS: Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTIVE MEASURES: Eliminate ignition sources in the vicinity of the spill or released vapor. Immediately evacuate all nonessential people. Verify that responders are properly trained and wearing appropriate respiratory equipment and fire resistant protective clothing during cleanup operations.

METHODS FOR CONTAINMENT AND CLEAN UP: Use explosion proof equipment. Shut off valves, contain spill, keep out of water sources and sewers, for smaller spills add non-flammable absorbent such as clay or silica in spill area. For large spills use foam on spill to minimize vapors clean up by vacuuming then using non-flammable absorbent. Remove contaminated soil to remove contaminated trace residues. Place all saturated absorbent, using non-sparking tools, in an approved container for disposal. Flush with water to remove trace residue. Minimize breathing vapors and skin contact, ventilate confined areas, open all windows and doors, assure conformity with applicable government regulations. Keep all nonessential people away.

7. HANDLING AND STORAGE

PERSONAL PRECAUTIONARY MEASURES: Liquid evaporates and forms vapor (fumes), which can catch fire and burn. Invisible vapor spreads easily and can be set on fire by many sources, such as pilot lights, welding equipment, and electrical motors and switches. Vapor is heavier than air and can travel considerable distance to a source of ignition and flash back. Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not take internally.
HANDLING INFORMATION: Avoid work practices that may release volatile components in the atmosphere. Avoid contaminating soil or releasing material into sewage and drainage systems. Use non-sparking tools to open or close containers. Do not take internally.

CONDITIONS FOR SAFE STORAGE: Follow maximum allowed pile heights specified in the BOCA codes or the NFPA manual. Local fire authorities should be notified for storage of this material in any quantity. Local permits are required for storage in warehouse quantities. Do not store above 120°F. Store large quantities only in buildings designed to comply with OSHA 1910.106. Keep containers tight and upright to prevent leakage. Keep containers closed when not in use. Do not store with incompatible materials. Store under inert gas. Hygroscopic.

CONTAINER WARNINGS: Containers should be Bonded and Grounded when pouring. Avoid free fall of liquid in excess of a few inches. Empty containers release residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, or expose such containers to heat, sparks, static electricity or other sources of ignition. Do not attempt to clean. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum re-conditioner. Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Use non-sparking tools to open or close containers.

8. EXPOSURE CONTROL (PERSONAL PROTECTION)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No.</th>
<th>% by WT.</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Range</td>
<td></td>
</tr>
<tr>
<td>Hexylene Glycol</td>
<td>107-41-5</td>
<td>99</td>
<td>25ppm TLV(ACGIH)</td>
</tr>
<tr>
<td></td>
<td>EC-No.203-489-0</td>
<td></td>
<td>25ppm CEIL(OSHA)</td>
</tr>
<tr>
<td></td>
<td>Index-No.603-053-00-3</td>
<td></td>
<td>(Ceiling)</td>
</tr>
</tbody>
</table>

Key: (PEL) = Permissible Exposure Limit OSHA
(TLV) = Threshold Limit Value OSHA & ACGIH
(STEL) = Short Term Exposure Limit ACGIH
(WEEL) = USA. Workplace Environmental Exposure Levels
(TWA) = Time Weighted Average
EXPOSURE GUIDELINES: Consider the potential hazards of this material (Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended.

ENGINEERING CONTROLS: Provide general dilution or local exhaust ventilation in volume and pattern to keep concentrations within permitted exposure limits. All areas should be ventilated in accordance with OSHA Regulation 29 CFR Part 1910. Explosion proof motors should be used in mechanical ventilation.

RESPIRATORY PROTECTION: For vapor concentrations 1 to 10 times ACGIH TLV an air purifying NIOSH/MSHA Approved respirator with full face-piece and organic vapor cartridges. For concentrations over 10 times ACGIH TLV, in confined areas, and/or where vapor concentrations are unknown use an approved positive pressure full face-piece supplied air respirator.

BODY CLOTHING: Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged contact with this substance. Use chemical resistant apron or other impervious clothing. Remove and wash contaminated clothing before reuse.

SKIN PROTECTION: Employee must wear appropriate protective gloves to prevent contact with this substance. Rubber or neoprene chemical resistant gloves.

EYE/FACE PROTECTION: Use safety eyewear with splash guards or face shield. Emergency shower and eyewash should be easily accessible to the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE, COLOR AND ODOR: Hexylene Glycol is a clear colorless liquid with a mild sweetish odor.

