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

1. PRODUCT IDENTIFIER

1.1 PRODUCT NAME:----------> Hexane (All Grades)
MIXTURE OF ISOMERS
PRODUCT NUMBER(S)----------> 175300, 175310

TRADE NAMES/SYNONYMS----> Mixture of n-Hexane and Hexane isomers

CAS-No: 110-54-3 CHEMICAL FAMILY: Aliphatic Hydrocarbon

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST
RECOMMENDED USE: Manufacture of substances. Laboratory chemicals.
USES ADVISED AGAINST: No information available

1.3 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

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

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Reproductive toxicity (Category 2), H361f
Specific target organ toxicity - single exposure (Category 3), Central Nervous system, H336
Specific target organ toxicity - repeated exposure, Oral (Category 2), H373
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

2.2 GHS Label elements, including precautionary statements

Pictogram

GHS02 GHS08 GHS07 GHS09

Signal word: DANGER

Hazard statement(s)
H225 Highly flammable liquid and vapor.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H361f Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
Prevention:
P201 Obtain special instructions before use.
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 dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P321 Specific treatment (see supplemental first aid instructions on this label).
P331 Do NOT induce vomiting.
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.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391 Collect spillage.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

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

3. INGREDIENTS

3.2 MIXTURE:

Ingredient	CAS No.	% by WT. Range	CLASSIFICATION
n-Hexane	110-54-3 EC-No.203-777-6 Index-No.601-037-00-0	40-6	Flammable liquids (Category 2), H225 Skin irritation (Category 2), H315 Eye irritation (Category 2A), H319 Reproductive toxicity (Category 2), H361f STOT-SE (Category 3) Central nervous system, H336 STOT-RE (Category 2), oral, H373 Aspiration hazard (Category 1), H304 Acute aquatic toxicity (Category 2), H401 Chronic aquatic toxicity (Category 2), H411
other Hexane isomers	varies	40-60	Flammable liquids (Category 2), H226 Skin irritation (Category 2), H315 Reproductive toxicity (Category 2), H361 STOT-SE (Category 3) Central Nervous system, H336 STOT-RE (Category 2), Inhalation, H373 Aspiration hazard (Category 1), H304 Acute aquatic toxicity (Category 2), H401 Chronic aquatic toxicity (Category 2), H411

Methylcyclopentane 96-37-7 EC-No.202-503-2	**5-20**	**Flammable liquids (Category 2), H225 Acute toxicity, Oral (Category 4), H302 Skin irritation (Category 2), H315 Eye irritation (Category 2A), H319 STOT-SE (Category 3), Respiratory System, H335 Aspiration hazard (Category 1), H304**
Heptane all isomers mixture	**1-3**	
Cyclopentane 287-92-3 EC-No.206-016-6 Index-No.601-030-00-2	**1-3**	**Flammable liquids (Category 2),H225 Acute aquatic toxicity (Category 3), H402 Chronic aquatic toxicity (Category 3), H412**
Cyclohexane 110-82-7 EC-No.203-806-2 Index-No.601-017-00-1	**0-2**	**Flammable liquids (Category 2), H225 Skin irritation (Category 2), H315 STOT-SE (Category 3), Central Nervous System, H336 Aspiration hazard (Category 1), H304 Acute aquatic toxicity (Category 1), H400**

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4. FIRST-AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:

INHALATION: HEXANES

***FIRST AID*- Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.**

SKIN CONTACT: HEXANES

***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). Do not use ointments. Get medical attention immediately.**

EYE CONTACT: HEXANES

***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. Get medical attention immediately.**

INGESTION: HEXANES

***FIRST AID*- Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. If victim is drowsy or unconscious, place on the left side with head down.**
Immediately consult a physician or poison control center, treat symptomatically.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED
INGESTION:
Eye: Transient mild irritation including stinging, watering and redness;
Skin: Irritating including redness, burning and drying. The degree of irritation depends on the amount of material applied to skin and the time until it is removed.
Inhalation: Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs.
Ingestion: If swallowed, this material may irritate the mucous membranes of the mouth, throat and esophagus. It can be readily absorbed by the stomach and intestinal tract. Symptoms are burning sensation of mouth and esophagus.
Chronic: 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. Damage may occur to the kidney, liver, skin, respiratory system and central nervous system.
Medical Conditions Aggravated by Exposure: Skin contact may aggravate an existing dermatitis and people with chronic respiratory conditions. Significant exposure may adversely affect people with pre-existing heart disorders making them more susceptible to irregular heartbeats.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:
Note to physicians: Exposure to high concentrations of this material may be associated with cardiac arrhythmias. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias. Other drugs with less arrhythmogenic potential should be considered.

