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## 1. PRODUCT IDENTIFICATION

**Name:** *Hexane*

**Synonyms:** *normal hexane, n-hexane & (rarely used) hexyl hydride*

**CAS#** 110-54-3

**Product Uses:** *Fast evaporating solvent – oil extraction from oilseed, rubber cement, reagent, gasoline component.*

**Supplier** *Megaloid Laboratories Limited*  
**Identifier:** *5515 North Service Road, Suite 306  
Burlington, Ontario, Canada  
L7L 6G4  
Phone: 905-337-7411 / Fax: 905-337-1686*

**EMERGENCY INFORMATION** Call CHEMTREC - (800) 424-9300 (CCN # 693764)

## 2. HAZARDS

<b>GHS Class</b> <i>(category)</i>	<b>Flammable</b> <i>(2)</i>	<b>Aspiration</b> <i>(1)</i>	<b>STOT</b> <i>(3)</i>	
<b>Signal Words</b>	<b>DANGER</b>			
<b>Hazard Statements</b>	<i>highly flammable liquid &amp; vapour (H225)</i>	<i>May be fatal if swallowed &amp; enters airways (H304)</i>	<i>May cause dizziness or drowsiness (H336)</i>	

### GHS Precautionary Statements for Labelling

#### Prevention

- P210** Keep away from heat, sparks, open flames and hot surfaces. No smoking.
- P240** Ground or bond container and receiving equipment.
- P241** Use explosion-proof electrical, ventilating and lighting equipment.
- P242** Use only non-sparking tools.
- P243** Take precautionary measures against static discharge.
- P270** Do not eat, drink or smoke when using this product.
- P280** Wear eye protection, protective gloves and clothing of butyl rubber

#### Response

<b>P313, P333</b>	If skin irritation or rash occurs, get medical advice/attention.
<b>P301, P310</b>	IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
<b>P303, P361, P353</b>	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
<b>P304, P340</b>	If inhaled remove person to fresh air and keep comfortable for breathing.
<b>P331</b>	Do NOT induce vomiting.
<b>Storage</b>	
<b>P403 + P233</b>	Store in a well-ventilated place. Keep container tightly closed.
<b>Disposal</b>	
<b>P501</b>	Dispose of contents and container in accordance with local, regional, national and international regulations.

### 3. COMPOSITION

Chemical Name:	CAS No.	%	Other Identifiers
<i>n</i> -Hexane	110-54-3	100	EC # 203-777-6

### 4. FIRST AID

#### Inhalation

*Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.*

#### Skin Contact

*Evaporates rapidly. If necessary, wash with plenty of water. For pure hexane, remove clothing & allow drying. If hexane is contaminated with other substances, remove wet clothing. Do not reuse until cleaned.*

#### Eye Contact

*Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical advice or attention.*

#### Ingestion

*Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.*

#### **First-aid Comments**

*Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.*

### 5. FIRE FIGHTING & FLAMMABILITY

#### Extinguishing Media

##### **Suitable Extinguishing Media**

*CO<sub>2</sub>, foam, dry chemical, water fog or spray only to cool, product floats on water – water jet spreads flames.*

##### **Unsuitable Extinguishing Media**

*Do not use water jet - spreads fire.*

#### Specific Hazards Arising from the Product

Can accumulate static charge by flow, splashing or agitation. *Ignites readily with static discharge*

## Special Protective Equipment and Precautions for Fire-fighters

*Fight fire from a safe distance or a protected location. Firefighters must wear SCBA. Fire-fighters should enter area wearing specialized protective equipment, (Bunker Gear will not provide adequate protection.), and chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.*

## 6. ACCIDENTAL RELEASE MEASURES

### **Serious Fire Potential:**

*blanket spill with foam as a precaution against accidental ignition. Take extreme care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.*

### **Personal Precautions, Protective Equipment, and Emergency Procedures**

*Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Eliminate all ignition sources. Use grounded, explosion-proof equipment. Increase ventilation to area or move leaking container to a well-ventilated and secure area.*

### **Environmental Precautions**

*If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.*

### **Methods and Materials for Containment and Cleaning Up**

*Small spills or leaks: stop or reduce leak if safe to do so. Contain and soak up spill with absorbent that does not react with spilled product. Large spills or leaks: dike spilled product to prevent runoff. Handling Spill: Ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using plastic or aluminum shovel, & store in closed containers for recycling or disposal.*

