established in 1981
megaloid laboratories

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

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megaloid.ca

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RDC
Responsible Distribution Canada
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1. IDENTIFICATION

Name: *Isopentane*

Synonyms: *2-methylbutane; ethyldimethylmethane; pentane*

Product Uses: *Fast evaporating solvent, blowing agent for polystyrene & other polymer foams, organic synthesis heat transfer fluid in refrigeration ("Freon" alternative)*

Supplier Identifier: *Megaloid Laboratories Limited*
5515 North Service Road # 306
Burlington, ON L7L 6G4

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

2. HAZARD INDENTIFICATION

GHS Class *(category)*	***flammable*** *(1)*	***aspiration*** *(1)*	***STOT*** *(3)*	***aquatic acute*** *(2)*
Signal Word	***DANGER***	***DANGER***	***WARNING***	***No signal word / No pictogram***
Hazard Statements	*Extremely flammable liquid & vapour (H224)*	*May be fatal if swallowed & enters airways (H304)*	*May cause drowsiness or dizziness (H336)*	*Toxic to aquatic life (H401)*

Hazardous Pictograms

GHS Precautionary Statements for Labelling
Prevention:

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P210	*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*
P233	*Keep container tightly closed.*
P240	*Ground and bond container and receiving equipment.*
P241	*Use explosion-proof electrical, ventilating, and lighting equipment.*
P242	*Use non-sparking tools.*
P243	*Take precautionary measures against static discharge.*
P261	*Avoid breathing vapours.*
P280	*Wear protective gloves/eye protection/face protection.*
Response:	
P304+P340	*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*
P370+P378	*In case of fire: Use appropriate foam to extinguish.*
Storage:	
P403+P233	*Store in a well-ventilated place. Keep container tightly closed.*
P405	*Store locked up.*
Disposal:	
P501	*Dispose of contents and container in accordance with local, regional, national and international regulations.*

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	*CAS No.*	*% wt*	*Other Identifiers*
Isopentane	*78-78-4*	*100*	*EC # 201-142-8*

4. FIRST-AID MEASURES

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.

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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. Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Most important symptoms and effects, both acute and delayed
Overexposure can include slight irritation of the respiratory tract, nausea, vomiting. May cause drowsiness or dizziness. Continued exposure can result in cardiac irregularities and sudden loss of consciousness.

Notes to physician
Treat symptomatically

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 MEASURES

Suitable Extinguishing Media
Foam, dry chemical, Carbon Dioxide, water fog, water spray only to cool & dilute, product floats on water.

Unsuitable Extinguishing Media
Water jet spreads flames.

Specific Hazards Arising from the Product
Carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon fragments.

Special Protective Equipment and Precautions for Fire-fighters
Firefighters must wear SCBA Full Bunker Gear.

Static Charge Accumulation
Static Charge Accumulation - readily accumulates a static charge on agitation or pumping

6. ACCIDENTAL RELEASE MEASURES

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.

Methods and materials for containment and cleaning up
Leak Precaution: dyke to control spillage and prevent environmental contamination.
Handling Spill: Ventilate contaminated area; recover free liquid with suitable pumps; absorb residue

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on an inert sorbent, sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal.

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.

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.

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. 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. Empty containers may contain a flammable / explosive vapour. Always ensure that containers, whether empty or full, are tightly sealed unless in use. Avoid breathing product vapour. ALWAYS use with adequate ventilation. Isopentane's vapour pressure is very high; a spill in a poorly ventilated space could cause asphyxiation! If dealing with a spill, and ventilation is impossible or impractical, wear a suitable air supplied respirator.

Conditions for Safe Storage
Store below 28°C / 82°F (*isopentane boiling point*), away from sources of ignition and oxidising agents. (*Note that the isopentane boiling point is close to normal skin temperature. In hot climates, mechanically cooled storage may be required*.) If stored in drums, isopentane should be kept in heavy-gauge steel capable of resisting pressure build-up.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV	600ppm / 1770mg/m^3 - all isomers	**Ontario STEV**	not listed
AGGIH TLV	1000ppm / 2950mg/m^3 – all isomers	**ACGIH STEL**	not listed
OSHA PEL	600ppm / 1780mg/m^3 – all isomers	**OSHA STEL**	750ppm / 2210mg/m^3

Ventilation	Mechanical ventilation required to maintain airborne titre below TLV engineering methods to control hazardous conditions are preferred. Methods include mechanical (local exhaust) ventilation, process or personnel enclosure and control of process conditions. Administrative controls and personal protective equipment may also be required. Because of the high potential hazard associated with this substance, stringent control measures such as enclosure (closed handling systems) should be considered. To reduce the fire/explosion hazard, consider the use of an inert gas in the process system. Use approved explosion-proof equipment and intrinsically safe electrical systems in areas of use. For large-scale operations, consider the installation of leak and fire detection equipment along with a suitable, automatic fire suppression system. Use a non-sparking, grounded, ventilation system separate from other exhaust ventilation systems. Exhaust directly to the outside. Supply sufficient replacement air to make up for air removed by exhaust system.