5. FIRE FIGHTING MEASURES

Flash Point: -23 °C (-9 °F) - closed cup **LEL %:1.2 (V)**
Auto-ignition: 225°C (437°F) **UEL %:7.7 (V)**
UNIFORM FIRE CODE: Class 1-B

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

Unsuitable extinguishing media: Do not use waterjet.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE: FIRE AND EXPLOSION HAZARD: DANGEROUS FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK. VAPOR-AIR MIXTURES ARE EXPLOSIVE.

Keep containers tightly closed. Flammable liquid; isolate from all sources of ignition. Closed containers may explode when exposed to extreme heat. Liquid floats on water.

CONDITIONS OF FLAMMABILITY: Flammable in the presence of a source of ignition when the temperature is above the flash point.

HAZARDOUS COMBUSTION PRODUCTS: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, carbon oxides and other unidentified organic compounds evolve when this material undergoes combustion.

5.3 ADVICE FOR FIREFIGHTERS: Keep unnecessary people away; isolate hazard area and deny entry. Avoid breathing vapors, stay upwind. Do not enter fire area without structural fire fighter's protective equipment including NIOSH approved self contained breathing apparatus in positive pressure mode. Use water spray to knock down vapors. Use halon, carbon dioxide extinguisher or dry powder for small fires. Large fires are best controlled by alcohol foam, fog, and water spray. Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire (1990 Emergency Response Guidebook, DOT P 1800.5, guide page 26). Extinguish only if fire can be stopped. Use flooding amounts of water as a fog; solid streams may be ineffective. Cool containers with flooding amounts of water from as far a distance as possible. Avoid breathing vapors; keep upwind. If fire is uncontrollable or containers are exposed to direct flame, water may be ineffective (NFPA 325M, Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids, 1991). Fire fighters should wear full protective clothing and NIOSH approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. Do Not Use: Water in straight hose stream will scatter and spread fire and should not be used.**

Shut off source. Water fog may be used to cool closed containers to prevent pressure build up and possible auto ignition or explosion when exposed to extreme heat. Wear self-contained breathing apparatus for confined spaces and where there is exposure to vapors. Use full fire-fighting protective clothing.

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Extremely Flammable; 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.

6.2 ENVIRONMENTAL PRECAUTIONS:
Keep out of water sources and sewers. Do not flush into surface water or sanitary sewer system

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:
Methods for cleanup and containment:
Use explosion proof equipment. Shut off valves, contain spill, for small spills add non-flammable absorbent in spill area. For large spills use foam on spill to minimize vapors clean up by vacuuming then using non-flammable absorbent.
Methods for disposal:
Place all saturated absorbent, using non-sparking tools, in an approved container for disposal. Minimize breathing vapors and skin contact, ventilate confined areas, open all windows and doors, assure conformity with applicable government regulations.

REPORTABLE QUANTITY (RQ):
n-Hexane - 5000lb/2270kg, Cyclohexane - 1000lbs, Benzene - 10lbs.
The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local Emergency Planning Committee and the State Emergency Response Commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the National Response Center must be notified immediately at (800) 424-8802 or (202) 426-2675 in the metropolitan Washington, D.C. area (40 CFR 302.6).

6.4 REFERENCE TO OTHER SECTIONS: See Sections 8 and 13.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING: This material presents a fire hazard. Liquid quickly evaporates and forms vapor (fumes), which can catch fire and burn with explosive violence. 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. 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.

STATIC HAZARD: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not be sufficient. For more information refer to OSHA Standard 29CFR 1910.106 "Flammable and Combustible Liquids" and National Fire Protection Association (NFPA 77) "Recommended Practice on Static Electricity".

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES: 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. A refrigerated room is preferable for materials with a flash point temperature lower than 70°F. Store large quantities only in cool, dry areas in buildings designed to comply with OSHA 1910.106. Keep containers tight and upright to prevent leakage. Do not contact with oxidizing materials. Keep containers closed when not in use. Do not take internally.

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.