ODOR THRESHOLD: No data available
pH: 6.0 - 8.0 at 118.2 g/l at 25 °C (77 °F)
MOLECULAR WEIGHT: 118.17 amu
MELTING POINT: -40 °C (-144 °F)
BOILING POINT: 197 °C (387 °F)
SPECIFIC GRAVITY: 0.925@25°C
DENSITY (25°C): 0.925 g/ml@25°C
VAPOR PRESSURE: 0.02 mm Hg @ 20°C (68.0°F)
VAPOR DENSITY: 4.08
WATER SOLUBILITY: 118.2 g/l at 20 °C (68 °F)
PARTITION COEFFICIENT N-
log Pow: -0.14
OCTANOL/WATER

FLASH POINT: 94 °C (201 °F) - closed cup
EVAPORATION RATE (BUTYL ACETATE=1): 0.003
UPPER FLAMMABILITY LIMIT: 7.4% (V)
LOWER FLAMMABILITY LIMIT: 1.3% (V)
AUTO IGNITION TEMPERATURE: 583°F
DECOMPOSITION TEMPERATURE: No data available
VISCOSITY: No data available
EXPLOSIVE PROPERTIES: No data available
OXIDIZING PROPERTIES: No data available
OTHER INFORMATION: No data available

10. STABILITY AND REACTIVITY INFORMATION

CHEMICAL STABILITY: Unstable ( ) Stable ( X )

POSSIBILITY OF HAZARDOUS REACTIONS: No data available.

CONDITIONS TO AVOID: Heat, Sparks, Pilot Lights, Static Electricity, and Open Flame.

INCOMPATIBLE MATERIALS: Strong oxidants such as liquid chlorine, oxygen, sodium hypochlorite, inorganic acids e.g. Nitric Acid, peroxides, perchloric acid, or chromium trioxide. Keep away from sulfuric acid, phosphoric acid and other dehydrating agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Fumes, Smoke, Carbon Monoxide, Aldehydes and other decomposition products where combustion is not complete.

HAZARDOUS DECOMPOSITION PRODUCTS: May occur ( ) Will not occur ( X )

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation---> x Skin---> x Ingestion---> x

ACUTE HEALTH EFFECTS:

Effects of overexposure:

Eye> Moderate to severe irritation; Symptoms are eye irritation, burning sensation, pain, watering and/or change of vision.

Skin> Mildly irritating; Symptoms are drying, cracking or inflammation.

Inhalation> Irritation of the respiratory tract or acute nervous system depression characterized by headache, dizziness, staggering gait, confusion, unconsciousness or coma. Nasal discharge, hoarseness, coughing, chest pain and breathing difficulty.
Ingestion> May be harmful if swallowed. Symptoms may include Nausea, vomiting, loss of appetite, gastrointestinal irritation and/or diarrhea. May cause inflammation of mouth, throat, esophagus and/or stomach. May cause central nervous system depression.

Chronic: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Typical symptoms are cardiovascular disorders, sweetish taste in the mouth, nausea, vomiting, loss of appetite, strong thirst, burning of eyes and bleeding from the nose.

Target Organ effects: Overexposure may cause; CNS Depression, Irritation of the Respiratory Tract, Digestive tract and locally at site of exposure.

Medical Conditions Aggravated by Exposure> Skin contact may aggravate chronic disease of the respiratory tract and existing dermatitis.

ACUTE TOXICITY:

The effects of overexposure shown in Section II are based on acute toxicity profiles. Typical values are:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Oral LD50(Rat)</th>
<th>Skin LD50(Rabbit)</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexylene Glycol</td>
<td>3700mg/kg</td>
<td>7892mg/kg</td>
<td>&gt;0.31mg/L/1hr</td>
</tr>
</tbody>
</table>

MUTAGENIC EFFECTS: Does not show mutagenic potential in most in vitro tests. The NOEL was 150mg/kg/day.

CARCINOGEN STATUS: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, OSHA and ACGIH.

REPRODUCTIVE TOXICITY: No evidence of reproductive effects.

