



5515 North Service Rd. #306  
Burlington, Ontario L7L 6G4

Phone: 905-337-7411  
Fax: 905-337-1686

megaloid.ca



**Responsible Care®**  
Our commitment to sustainability.



**RDC**  
Responsible Distribution Canada  
Leaders in Chemicals and Ingredients

## 1. PRODUCT IDENTIFICATION

**Name:** *n-Pentane or normal-Pentane*

**Synonyms:** *pentane*

**CAS#** 109-66-0

**Product Uses:** *gasoline component, low temperature thermometers, foam blowing agent, aerosol propellant, solvent, heat transfer fluid (refrigeration – mainly Europe) & others*

**Supplier** *Megaloid Laboratories Limited*  
**Identifier:** *5515 North Service Road, Ste 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

<i>GHS Class (category)</i>	<i>Flammable (2)</i>	<i>Aspiration (1)</i>	<i>STOT (3)</i>	<i>Aquatic acute (2)</i>
<b>Signal Word</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>Inhalation may cause dizziness or drowsiness (H336)</i>	<i>Toxic to aquatic life with long lasting effects (H411)</i>



Label Pictograms

### GHS Precautionary Statements for Labelling

#### Prevention

- P210** Keep away from heat, sparks, open flames and hot surfaces. No smoking.
- P233** Keep container tightly closed.
- P240** Ground or bond container and receiving equipment.

<b>P241</b>	Use explosion-proof electrical, ventilating and lighting equipment.
<b>P242</b>	Use only non-sparking tools.
<b>P243</b>	Take precautionary measures against static discharge.
<b>P260</b>	Do not breathe vapours.
<b>P270</b>	Do not eat, drink or smoke when using this product.
<b>P273</b>	Avoid release to the environment.
<b>P280</b>	Wear eye protection, protective gloves and clothing of butyl rubber
<b>Response</b>	
<b>P301, P310</b>	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
<b>P304, P340</b>	IF INHALED: remove person to fresh air and keep comfortable for breathing.
<b>P370, P378</b>	IN CASE OF FIRE: use alcohol-resistant foam to extinguish.
<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>P405</b>	Store locked up.
<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> -Pentane	109-66-0	100	EC # 203-692-4

### 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

*Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered. Very rapid evaporation may make washing un-necessary . . .*

#### Eye Contact

*Wash eyes with plenty of water, holding eyelids open. Seek medical assistance if there is any irritation.*

#### 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.*

## **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

*Effects of overexposure can include slight irritation of the respiratory tract, nausea, vomiting, and signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue). Continued exposure to high concentrations can result in vomiting, cardiac irregularities and sudden loss of consciousness. Prolonged or repeated contact may dry skin and cause irritation.*

## **5. FIRE FIGHTING & FLAMMABILITY**

### **Extinguishing Media**

#### **Suitable Extinguishing Media**

*Foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water - water jet spreads flames*

### **Combustion Products**

*Carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon fragments*

### **Special Protective Equipment and Precautions for Fire-fighters**

*Firefighters must wear SCBA. Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.*

### **Specific Hazards Arising from the Product**

*Extremely flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Readily accumulates a static charge on agitation or pumping. Vapours may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapour/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. This product will float and can be reignited on surface water. Vapours are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.*

## **6. ACCIDENTAL RELEASE MEASURES**

### **Very 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**

*Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Wear adequate personal protective equipment. Ventilate area. Extinguish or remove all ignition sources. Notify government occupational health and safety and environmental authorities.*

### **Environmental Precautions**

*It is good practice to prevent releases into the environment. Do not allow into any sewer, on the ground or into any waterway. 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**

*Leak Precaution: Immediate cleanup of any spill is recommended. Dyke to control spillage and prevent environmental contamination. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal.*

*Handling Spill: Ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal. In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.*

## Other Information

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

## 7. HANDLING & STORAGE

### Precautions for Safe Handling

Use heavy gauge drums capable of containing at least 1 atmosphere pressure. **Keep drums out of direct sunlight. ALWAYS 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!**

