

ISO-PENTANE

GHS Safety Data Sheet

Version No:5

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

ISO-PENTANE

OTHER NAMES

C5-H12, (CH₃)₂-CH-CH₂-CH₃, ethyldimethylmethane, isoamylhydride, "butane, 2-methyl-", "butane, 2-methyl-", "pentane, iso-"

PROPER SHIPPING NAME

PENTANES, liquid

PRODUCT USE

Used as a solvent; in the manufacture of chlorinated derivatives; as a blowing agent for polystyrene. [Hawley]

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

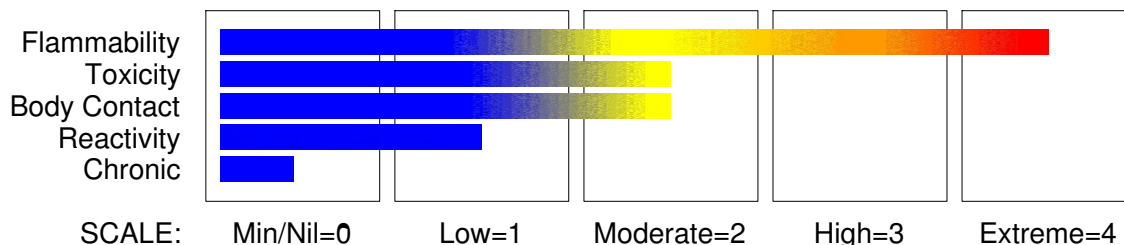
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Chronic Aquatic Hazard Category 2

Flammable Liquid Category 2

Respiratory Irritation Category 3

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Section 2 - HAZARDS IDENTIFICATION



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H335 H225 H411

May cause respiratory irritation

Highly flammable liquid and vapour

Toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS

Prevention

Take precautionary measures against static discharge

Use explosion-proof electrical/ventilating/lighting/equipment

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Wear protective gloves and eye/face protection.

Keep away from heat/sparks/open flame - No smoking.

Keep container tightly closed.

Response

In case of fire, use foam for extinction.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
isopentane	78-78-4	> 95

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.

EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor,

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Section 4 - FIRST AID MEASURES

or for at least 15 minutes.

- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

- Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.
- Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
- Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Foam.
Dry chemical powder.
Carbon dioxide.

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).

Fight fire from a safe distance, with adequate cover.

If run-off cannot be controlled, consider allowing fire to burn, otherwise notify health

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Section 5 - FIRE FIGHTING MEASURES

authorities.

If safe to do so, switch off electrical equipment until vapour fire hazard is removed.

DO NOT approach containers suspected to be hot.

Cool fire exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.

FIRE/EXPLOSION HAZARD

Liquid and vapour are highly flammable.

Dangerous hazard when exposed to heat, flame and oxidisers.

Severe vapour explosion hazard, when exposed to flame or spark.

Vapour may travel a considerable distance to source of ignition.

Heating may cause expansion or decomposition leading to violent rupture of containers.

Combustion products include:.

carbon dioxide (CO₂) and carbon monoxide (CO).

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Personal Protective Equipment

Gloves, boots (chemical resistant).

Breathing apparatus.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

Clean up all spills immediately.

Avoid breathing vapours and contact with skin and eyes.

Wear protective clothing, impervious gloves and safety glasses.

Remove all ignition sources.

Wipe up and absorb small quantities with vermiculite or other absorbent material.

Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

Clear area of personnel and move upwind.

Alert Fire Brigade and tell them location and nature of hazard.

- May be violently or explosively reactive.

- Wear breathing apparatus plus protective gloves.

- Prevent, by any means available, spillage from entering drains or water courses.

- Consider evacuation (or protect in place).

No smoking, naked lights or ignition sources. Increase ventilation.

absorb vapour., Contain spill with sand, earth or vermiculite.

Use only spark-free shovels and explosion proof equipment.

Collect recoverable product into labelled containers for recycling.

Absorb remaining product with sand, earth or vermiculite.

Collect residues and place in flammable waste container.

After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

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Section 6 - ACCIDENTAL RELEASE MEASURES

life-threatening health effects is:

isopentane 20000 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

isopentane 610 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

isopentane 610 ppm

The threshold concentration below which most people will experience no appreciable risk of health effects:

isopentane 610 ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
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R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
-----	---------------	---------------	--------------

R51	$\geq 2.5\%$		
-----	--------------	--	--

else	$\geq 10\%$		
------	-------------	--	--

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+



X



X



X



X



+

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Use good occupational work practice. Observe manufacturer's storing and handling recommendations., Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Avoid all personal contact, including inhalation.

Wear protective clothing when risk of exposure occurs.

Avoid smoking, naked lights, heat or ignition sources.

and secure containers when dispensing or pouring product.

Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required., Use only in completely enclosed system. until atmosphere has been checked.

Avoid contact with incompatible materials.

Handle and open container with care, When handling, DO NOT eat, drink or smoke.

Avoid physical damage to containers.

Always wash hands with soap and water after handling. Work clothes should be laundered separately.

SUITABLE CONTAINER

Packaging as recommended by manufacturer.

