Section 1. Product and Company Identification

Product Name Isopentane
CAS Number 78-78-4

Parchem - fine & specialty chemicals
415 Huguenot Street
New Rochelle, NY 10801
(914) 654-6800 **(914) 654-6899**
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EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture
OSHA/HCS Status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture
Flammable Liquids - Category 1
Specific Target Organ Toxicity (single exposure) (narcotic effects) - Category 3
Aquatic Hazard (long-term) - Category 2

GHS Label Elements
Pictograms:

Signal word: DANGER

Hazard and precautionary statements
Hazard Statements: Extremely flammable liquid and vapor. May form explosive mixtures with air. May cause drowsiness and dizziness. Toxic to aquatic life with long lasting effects.

Precautionary Statements
General: Read label before use. Jeep out of reach of children. If medical advice is needed, have product container or label at hand.
Prevention: Wear protective gloves. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor.

Response: Collect spillage. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
Storage: Store locked up. Store in a well-ventilated place. Keep cool.
Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified: None known.

Section 3. Composition / Information on Ingredients

Common Name Isopentane
Synonym(s) 2-Methylbutane
Formula C_5H_{12}
CAS Number 78-78-4

COMPONENT	CAS NUMBER	CONCENTRATION
Isopentane	78-78-4	100%

Section 4. First Aid Measures

Description of necessary first-aid measures
Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin Contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt, or waistband.

Most important symptoms/effects, acute and delayed
Potential Acute Health Effects
Eye Contact: No known significant effects or critical hazards.
Inhalation: Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
Skin Contact: No known significant effects or critical hazards.
Frostbite: Try to warm up the frozen tissues and seek medical attention.
Ingestion: Can cause central nervous system (CNS) depression.

Over Exposure Signs/symptoms
Eye Contact: No specific data.
Inhalation: Adverse symptoms may include the following:, nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness
Skin Contact: No specific data.
Ingestion: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary
Notes to Physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific Treatments: No specific treatment.
Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5. Firefighting Measures

Suitable Extinguishing Media: Use dry chemical, CO_2, water spray (fog) or foam.
Unsuitable Extinguishing Media: Do not use water jet.

Specific Hazards Arising from the Chemical: Extremely flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/ gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products: Decomposition products may include the following materials: carbon dioxide, carbon monoxide

Special Protective actions for firefighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special Protective Equipment for firefighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and Materials for containment and cleaning up

Small Spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large Spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and Storage

Precautions for Safe Handling

Protective Measures: Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition

source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational Hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in a segregated and approved area.
Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure Controls / Personal Protection

Control Parameters
Occupational Exposure Limits

Ingredient Name	Exposure Limits
Isopentane	ACGIH TLV (United States, 3/2015). TWA: 1000 ppm 8 hours.

Appropriate Engineering Controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
Environmental Exposure Controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual Protection Measures
Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/Face Protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with sideshields.

Skin Protection

Hand Protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other Skin Protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory Protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and Chemical Properties

Physical State: Liquid. [Colorless liquid with a gasoline-like odor]
Color: Colorless
Molecular Weight: 72.17 g/mol
Molecular Formula: C_5H_{12}
Boiling/Condensation Point: 27.8°C (82°F)
Melting/Freezing Point: -159.77°C (-255.6°F)
Critical Temperature: 187.25°C (369.1°F)
Odor: Characteristic
Odor Threshold: Not available
pH: Not available
Flash Point (Closed Cup): -51°C (-59.8°F)
Burning Time: Not applicable.
Burning Rate: Not applicable.
Evaporation Rate: 12.4 (Butyl Acetate = 1)
Flammability (Solid, Gas): Not available.
Lower and Upper Explosive (Flammable) Limits: Lower: 1.4%, Upper: 8.3%
Vapor Pressure: Not available.
Vapor Density: 2.5 (Air = 1)
Specific Volume (ft3/lb): 4.9875
Gas Density (lb/ft3): 0.2005 (20°C / 68°F)
Relative Density: 0.6

Solubility: Not available.
Solubility in Water: 0.0485 g/l
Partition Coefficient (n-Octanol/water): 3
Auto-Ignition Temperature: 420°C (788°F)
Decomposition Temperature: Not available.
SADT: Not available.
Viscosity: Dynamic (room temperature): 0.214 mPa*s (0.214 cPs)

Section 10. Stability and Reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.
Chemical Stability: The product is stable.
Possibility of Hazardous Reactions: Under normal conditions of storage and use, hazardous reactions will not occur.
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 vapor to accumulate in low or confined areas.
Incompatible Materials: Reactive or incompatible with the following materials: oxidizing materials
Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous Polymerization: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological Information