**ALWAYS ground or electrically bond both the source container and the receiving container, and transfer pump before transferring contents.** Avoid splashing by keeping the product nozzle below the surface in the receiving container. Empty containers may contain a flammable or explosive vapour. Always ensure that containers, empty or full, are tightly sealed unless in use. **Before opening a drum check the drum head. If it is bulging, open the bung slowly to release pressure, keeping your face as far from the bung as possible. Consider wearing a face shield when doing this.**

**Pentane volatilises readily.** Avoid breathing product vapour. Install adequate ventilation to control workplace vapour to regulated limits (Part 8). **If dealing with a spill & thorough ventilation is not possible, wear an air-supplied respirator.**

Never cut, drill, weld or grind on or near this container. Avoid prolonged 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 & use in a cool, dry environment, **never in direct sun**, away from sources of ignition, heat & oxidising agents.

## 8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV	600ppm / 1765mg/m <sup>3</sup>	Ontario STEV	not listed
AGGIH TLV	1000ppm / 2940mg/m <sup>3</sup>	ACGIH STEL	not listed
OSHA PEL	600ppm / 1765mg/m <sup>3</sup>	OSHA STEL	750ppm / 2205mg/m <sup>3</sup>

Ventilation	Do not allow product to accumulate in the air in work or storage areas, or in confined spaces. Exhaust directly to the outside, taking any necessary precautions for environmental protection.
Hands	no special protective glove required; nitrile or "Viton" gloves are resistant – consult supplier to confirm suitability
Eyes	Safety glasses with side shields – always protect the eyes
Clothing	no special protective clothing required; wear a face shield if opening drums which may be under internal pressure

### Appropriate Engineering Controls

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see 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. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

## 9. PHYSICAL PROPERTIES

<b>Appearance</b>	<i>Clear colourless liquid.</i>
<b>Odour</b>	<i>pleasant gasoline odour</i>
<b>Odour threshold</b>	<i>120 – 1150ppm – very wide range</i>
<b>pH</b>	<i>none – (does not liberate hydrogen ions when dissolved)</i>
<b>Melting Point/Freezing Point</b>	<i>-130°C / -202°F</i>
<b>Initial Boiling Point/Range</b>	<i>36°C / 97°F – <b>boils at slightly below body temperature!</b></i>
<b>Flash Point</b>	<i>-40°C / -40°F (closed cup) – <b>extremely flammable</b></i>
<b>Evaporation Rate</b>	<i>12-13 (Butyl Acetate =1)</i>
<b>Flammability ( Solid, Gas)</b>	<i>Not Available</i>
<b>Upper/Lower Flammability or Explosive Limit</b>	<i>1.5% – 7.8%</i>
<b>Vapour Pressure</b>	<i>488mmHg / 65kPa (20°C / 68°F)</i>
<b>Vapour Density (air = 1)</b>	<i>2.5</i>
<b>Specific Gravity</b>	<i>0.626 (20/20°C)</i>
<b>Water Solubility</b>	<i>38mg/litre (25°C / 77°F) – virtually insoluble. Also soluble in non-polar organic solvents, poor solubility in methanol, soluble in ethanol and other alcohols</i>
<b>Auto-ignition Temperature</b>	<i>260°C / 500°F</i>
<b>Conversion Factor</b>	<i>1 ppm = 2.94 mg/ m<sup>3</sup></i>
<b>Viscosity</b>	<i>0.23centipoise (20°C / 68°F) – very thin, mobile liquid; splashes readily</i>
<b>Physical State</b>	<i>Liquid</i>
<b>Molecular Weight</b>	<i>72 grams per mole</i>
<b>Molecular Formula</b>	<i>C5-H12</i>

## 10. REACTIVITY

**Dangerously Reactive** with strong oxidising agents; fluorine or chlorine gas may cause explosion with pentane.

**Also Reactive** with bromine; damages plastics (polypropylene, ABS, polyurethane & some polyethylenes).

### **Chemical Stability**

*stable; will not polymerize*

### **Possibility of Hazardous Reactions**

*Hazardous reactions not anticipated.*

### **Conditions to Avoid**

*Avoid high temperatures and all sources of ignition. Prevent vapor accumulation.*