### **Other Information**

*Report spills to local health, safety and environmental authorities, as required.*

## 7. HANDLING & STORAGE

### **Precautions for Safe Handling**

*Use non-sparking bronze or aluminium hand tools. All electrical and mechanical equipment (including lighting, switchgear and forklift trucks) used with or around this product must be explosion-proof. Avoid breathing in this product. Do not get in eyes, on skin or on clothing. Always ground or electrically bond the source container, receiving container & pump before transferring contents. Avoid splashing by ensuring that the product nozzle is below the surface in the receiving container. Never cut, drill, weld or grind on or near this container. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near the workplace.*

### **Conditions for Safe Storage**

*Store in a cool, dry environment, away from sources of ignition, heat, oxidising agents; avoid bulk storage indoors.*

*Hexane has a mild, pleasant odour; inadequate warning of intoxication hazard – which the victim may be unaware of!*

### **WHEN FILLING STORAGE TANKS WITH HEXANE, IN ADDITION TO NORMAL GROUNDING PROCEDURES, READ THE FOLLOWING:**

*This product may form an explosive mixture inside a bulk storage tank. Prior to filling a bulk storage tank with this product, consider ventilating the headspace with nitrogen. In addition, consider asking the supplier to put an anti-static additive in the product when you order. If the bulk tank has a floating product level indicator, this should be inspected regularly. The float MUST HAVE a firmly fixed ground wire connecting it to its support cable. This connection must be free of corrosion.*

*Consult NFPA 77, 207: "Recommended Practice on Static Electricity"*

## 8. EXPOSURE CONTROL & PERSONAL PROTECTION

<b>Ontario TWAEV</b>	50ppm / 176mg/m <sup>3</sup> (n-Hexane)	<b>Ontario STEV</b>	Not listed
<b>Ontario TWAEV</b>	500ppm / 176 mg/m <sup>3</sup> (other isomers of hexane)	<b>Ontario STEV</b>	100ppm / 3520 mg/m <sup>3</sup>
<b>ACGIH TLV</b>	50ppm / 176mg/m <sup>3</sup>	<b>ACGIH STEL</b>	Not listed
<b>OSHA PEL</b>	500ppm / 1800mg/m <sup>3</sup>	<b>OSHA STEL</b>	Not listed

<b>Ventilation</b>	Mechanical ventilation may be required to control airborne titre
<b>Hands</b>	Nitrile or "Viton" gloves recommended – other types may also protect; consult supplier to confirm suitability.
<b>Eyes</b>	Safety glasses with side shields – always protect the eyes
<b>Clothing</b>	Wear chemical protective clothing e.g. gloves, aprons, boots.

### Appropriate Engineering Controls

Hexane is highly volatile – use in sealed equipment; mechanical ventilation (explosion-proof) may be required to control airborne vapour to regulated limits; depending on handling procedures; respirators with organic vapour cartridges must be available for "escape" purposes should containment fail; store respirators in air-tight containers (eg: "Tupperware", "Zip Lock") to preserve cartridge "freshness".

### Individual Protection Measures

#### Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

#### Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots. Nitrile rubber, Viton®.

## 9. PHYSICAL PROPERTIES

<b>Appearance</b>	Clear colourless liquid.
<b>Odour</b>	Aromatic (n-Hexane)
<b>Odour threshold</b>	> 60 ppm (210.6 mg/m <sup>3</sup> ) (n-Hexane)
<b>Ph</b>	Neutral
<b>Melting Point/Freezing Point</b>	-95°C ( -139°F) (freezing)
<b>Initial Boiling Point/Range</b>	63 - 69 °C (145 - 156 °F)
<b>Flash Point</b>	-22 °C (-8 °F) (closed cup)
<b>Evaporation Rate</b>	8 (n-butyl acetate = 1)
<b>Flammability ( Solid, Gas)</b>	Not Available
<b>Upper/Lower Flammability or Explosive Limit</b>	7.5% (upper); 1.1% (lower)
<b>Vapour Pressure</b>	120 mm Hg (16 kPa) at 20 °C (68 °F)

<b>Vapour Density (air = 1)</b>	3
<b>Specific Gravity</b>	0.67-0.68 (20/20°C)
<b>Solubility</b>	10 mg/L (Slightly soluble) in water; Moderately soluble in common organic solvents.
<b>Partition Coefficient, n-Octanol/Water (Log Kow)</b>	Not available
<b>Auto-ignition Temperature</b>	225 °C (437 °F)
<b>Decomposition Temperature</b>	Not Available
<b>Viscosity</b>	< 7 centistokes at 40 °C (104 °F) (kinematic); 0.3 centipoises at 25 °C (77 °F) (dynamic)
<b>Physical State</b>	Liquid
<b>Molecular Weight</b>	68 grams per mole
<b>Molecular Formula</b>	C6H14

## 10. REACTIVITY

**Dangerously Reactive** with strong oxidizing agents; chlorine, fluorine, NO<sub>2</sub> & N<sub>2</sub>O<sub>4</sub> can cause ignition or explosion.