Information on Toxicological Effects
Acute Toxicity

Ingredient	Result	Species	Dose	Exposure
Isopentane	LC50 Inhalation Vapor	Rat	280,000 mg/m^3	4 hours

Irritation/ Corrosion: Not Available
Sensitization: Not Available
Mutagenicity: Not Available
Carcinogenicity: Not Available
Reproductive Toxicity: Not Available
Teratogenicity: Not Available

Specific Target Organ Toxicity (Single Exposure)

Name	Category	Route of Exposure	Target Organs
Isoopentane	Category 3	N/A	N/A

Specific Target Organ Toxicity (Repeated Exposure): Not Available
Aspiration Hazard: Not Available

Information of the likely routes of exposure: Not Available

Potential Acute Health Effects
Eye Contact: No known significant effects or critical hazards.
Inhalation: Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
Skin Contact: No known significant effects or critical hazards.
Ingestion: Can cause central nervous system (CNS) depression.

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics
Eye Contact: No specific data.
Inhalation: Adverse symptoms may include the following:, nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness
Skin Contact: No specific data.
Ingestion: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure
Short Term Exposure
Potential Immediate Effects: Not Available
Potential Delayed Effects: Not Available

Long Term Exposure
Potential Immediate Effects: Not available.
Potential Delayed Effects: Not available.

Potential Chronic Health Effects: Not Available

General: No known significant effects or critical hazards.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental Effects: No known significant effects or critical hazards.
Fertility Effects: No known significant effects or critical hazards.

Numerical Measures of Toxicity
Acute Toxicity Estimates: Not Available

Section 12. Ecological Information

Toxicity: Not available.
Persistence and Degradability: Not available.

Bioaccumulative Potential

Ingredient	LogPow	BCF	Potential
Isopentane	3	171	low

Mobility in Soil
Soil/water Partition coefficient (Koc): Not Available

Other Adverse Effects: No known significant effects or critical hazards.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT
UN Number: UN1265
UN Proper Shipping Name: Pentanes
Transport Class: 3
Packing Group: I
Environment: No
Additional Information: -

TDG
UN Number: UN1265
UN Proper Shipping Name: Pentanes
Transport Class: 3
Packing Group: I
Environment: No
Additional Information: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark). The marine pollutant mark is not required when transported by road or rail.
Passenger Carrying Ship Index: Forbidden
Passenger Carrying Road or Rail Index: 1

Mexico
UN Number: UN1265
UN Proper Shipping Name: Pentanes
Transport Class: 3
Packing Group: I
Environment: No

Additional Information: -

IMDG
UN Number: UN1265
UN Proper Shipping Name: Pentanes
Transport Class: 3
Packing Group: I
Environment: Yes
Additional Information: The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IATA
UN Number: UN1265
UN Proper Shipping Name: Pentanes
Transport Class: 3
Packing Group: I
Environment: No
Additional Information: The environmentally hazardous substance mark may appear if required by other transportation regulations.

Special Precautions for User: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

Section 15. Regulatory Information

US Federal Regulations
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
United States Inventory (TSCA 8b): This material is listed or exempted.
Clean Air Act (CAA) 112 regulated flammable substances: Isopentane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed
Clean Air Act Section 602 Class I Substances: Not listed
Clean Air Act Section 602 Class II Substances: Not listed
DEA List I Chemicals (Precursor Chemicals): Not listed
DEA List II Chemicals (Essential Chemicals): Not listed

SARA 302/304
Composition/information on ingredients: No products were found

SARA 304 RQ: Not Applicable

SARA 311/312
Fire Hazard: Yes
Sudden Release of Pressure: No
Reactive: No
Immediate (acute) health hazard: Yes
Delayed (chronic) health hazard: No

State Regulations
Massachusetts: This material is listed.
New York: This material is not listed.
New Jersey: This material is listed.
Pennsylvania: This material is listed.

International Regulations
International Lists
National Inventory
Australia: This material is listed or exempted.
Canada: This material is listed or exempted.
China: This material is listed or exempted.
Europe: This material is listed or exempted.
Japan: This material is listed or exempted.
Malaysia: Not determined
New Zealand: This material is listed or exempted.
Philippines: This material is listed or exempted.
Republic of Korea: This material is listed or exempted.
Taiwan: This material is listed or exempted.

Canada
WHMIS (Canada): Class B-2: Flammable liquid
CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

HMIS Rating
Health: 1
Flammability: 3
Reactivity: 0

NFPA Rating
Health: 1
Flammability: 3
Reactivity: 0

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

REVISION DATE: 11/3/2016