### **Mechanical Impact**

*not sensitive*

## 11. TOXICITY

Acute Toxicity	
<b>LD<sub>50</sub> (oral)</b>	<i>above 2000mg/kg (rat)</i>
<b>LD<sub>50</sub> (skin)</b>	<i>not known – rapid evaporation makes this test very hard to do . . .</i>
<b>LC<sub>50</sub> (inhalation)</b>	<i>123,800ppm (rat), &gt;20,000ppm (rat) – no mortality at this dose</i>

### Skin Corrosion/Irritation

*little or no effect – evaporates extremely rapidly.*

### Serious Eye Damage/Irritation

*may irritate – evaporates very rapidly so eye irritancy may seldom be seen.*

### STOT (Specific Target Organ Toxicity) - Single Exposure

#### Inhalation

*headache, dizziness, drowsiness, intoxication, anaesthesia; pentane concentration from a spill can become high enough to displace oxygen, causing asphyxia*

#### Skin Absorption

*nil to slight; no toxic effects likely by this route.*

#### Ingestion

*not known – not a route of industrial exposure.*

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

*Prolonged exposure may cause dermatitis; long term neurological effects are known to occur with **n-hexane** inhalation; possible with **n-pentane**, but there is no actual evidence.*

#### Respiratory and/or Skin Sensitization

*Not known to be a respiratory sensitizer.*

#### Carcinogenicity

*Not considered a tumorigen or a carcinogen in humans or animals. IARC: Not specifically listed. ACGIH®: Not specifically designated. NTP: Not specifically listed. OSHA: Not specifically listed.*

### Reproductive Toxicity

#### Sexual Function and Fertility

*No known effect on humans*

#### Germ Cell Mutagenicity

*Not known to be a mutagen.*

## 12. ECOLOGICAL INFORMATION

<b>Bioaccumulation</b>	<i>moderate bioaccumulator – evaporates very rapidly limiting exposure.</i>
<b>Persistence and Degradability</b>	<b>Biodegradation -</b> <i>biodegrades readily &amp; rapidly in the presence of oxygen; over 90% of theoretical BOD in 4 weeks (Japanese MITI Test); 72% in 8 days (Total Solvents, France)</i>  <b>Abiotic Degradation -</b> <i>reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 4 days; in water photo-oxidation by ultraviolet light gives a degradation rate to CO<sub>2</sub> of 31% in 24 hours</i>
<b>Mobility in soil, water</b>	<i>Sufficiently water soluble to move readily in soil &amp; water.</i>
<b>Aquatic Toxicity</b>	

<b>LC0 (Fish, 96hr)</b>	>100mg/litre ( <i>Oncorhynchus kisutch</i> ), 4.3mg/litre ( <i>Oncorhynchus mykiss</i> )
<b>EC50 (Crustacea, 48hr)</b>	11.8mg/litre ( <i>Artemia salina</i> , 24hr), 2.7 & 9.7mg/litre ( <i>Daphnia magna</i> )
<b>EC50 (Algae, 72hrs)</b>	10.7mg/litre ( <i>Scenedesmus capricornutum</i> )
<b>EC50 (Bacteria)</b>	106mg/litre ( <i>Tetrahymena pyriformis</i> – QSAR calculation)
<b>NOTE:</b>	Very rapid evaporation of pentane makes it hard to carry out meaningful aquatic toxicity testing .

### 13. DISPOSAL

#### Water Disposal

Do not flush to sewer, recycle solvent if possible, may be incinerated in approved facility

#### 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>	UN1265	
<b>AND</b>	<b>Shipping Name</b>	Pentanes	
<b>U.S.A. 49 CFR</b>	<b>Class &amp; Packing Group</b>	3, PG I (or II, borderline)	

<b>Marine Pollutant</b>	Not a Marine Pollutant	
<b>ERAP Required</b>	NO	
<b>Reportable Quantity</b>	NO	
<b>E R G No.</b>	128	

**Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.**

### 15. REGULATIONS

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

#### U.S.A. Regulations



**Immediately Dangerous to Life or Health:** 1500 ppm (IDLH 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: 1000 ppm (2950 mg/cu m).