Specific target organ toxicity (STOT-SE) - single exposure (Globally Harmonized System): no data available
Specific target organ toxicity (STOT-RE) - repeated exposure (Globally Harmonized System): no data available
ASPIRATION HAZARD: No data available

ADDITIONAL DATA: No data available
RTECS: SA0810000

12. **ECOLOGICAL INFORMATION**

**AQUATIC TOXICITY:** Hexylene Glycol exhibits low acute toxicity to aquatic species.
EC50 5-minute Bacteria (Photobacterium phosphoreum) 3070ppm
LC50 48-hour Aquatic Invertebrates (Daphnia magna) 5410-8700ppm
LC50 96-hour Fish (Salmo gairdneri) 9450ppm
LC50 96-hour Fish (Leopornis macrochirus) 12800ppm
LC50 96-hour Fish (Carassius auratus) 12000ppm

**WATERFOWL TOXICITY:** No data available

**PERSISTANCE AND DEGRADABILITY:** Degradation: Hexylene Glycol was readily biodegradable in the MITI test.

**BIOACCUMULATION:** The log n-octanol/water partition coefficient was <0.14. This suggests a low potential to bioaccumulate.

**BIOCONCENTRATION FACTOR (BCF):** No data available.

**FOOD CHAIN CONCENTRATION POTENTIAL:** None noted

13. **DISPOSAL CONSIDERATIONS**

**WASTE TREATMENT METHODS:** Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly it is the responsibility of the user to determine the proper storage, transportation, treatment and or disposal methodologies for spent materials and residues at time of disposition. Dispose in accordance with all applicable disposal regulations. You may incinerate under controlled conditions in a permitted facility.

**CONTAMINATED PACKAGING:** Dispose of as unused product.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. **TRANSPORT INFORMATION**

USDOT Shipping Name----------> Hexylene Glycol
USDOT Hazard Classification----> Not DOT Regulated
USDOT Label Codes-------------> N/A
USDOT ID Number---------------> N/A
USDOT Package Code-------------> N/A
Emergency response Guide-----> N/A
Marine Pollutant-------------------> No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA TITLE III (Superfund Amendment and Reauthorization Act)

SECTION 302 AND 304: Extremely Hazardous Substance List (40 CFR 355)- Not Listed
SECTION 313: Toxic Chemicals Listing (40 CFR 372.65)- Not Listed
SECTION 311/312: Hazard Categorization (40 CFR 370)- Acute Health, Chronic Health

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)

SECTION 102(A) Hazardous Substances (40 CFR 302.4)- Not Listed
Reportable Quantity – None
SECTION 101(14) Reportable Quantity: None

Massachusetts Right To Know Components
2-Methylpentane-2,4-diol CAS-No.107-41-5

Pennsylvania Right To Know Components
2-Methylpentane-2,4-diol CAS-No.107-41-5

New Jersey Right To Know Components
2-Methylpentane-2,4-diol CAS-No.107-41-5

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

TSCA (Toxic Substance Control Act)

2-Methylpentane-2,4-diol CAS-No.107-41-5 is listed on the TSCA Inventory.
16. OTHER INFORMATION:

Hazard Rating:
   4-Extreme
   3-High
   2-Moderate
   1-Slight
   0-Insiginificant

NFPA RATINGS (SCALE 0-4): Health=2 Fire=1 Reactivity=0
HMIS RATINGS (SCALE 0-4): Health=2 Fire=1 Reactivity=0 PPE=G

Date of preparation-------> February 24, 2005
Revision Number-----------> 1.4
Revision Date-------------> January 27, 2015
Prepared by---------------> T.G. Fenstemaker, Jr.

Acronyms:
ACGIH - American Conference of Governmental Industrial Hygenists
AIHA - American Industrial Hygiene Association
ANSI - American Nation Standards Institute
API - American Petroleum Institute
CERCLA - Comprehensive Emergency Response, Compensation, and Liability Act
DOT - U.S. Department of Transportation
EPA - U.S. Environmental Protection Agency
HMIS - Hazardous Materials Information System
IARC - International Agency For Research On Cancer
MSHA - Mine Safety and Health Administration
NFPA - National Fire Protection Association
NIOSH - National Institute of Occupational Safety and Health
NOIC - Notice of Intended Change (Proposed change to ACGIH TLV)
NTP - National Toxicology Program
OPA - Oil Pollution Act of 1990
OSHA - U.S. Occupational Safety & Health Administration
PEL - Permissible Exposure Limit (OSHA)
RCRA - Resource Conservation and Recovery Act
REL - Recommended Exposure Limit (NIOSH)
SARA - Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA - Self-Contained Breathing Apparatus
STEL - Short-Term Exposure Limit (generally 15 minutes)
TLV - Threshold Limit Value
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average (8hr.)
WHMIS - Canadian Workplace Hazardous Materials Information System

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