7.3 SPECIFIC END USES: Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROL (PERSONAL PROTECTION)

8.1 CONTROL PARAMETERS:

Ingredient	CAS No.	% by WT. Range	Exposure Limits
n-Hexane	110-54-3	40-6	50ppm TWA (ACGIH)
	EC-No.203-777-6		50ppm TWA (OSHA)
	Index-No.601-037-00-0		1100ppm (IDLH)
other Hexane isomers	varies	40-60	500ppm (ACGIH)
			1000ppm (STEL)

Methylcyclopentane 96-37-7 EC-No.202-503-2	5-20	N.E.
Heptane all isomers mixture	1-3	400ppm (ACGIH) 500ppm (STEL)
Cyclopentane 287-92-3 EC-No.206-016-6 Index-No.601-030-00-2	1-3	600ppm (ACGIH)
Cyclohexane 110-82-7 EC-No.203-806-2 Index-No.601-017-00-1	0-2	100ppm (ACGIH) 300ppm (OSHA)

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
CAS = Chemical Abstracts Registry Number
IDLH = Immediate Danger to Life and Health
N.E. =None Established

8.2 EXPOSURE CONTROLS

EXPOSURE GUIDELINES: Consider the potential hazards of this material (Section 3), 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: The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA): For known vapor concentrations use a NIOSH/MSHA air purifying respirator with full face-piece and organic vapor cartridge for exposures >1 <10 times ACGIH TWA. For exposures greater than 10 times ACGIH TWA of for unknown vapor concentrations use positive pressure self contained breathing apparatus with full face-piece.
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.
Full contact Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Splash contact Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 59 min
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

HYGIENE: Use good personal hygiene practices, wash hands before eating, drinking, smoking or using toilet facilities.

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

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

Hexanes

APPEARANCE:	**Clear liquid**
COLOR:	**Colorless**
ODOR:	**Characteristic hydrocarbon odor**
ODOR THRESHOLD:	**No data available**
pH:	**No Data Available**
MOLECULAR WEIGHT:	**86.18 amu**
MELTING POINT:	**-95°C (-139°F)**
BOILING POINT:	**68 - 70°C (154 - 158°F)**
SPECIFIC GRAVITY:	**0.675**
DENSITY (25°C):	**0.672 g/ml (25°C)**
VAPOR PRESSURE:	**140mmHg @ 20°C (68.0°F)**
VAPOR DENSITY:	**3.0**
WATER SOLUBILITY:	**Negligible**
PARTITION COEFFICIENT N-OCTANOL/WATER	**No data available**
FLASH POINT:	**-23°C (-9°F) - closed cup**
EVAPORATION RATE (BUTYL ACETATE=1):	**No data available**
UPPER FLAMMABILITY LIMIT:	**7.5% (V)**
LOWER FLAMMABILITY LIMIT:	**1.2% (V)**
AUTO INGNITION TEMPERATURE:	**225°C (437°F)**
DECOMPOSITION TEMPERATURE:	**No data available**
VISCOSITY:	**0.51cSt**
EXPLOSIVE PROPERTIES:	**No data available**
OXIDIZING PROPERTIES:	**No data available**

9.2 OTHER INFORMATION:

Bulk Density	**5.62lbs/gal.**

10. STABILITY AND REACTIVITY INFORMATION

10.1 REACTIVITY: No data available.

10.2 CHEMICAL STABILITY: Unstable ( ) Stable (X)

10.3 POSSIBILITY OF HAZARDOUS REACTIONS: Vapors may form explosive mixtures with air.

HAZARDOUS POLYMERIZATION: May occur ( ) Will not occur (X)

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

10.5 INCOMPATIBLE MATERIALS: Strong oxidants such as caustic soda, liquid chlorine, oxygen, sodium hypochlorite, inorganic acids e.g. hydrochloric acid hydrogen peroxide. Copper or copper alloys.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS: Fumes, Smoke, Carbon Monoxide and Carbon Dioxide.

11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:

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

ACUTE HEALTH EFFECTS:

Effects of overexposure:

Eye> Transient mild irritation including stinging, watering and redness;

Skin> Irritating including redness, burning and drying. The degree of irritation depends on the amount of material applied to skin and the time until it is removed.

Inhalation> Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs.

Ingestion> If swallowed, this material may irritate the mucous membranes of the mouth, throat and esophagus. It can be readily absorbed by the stomach and intestinal tract. Symptoms are burning sensation of mouth and esophagus.

Chronic: 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. Damage may occur to the kidney, liver, skin, respiratory system and central nervous system.

Medical Conditions Aggravated by Exposure> Skin contact may aggravate an existing dermatitis and people with chronic respiratory conditions. Significant exposure may adversely affect people with pre-existing heart disorders making them more susceptible to irregular heartbeats.