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Hands	nitrile or “Viton” gloves recommended – *other types may also protect; consult supplier to confirm suitability*
Eyes	safety glasses with side shields – *always protect the eyes*
Clothing	wear impermeable (above) apron, boots, & long sleeves if there is any danger of splashing

9. PHYSICAL & CHEMICAL PROPERTIES

Odour & Appearance	clear, colourless liquid with gasoline-like odour
Odour threshold	not known
pH	none – (*does not liberate hydrogen ions when dissolved*)
Melting point/Freezing point	-160°C / -256°F
Initial boiling point/boiling range	28°C / 82°F
Flash point	-51°C / -60°F (closed cup)
Evaporation rate (Butyl Acetate = 1)	not known – *very rapid evaporation*
Flammability (solid; gas)	no data available
Lower flammable/explosive limit	1.4%
Upper flammable/explosive limit	7.6%
Vapour pressure	595mmHg / 79kPa (21°C / 70°F)
Vapour density (air=1)	2.5
Relative density	0.62 (20/20°C)
Water Solubility	48mg/litre (20°C / 68°F) – *very slightly water soluble*
Partition coefficient – n–octanol/water	3.3
Auto ignition temperature	420°C / 788°F[1]
Decomposition temperature	not known – *no decomposition below the Autoignition Temperature*
Viscosity	0.21 centipoise (25°C / 77°F) – *very thin, mobile liquid*
Conversion Factor	1ppm = 2.95mg/m^3
Molecular Weight	72 grams per mole
Molecular Formula	C5-H12

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10. STABILITY AND REACTIVITY

Reactivity
Strong oxidising agents

Chemical Stability
Stable; will not polymerize

Possibility of Hazardous Reactions
Non known

Conditions to avoid
Avoid high temperatures and ignition sources

Incompatible materials
Strong oxidizing agents

Hazardous decomposition products
None apart from Hazardous Combustion Products

Sensitive to Mechanical Impact
No

11. TOXICOLOGICAL INFORMATION

Acute Toxicity	
Skin Contact	little if any irritation
Skin Absorption	slight; no toxic effects likely by this route
Eye Contact	irritating, but will not damage eyes
Inhalation	no effects up to 5000ppm; higher concentrations may cause dizziness, intoxication & other effects associated with central nervous system depression
Ingestion	*cannot be swallowed because body temperature is substantially higher that the boiling point of isopentane – not a route of industrial exposure*
LD_{50} (oral)	>5000mg/kg (rat)
LD_{50} (skin)	no data available – *very high volatility makes testing difficult, perhaps impossible*
LC_{50} (inhalation)	>20,000 & >25,300ppm (rat), 140,000 & 153,750ppm (mouse)

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11. TOXICITY, CONTINUED

General
Prolonged exposure may cause dermatitis due to removal of protective skin oils

Sensitising
Not a sensitiser in humans or animals

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

Key to Abbreviations
ACGIH® = American Conference of Governmental Industrial Hygienists. IARC = International Agency for Research on Cancer. NTP = National Toxicology Program. OSHA = US Occupational Safety and Health Administration.

Reproductive Effect
No known effect in humans; at 7000ppm (inhalation) reduced weight of rat pups

Mutagen
No known effect on humans or animals

Synergistic With
Not known

12. ECOLOGICAL INFORMATION

Bioaccumulation	not a bioaccumulator
Biodegradation	biodegrades readily & rapidly in the presence of oxygen; 72% in 28 days
Abiotic Degradation	reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 2.3 days
Mobility in soil, water	water soluble; moves readily in soil and water
Aquatic Toxicity	
LC_{50} (Fish, 96hr)	12.8mg/litre (rat)
EC_{50} (Crustacea, 48hr)	3.2mg/litre (Chaetogammarus marinus & Mysidopsis bahia), 8.06 & 59mg/litre (Daphnia magna)
EC_{50} (Algae)	25mg/litre (Pseudokirchnerella subcapitata), 5.2mg/litre (QSAR model for “green algae”), 7.5 & 10.7mg/litre (Scenedesmus capricornutum)
EC_{10} (Bacteria)	131mg/litre (Tetrahymena pyriformis – QSAR model)

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13. DISPOSAL

Waste 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 INFORMATION

Canada TDG	**UN / PIN #**	1265	
AND	**Shipping Name**	Pentanes, liquid	
U.S.A. 49 CFR	**Class & Packing Group**	3,I	

Marine Pollutant	Not a marine pollutant
ERAP Required (CA only)	No
Emergency Response Guide No.	128
Reportable Quantity (RQ – USA only)	None

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. REGULATORY INFORMATION

Canada DSL	on inventory
U.S.A. TSCA	on inventory
Europe EINECS	on inventory

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Canada Regulations:
CEPA - National Pollutant Release Inventory (NPRI)
Part 5.

U.S.A. Regulations:
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)
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.
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)).
US State Regulations:
California Proposition 65
WARNING. This product can expose you to chemicals including Benzene (CASRN 71-43-2) which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

International Regulations:
International Inventories
Listed on the chemical inventories of the following countries or qualifies for an exemption:
Australia (AICS)
China (IECSC)
Japan (ENCS)
Korea (KECI)
Philippines (PICCS)

16. OTHER INFORMATION

NFPA RATING	Health 1	Flammability 4	Instability 0

Prepared for *Megaloid Laboratories* **by** *Rob Cangiano*
Preparation Date: August 2006
Revision Dates: October 2015, August 2018, January 2020

Key to Abbreviations	**ACGIH®** = American Conference of Governmental Industrial Hygienists **AIHA®** = AIHA® Guideline Foundation HSDB® = Hazardous Substances Data Bank **IARC** = International Agency for Research on Cancer **NIOSH** = National Institute for Occupational Safety and Health **NTP** = National Toxicology Program **OSHA** = US Occupational Safety and Health Administration **RTECS®** = Registry of Toxic Effects of Chemical Substances
References	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

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	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).
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