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Section 7 - HANDLING AND STORAGE

- Check that containers are clearly labelled.
- Glass container.
- Plastic containers may only be used if approved for flammable liquids.
- Store in metal drums or safety cans.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS

- Observe manufacturer's storing and handling recommendations.
- No smoking, naked lights, heat or ignition sources.
- Store in original containers in approved flammable liquid storage area.
- Store in a cool, dry and well-ventilated area.
- Outside or detached storage is preferred.
- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
- Keep storage area free of debris, waste and combustibles.
- Store in an upright position.
- Protect containers against physical damage.
- Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- isopentane: CAS:78- 78- 4 CAS:68923- 44- 4 CAS:92046- 46- 3

MATERIAL DATA

TLV TWA: 600 ppm, 1770 mg/m³

REL TWA: 350 mg/m³; C: 1800 mg/m³/15m (alkanes) NIOSH

PERSONAL PROTECTION



EYE

- Safety glasses with side shields.
- Chemical goggles.
- Close fitting gas tight goggles.
- Full face shield.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

HANDS/FEET

Nitrile gloves.
Butyl rubber gloves.
Rubber gloves.
Safety footwear.

OTHER

Overalls.
· Impervious protective clothing.
· Barrier cream.
· Eyewash unit.
Ensure there is ready access to a safety shower.

RESPIRATOR

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.
Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
5 x ES	Air- line*	AX- 2	AX- PAPR- 2 ^
10 x ES	-	AX- 3	-
10+ x ES	-	Air- line**	-

* - Continuous Flow; ** - Continuous-flow or positive pressure demand

^ - Full-face.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.

If inhalation risk of overexposure exists, wear SAA approved organic-vapour respirator.

In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear, colourless watery liquid with a pleasant gasoline-like odour.
Immiscible with water. Miscible with ether, hydrocarbons, oils and slightly soluble in alcohol. Evaporation rate (n-butyl acetate = 1) 13.

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.

Molecular Weight: 72.15
Melting Range (°C): - 159.89
Solubility in water (g/L): Immiscible
pH (1% solution): Not applicable.

Boiling Range (°C): 24- 32 27.8 pure
Specific Gravity (water=1): 0.62 @ 20/4
pH (as supplied): Not applicable
Vapour Pressure (kPa): 79.3 @ 21.1 C

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Volatile Component (%vol): 100
Relative Vapour Density (air=1): 2.48
Lower Explosive Limit (%): 1.32
Autoignition Temp (°C): 420
State: Liquid

Evaporation Rate: 13 BuAc=1
Flash Point (°C): < - 51 TCC
Upper Explosive Limit (%): 8.3
Decomposition Temp (°C): Not available
Viscosity: Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Presence of incompatible materials.
Product is considered stable under normal handling conditions.
Stable under normal storage conditions.
Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be damaging to the health of the individual. Considered an unlikely route of entry in commercial/industrial environments. The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. The liquid may produce skin discomfort following prolonged contact. Defatting and/or drying of the skin may lead to dermatitis. Open cuts, abraded or irritated skin should not be exposed to this material.

INHALED

Inhalation may produce health damage*.

Limited evidence exists, or practical experience predicts, that the material produces irritation of the respiratory system in a significant number of individuals following inhalation.

Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination. Material is highly volatile and may quickly form a concentrated atmosphere in confined or unventilated areas. Vapour is heavier than air and may displace and replace air in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure.

If exposure to highly concentrated solvent atmosphere is prolonged this may lead to

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Section 11 - TOXICOLOGICAL INFORMATION

narcosis, unconsciousness, even coma and possible death.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are by accidental skin and eye contact and by inhalation of vapours especially at higher temperatures.

Prolonged or repeated inhalation may cause dizziness, weakness, weight loss, anaemia, nervousness, pain in the limbs and peripheral numbness [Mallinckrodt].

TOXICITY AND IRRITATION

No data of toxicological significance identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

Toxicity invertebrate: cell mult. inhib. 30-63mg/L

Effects on algae and plankton: cell mult. inhib. algae 7.3-8.5mg/L

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.

Consult manufacturer for recycling options.

Consult State Land Waste Management Authority for disposal.

Allow small quantities to evaporate.

Evaporate or incinerate residue at an approved site or bury spilled material in an authorised landfill.

Return empty containers to supplier or bury empty containers at an authorised landfill.

Ensure damaged or non-returnable drums are gas-free before disposal.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: FLAMMABLE LIQUID
HAZCHEM: 3[Y]E

UNDG:

Dangerous Goods Class: 3

UN Number: 1265

Shipping Name: PENTANES, liquid

Subrisk:

None

Packing Group:

II

Air Transport IATA:

ICAO/IATA Class: 3

UN/ID Number: 1265

ERG Code: 3H

Shipping name: PENTANES, liquid

ICAO/IATA Subrisk:

None

Packing Group:

II

Maritime Transport IMDG:

IMDG Class: 3

UN Number: 1265

IMDG Subrisk:

None

Packing Group:

II

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Section 14 - TRANSPORTATION INFORMATION

EMS Number: F- E, S- D
Shipping name: PENTANES, liquid

Section 15 - REGULATORY INFORMATION

REGULATIONS

isopentane (CAS: 78-78-4) is found on the following regulatory lists;
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for isopentane as CAS: 68923-44-4, CAS: 92046-46-3.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
isopentane	78- 78- 4, 68923- 44- 4, 92046 - 46- 3

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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