ACUTE TOXICITY:

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

Ingredient	Oral LD50 (Rat)	Skin LD50(Rabbit)	Inhalation LC50
n-Hexane	25000mg/kg	3.16g/kg	48000ppm/4hr
Methylcyclopentane	N.D.	N.D.	N.D.
Cyclopentane	N.D.	N.D,	N.D.
Cyclohexane	12705mg/kg	>2000mg/kg	34000mg/l/4hr

n-Hexane

SKIN CORROSION/IRRITATION: Irritating to skin
SERIOUS EYE DAMAGE/EYE IRRITATION: Irritating to eyes.
RESPIRATORY OR SKIN SENSITIZATION: Not a sensitizer in humans or animals.
MUTAGENIC EFFECTS: In vitro mammalian cell gene mutation test Mouse lymphoma test Result: Positive results were obtained in some in vitro tests
Ames test Salmonella typhimurium Result: negative
Result: negative (National Toxicology Program)
CARCINOGEN STATUS:
IARC: 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: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
REPRODUCTIVE TOXICITY:
Suspected of damaging the unborn child.
Suspected of damaging fertility.
Specific target organ toxicity (STOT-SE) - single exposure (Globally Harmonized System): May cause drowsiness or dizziness. - Central nervous system
Specific target organ toxicity (STOT-RE) - repeated exposure (Globally Harmonized System): Inhalation - May cause damage to organs through prolonged or repeated exposure. - Nervous system
ASPIRATION HAZARD: Aspiration hazard, Aspiration may cause pulmonary edema and pneumonitis.
11.2 ADDITIONAL DATA: The neurotoxic properties of n-Hexane are potentiated by exposure to methyl ethyl ketone and methyl isobutyl ketone.
Prolonged exposure to high concentrations of n-Hexane (>1000ppm) has resulted in decreased sperm count and degenerative changes in the testes of rats but not of mice.

Methylcyclopentane:
SKIN CORROSION/IRRITATION: No data available
SERIOUS EYE DAMAGE/EYE IRRITATION: No data available
RESPIRATORY OR SKIN SENSITIZATION: No data available
MUTAGENIC EFFECTS: Germ cell mutagenicity No data available
CARCINOGENICITY:
IARC: 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.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
REPRODUCTIVE TOXICITY: No data available
Specific target organ toxicity - single exposure Inhalation - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure No data available
ASPIRATION HAZARD: The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard

Cyclohexane can cause eye, skin and mucous membrane irritation.
In experimental animals exposed to lethal concentrations by inhalation or oral route, there was generalized vascular damage and severe degenerative changes in the heart, lings, liver kidneys and brain.

12. ECOLOGICAL INFORMATION

DANGEROUS TO AQUATIC LIFE IN HIGH CONCENTRATIONS
May be dangerous if it enters water intakes.
Notify local health and pollution control officials.
Notify operators of nearby water intakes.
This mixture contains components that are potentially toxic to freshwater and saltwater ecosystems.

n-Hexane
12.1 AQUATIC TOXICITY (Acute):
Toxicity to fish:
LC50 - Pimephales promelas (fathead minnow) - 2.5 mg/l - 96.0 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 - Daphnia magna (Water flea) - 3,878.00 mg/l - 48 h

Toxicity to algae:
EC50 - Chlorella vulgaris (Fresh water algae)-12,840.00 mg/l - 3 h
EC50 - SKELETOMA - 0.30 mg/l - 8 h

12.2 PERSISTANCE AND DEGRADABILITY:
Environmental Fate: This mixture will normally float on water with its lighter components evaporating rapidly. In stagnant or slow flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this covering layer might limit natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway might be enough to cause a fish kill or create an anaerobic environment. This coating action can also be harmful or fatal to plankton, algae, aquatic life, and water birds.

12.3 BIOACCUMULATIVE POTENTIAL: No data available

12.4 MOBILITY IN SOIL: This material is highly volatile and will rapidly partition to air. It is not expected to partition to soil or wastewater solids.

12.5 RESULTS OF PBT AND vPvT : No data available.

12.6 OTHER ADVERSE EFFECTS: Toxic to aquatic life with long lasting effects.

Methylcyclopentane:
12.1 AQUATIC TOXICITY: No data available
12.2 PERSISTANCE AND DEGRADABILITY: No data available
12.3 BIOACCUMULATIVE POTENTIAL: No data available
12.4 MOBILITY IN SOIL: No data available
12.5 RESULTS OF PBT AND vPvT : Assessment PBT/vPvT assessment not available as chemical safety assessment not required/not conducted.
12.6 OTHER ADVERSE EFFECTS: No data available

13. DISPOSAL CONSIDERATIONS

13.1 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. 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.