### Chemical Stability

Stable; will not polymerize.

### Possibility of Hazardous Reactions

Damages certain plastics – check your equipment for its ability to resist hexane.

### Conditions to Avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas. Do not store with strong oxidizing agents.

### Incompatible Materials

Oxidizing materials.

### Hazardous Decomposition Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11. TOXICITY

Acute Toxicity	
<b>LD<sub>50</sub> (oral)</b>	15,800, 28,670 & 32,290mg/kg (rat), 20,000mg/kg (mouse), >16,000mg/kg (rat)
<b>LD<sub>50</sub> (skin)</b>	>3300mg/kg (rabbit), >2000mg/kg (rabbit) – no mortality reported
<b>LC<sub>50</sub> (inhalation)</b>	42,600ppm (mouse), 48,000 & 74,000ppm (rat)

**Skin Corrosion/Irritation**

*Drying, mild irritant, or not irritating – rapid evaporation limits potential for skin exposure*

**Serious Eye Damage/Irritation**

*Mildly irritating, or not irritating – rapid evaporation limits exposure*

**STOT (Specific Target Organ Toxicity) - Single Exposure****Inhalation**

*5000ppm causes headache, dizziness, drowsiness, intoxication, anaesthesia. A high vapour concentration is readily achieved due to hexane's volatility.*

**Skin Absorption**

*Some; no toxic effects likely by this route due to low general toxicity.*

**Ingestion**

*Poorly absorbed, low toxicity; nervous system symptoms possible; nausea may result – vomiting could result in inhalation into the lungs and serious lung damage*

**STOT (Specific Target Organ Toxicity) - Repeated Exposure**

*Prolonged exposure may cause dermatitis; prolonged inhalation to 30–2500ppm may cause peripheral neuropathy (numbness/tingling of hands & feet); blurred vision, poor colour discrimination & visual field constriction associated with 5-yr exposure to 425-1280ppm.*

**Respiratory and/or Skin Sensitization**

*Not known to be a skin sensitizer.*

**Carcinogenicity**

*Not a carcinogen.*

**Reproductive Toxicity****Sexual Function and Fertility**

*No known effect in humans; testicular damage observed in rats at a dose close to the LD50*

**Germ Cell Mutagenicity**

*No known effect on humans; or animals – evidence of mutagenic activity in rodents is equivocal No information was located for: Development of Offspring, Effects on or via Lactation, Interactive Effects*

**12. ECOLOGICAL INFORMATION**

<b>Bioaccumulation</b>	<i>This product and its degradation products are not known to bioaccumulate.</i>
<b>Persistence and Degradability</b>	<p><b>Biodegradation -</b> <i>Hexane biodegrades readily in the presence of oxygen: 17% in 72 hours (closed incubation); in aerated sewage treatment facility: 99% in 24 hours – much is volatilized; % biodegraded unknown</i></p> <p><b>Abiotic Degradation -</b> <i>reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 5hours; photodegradation in aquatic medium 50% in 24 hours</i></p>
<b>Mobility in soil, water</b>	<i>Water insoluble; cannot move in soil or water; rapid volatilization from soil or water limits likelihood of soil or ground water contamination.</i>
<b>Aquatic Toxicity</b>	
<b>LC50 (Fish, 96hr)</b>	<i>4mg/litre (Carassius auratus), &gt;1mg/litre (Oryzias latipes), 12.5mg/litre (QSAR estimate)</i>
<b>EC50 (Crustacea, 24hr)</b>	<i>50mg/litre (Daphnia magna) – this concentration must be emulsified into water, 21.8mg/litre (QSAR estimate)</i>

<b>EC50 (Algae)</b>	9.3mg/litre (OSAR estimate); 500mg/litre was toxic to bacteria in sewage sludge . . .
<b>EC50 (Microbes)</b>	10.8 & 48.4mg/litre (OSAR estimate)9-67mg/litre (“domestic activated sewage sludge”), 14,500mg/litre (Photobacterium phosphoreum)