**NIOSH Recommendations:** Recommended Exposure Limit: 10 Hour Time-Weighted Average: 120 ppm (350 mg/cu m).

**Recommended Exposure Limit:** 15 Minute Ceiling Value: 610 ppm (1800 mg/cu m).

**Threshold Limit Values:** 8 hr Time Weighted Avg (TWA): 1000 ppm. /Pentane, all isomers/  
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. /Pentane, all isomers/  
2013 Notice of Intended Changes (NIC): These substances, with their corresponding values and notations, comprise those for which (1) a limit is proposed for the first time, (2) a change in the Adopted value is proposed, (3) retention as an NIC is proposed, or (4) withdrawal of the Documentation and adopted TLV is proposed. In each case, the proposals should be considered trial values during the period they are on the NIC. These proposals were ratified by the ACGIH Board of Directors and will remain on the NIC for approximately one year following this ratification. If the Committee neither finds nor receives any substantive data that changes its scientific opinion regarding an NIC TLV, the Committee may then approve its recommendation to the ACGIH Board of Directors for adoption. If the Committee finds or receives substantive data that change its scientific opinion regarding an NIC TLV, the Committee may change its recommendation to the ACGIH Board of Directors for the matter to be either retained on or withdrawn from the NIC. Substance: Pentane, all isomers (78-78-4; 109-66-0; 463-82-1); Time Weighted Avg (TWA): 1000 ppm; Short Term Exposure Limit (STEL): None; Notations: None; Molecular Weight: 72.15; TLV Basis: Narcosis; Respiratory tract irritation. /Pentane, all isomers

**Atmospheric Standards:** This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. n-Pentane is produced, as an intermediate or a final product, by process units covered under this subpart.

**TSCA Requirements:** Section 8(a) of TSCA requires manufacturers of this chemical substance to report preliminary assessment information concerned with production, exposure, and use to EPA as cited in the preamble in 51 FR 41329. Effective date: 1/26/94; Reporting date: 3/28/94.

**CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):** This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

**CERCLA/SARA - Section 311/312 (Title III Hazard Categories):**

Acute Health Hazard:	Yes
Chronic Health Hazard:	No
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

**CERCLA/SARA - Section 313 and 40 CFR 372:** This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

**EPA (CERCLA) Reportable Quantity (in pounds):** EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

**California Proposition 65:** This material does not contain any chemicals which are known to the State of California

to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

## International status

Australia AICS: On the inventory, or in compliance with the inventory

New Zealand NZIoC: On the inventory, or in compliance with the inventory



Japan ENCS: On the inventory, or in compliance with the inventory  
 Korea KECI: On the inventory, or in compliance with the inventory  
 Philippines PICCS: On the inventory, or in compliance with the inventory  
 China IECSC: On the inventory, or in compliance with the inventory

## 16. OTHER INFORMATION

<b>NFPA RATING</b>	<b>Health 1</b>	<b>Flammability 4</b>	<b>Instability 0</b>
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Prepared for Megaloid Laboratories Limited by Richard Koscher

Preparation Date: August 2006

Revision Dates: July 2009, July 2012, July 2015, April 2018, Feb 2019

<b>Key to Abbreviations</b>	<p>ACGIH® = American Conference of Governmental Industrial Hygienists          AIHA® = AIHA® Guideline Foundation          HSDB® = Hazardous Substances Data Bank          IARC = International Agency for Research on Cancer          NFPA = National Fire Protection Association          NIOSH = National Institute for Occupational Safety and Health          NIOSH = National Institutr for Occupational Safety and Health          NTP = National Toxicology Program          OSHA = US Occupational Safety and Health Administration          RTECS® = Registry of Toxic Effects of Chemical Substances</p>
<b>References</b>	<p>CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS). NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety (CCOHS). Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA ("BIOVIA"). Available from Canadian Centre for Occupational Health and Safety (CCOHS).</p>
<b>Disclaimer</b>	<p>Megaloid Laboratories Limited provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. Megaloid Laboratories Limited makes no representations or warranties, either expressed or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product which the information refers. Accordingly, Megaloid Laboratories Limited will not be responsible for damages resulting from the use of or reliance upon this information.</p>