RCRA: The unused product is a RCRA hazardous waste if discarded. The RCRA ID number is: D001
If the waste is a spent solvent, the appropriate spent solvent code should be used.
DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 48 CFR 262

14. TRANSPORT INFORMATION

Land Transport (DOT)
14.1 USDOT ID Number----------> UN1208
14.2 USDOT Shipping Name----------> Hexanes
14.3 USDOT Hazard Classification-------> 3 (Flammable Liquid)
Label Code----------> 3
14.4 USDOT Package Code----------> II
14.5 Marine Pollutant----------> No
14.6 Special precautions for user--------> Yes
Emergency Response Guide--------> 128
Reportable quantity----------> 5000lb. – n-Hexane

Sea Transport (IMDG)
14.1 ID Number----------> UN1208
14.2 Proper shipping name----------> Hexanes
14.3 Hazard Classification----------> 3 (Flammable Liquid)
Label Codes----------> 3
14.4 Package Code----------> II
14.5 Marine Pollutant----------> No
14.6 Special precautions for user----------> Yes
EMS-Number----------> F-E, S-D

Air Transport (IATA)
14.1 ID Number----------> UN1208
14.2 Proper shipping name----------> Hexanes
14.3 Hazard Classification----------> 3 (Flammable Liquid)
Label Codes----------> 3
14.4 Package Code----------> II
14.5 Environmental hazard----------> None
14.6 Special precautions for user----------> Yes
Quantity Limitations:
Cargo Aircraft----------> 220L
Passenger Aircraft----------> 60L

15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE:

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) - Listed; N-Hexane CAS 110-54-3, Cyclohexane CAS 110-82-7
SECTION 311/312: Hazard Categorization (40 CFR 370) - Acute Health Hazard, Chronic Health Hazard, Fire Hazard.

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

SECTION 102(A) Hazardous Substances (40 CFR 302.4) - Listed Reportable Quantity - n-Hexane - 5000lb/2270kg, Cyclohexane - 1000lbs, Benzene - 10lbs.

SECTION 101(14) Reportable Quantity: n-Hexane - 5000lb/2270kg. CERCLA Cyclohexane - 1000lbs, Benzene - 10lbs.

Massachusetts Right to Know Components

Methylcyclopentane	**CAS-No.96-37-7**
n-Hexane	**CAS-No.110-54-3**
Cyclohexane	**CAS-No.110-82-7**
Cyclopentane	**CAS-No.287-92-3**

Pennsylvania Right to Know Components

Methylcyclopentane	**CAS-No.96-37-7**
n-Hexane	**CAS-No.110-54-3**
Hexanes, isomers -	
Cyclohexane	**CAS-No.110-82-7**
Cyclopentane	**CAS-No.287-92-3**

New Jersey Right to Know Components

Methylcyclopentane	**CAS-No.96-37-7**
n-Hexane	**CAS-No.110-54-3**
Hexanes, isomers -	
Cyclohexane	**CAS-No.110-82-7**
Cyclopentane	**CAS-No.287-92-3**

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)

Methylcyclopentane	**CAS-No.96-37-7**	
n-Hexane	**CAS-No.110-54-3**	
Cyclohexane	**CAS-No.110-82-7**	
Cyclopentane	**CAS-No.287-92-3**	**are listed on the TSCA Inventory.**

15.2 CHEMICAL SAFETY ASSESSMENT: A chemical safety assessment has not been carried out for this substance.

16. OTHER INFORMATION:

HMIS (Hazardous Materials Identification System)
Hazard Rating:

4-Extreme
3-High
2-Moderate
1-Slight
0-Insignificant

NFPA RATINGS (SCALE 0-4): Health=2 Fire=3 Reactivity=0
HMIS RATINGS(SCALE 0-4): Health=2 Fire=3 Reactivity=0 PPE=G

Hazard statement(s) from Section 2 and 3:
H225 Highly flammable liquid and vapor.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H361f Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

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Prepared by----------> T.G. Fenstermaker 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
EC-50 - Effective Concentration
EPA - U.S. Environmental Protection Agency
HMIS - Hazardous Materials Information System
IARC - International Agency For Research On Cancer
LD-50 - Lethal Dose
MAK - Germany Maximum Concentration Values
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