### 13. DISPOSAL

#### Water Disposal

**Do not flush to sewer**, recycle solvent if possible, local regulations may permit disposal in sanitary landfill, may be incinerated in approved facility after mixing with a suitable flammable waste

#### Containers

**Drums** should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.


**Pails** must be vented and thoroughly dried prior to crushing and recycling.

**IBCs** (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs).

**Steel containers** must be inspected, pressure tested & recertified every 5 years.

**Never cut, drill, weld or grind on or near this container,  
even if empty**

### 14. TRANSPORT CLASSIFICATION

<b>Canada TDG</b>	<b>PIN</b>	UN1208	
<b>AND</b>	<b>Shipping Name</b>	Hexanes	
<b>U.S.A. 49 CFR</b>	<b>Class &amp; Packing Group</b>	3, PG II	
<b>Marine Pollutant</b>	Yes		
<b>ERAP Required</b>	NO		
<b>Reportable Quantity</b>	5,000 lbs (2,270kg)		
<b>E R G No.</b>	128		

### 15. REGULATIONS

<b>Canada DSL</b>	On Inventory
<b>U.S.A. TSCA</b>	On Inventory
<b>Europe EINECS</b>	On Inventory

#### Canada Regulations:

##### CEPA - National Pollutant Release Inventory (NPRI)

Part 1A, Part 5.

#### U.S.A. Regulations

**Immediately Dangerous to Life or Health:** 1100 ppm (Based on 10% of the lower explosion limit for safety considerations even though the relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations.)

**OSHA Standards:** Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 500 ppm (1800 mg/cu m). Vacated 1989 OSHA PEL TWA 50 ppm (180 mg/cu m) is still enforced in some states.

**NIOSH Recommendations:** Recommended Exposure Limit: 10 Hour Time-Weighted Average: 50 ppm (180 mg/cu m).

**Threshold Limit Values:** 8 hr Time Weighted Avg (TWA): 50 ppm, skin. Excursion Limit Recommendation: Excursions in worker exposure levels may exceed 3 times the TLV-TWA for no more than a total of 30 minutes during a work day, and under no circumstances should they exceed 5 times the TLV-TWA, provided that the TLV-TWA is not exceeded. Biological Exposure Index (BEI): Determinant: 2,5-hexanedion (without hydrolysis) in urine; Sampling Time: end of shift at end of workweek; BEI: 0.4 mg/L.

**Atmospheric Standards:** Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Hexane is included on this list.

**State Drinking Water Standards:** New Jersey 30 ug/L

**State Drinking Water Guidelines:** Arizona 4000 ug/L, Florida 10 ug/L, Maine 420 ug/L, Minnesota 400 ug/L, New Jersey 30 ug/L, Wisconsin 600 ug/L

**CERCLA Reportable Quantities:** Persons in charge of vessels or facilities are required to notify the National Response Centre (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 5000 lb or 2270 kg. The toll free number of the NRC is (800) 424-8802. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV.D.3.b).

**FDA Requirements:** Hexane is an indirect food additive for use only as a component of adhesives.

## 16. OTHER INFORMATION

<b>NFPA RATING</b>	<b>Health</b> n/a	<b>Flammability</b> 3	<b>Instability</b> 0
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**Prepared for** Megaloid Laboratories Limited **by** Richard Koscher  
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<b>Key to Abbreviations</b>	<p><b>ACGIH®</b> = American Conference of Governmental Industrial Hygienists  <b>AIHA®</b> = AIHA® Guideline Foundation <b>HSDB®</b> = Hazardous Substances Data Bank  <b>IARC</b> = International Agency for Research on Cancer  <b>NFPA</b> = National Fire Protection Association <b>IARC</b> = International Agency for Research on Cancer</p> <p><b>NIOSH</b> = National Institute for Occupational Safety and Health  <b>NTP</b> = National Toxicology Program  <b>OSHA</b> = US Occupational Safety and Health Administration  <b>RTECS®</b> = Registry of Toxic Effects of Chemical Substances</p>
<b>References</b>	<p>CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).</p> <p>HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS).</p> <p>NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety</p>



	<p>(CCOHS).</p> <p>Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA ("BIOVIA"). Available from Canadian Centre for Occupational Health and Safety (CCOHS).</p>
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