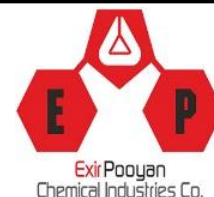


MATERIAL SAFETY DATA SHEET (MSDS)



ISOBUTYL ACETATE

1. PRODUCT IDENTIFICATION:

Synonyms: 2-Methyl-1propyl acetate, Isobutyl ester

CAS No.: 110-19-0

Molecular Weight: 116.16

Chemical Formula: $C_6H_{12}O_2$

COMPANY IDENTIFICATION:

Central Office: No 202, Shahid Beheshti Ave., Tehran-Iran

Post Code: 1577836331

Tel: +982188524300 (10 Lines)

Fax: +982188170565

Factory: Arghavan 3 Ave., No.2 Industrial Zone, Arak-Iran

Post Code: 3833151743

Tel: +988633573306 (10 Lines)

Fax: +988633573236

Web: www.Exirpooyan.com

Email: info@exirpooyan.com

2. HAZARDS IDENTIFICATION:

OSHA/GHS	Flammable liquids	Category 2
Hazards	Specific target organ toxicity single exposure	(Category 3), Central nervous system,

LABEL ELEMENTS

Hazard symbols:



Signal word: Danger!

Hazard statements:

H225	Highly flammable liquid and vapor.
H336	May cause drowsiness or dizziness.

Precautionary statements:

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P370 + P378	In case of fire: Use dry powder or dry sand to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.

Supplemental Hazard information (EU)

EUH066	Repeated exposure may cause skin dryness or cracking.
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Other hazards:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. Repeated exposure may cause skin dryness or cracking.

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Components	CAS-No.	Percent
Isobutyl Acetate	110-19-0	99-100%

4. FIRST AID MEASURES:

Eye contact	Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.
Skin contact	After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the

	irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.
Ingestion	Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth to mouth resuscitation. Seek immediate medical attention.
Serious Ingestion	Not available.

5. FIRE FIGHTING MEASURES:

FLAMMABLE PROPERTIES:

Fire Hazards in Presence of Various Substances	Highly flammable in presence of open flames and sparks, of heat.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Highly explosive in presence of oxidizing materials, of metals, of acids.
Fire Fighting Media and Instructions	Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.
Further information	Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES:

Personal precautions, protective equipment and emergency procedures	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the Environment must be avoided.
Methods and materials for containment and cleaning up	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations

7. HANDLING AND STORAGE:

Precautions	Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids.
Storage	Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION:

ENGINEERING MEASURES:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

PERSONAL PROTECTIVE EQUIPMENT:

Eye/face protection	Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Body Protection	Impervious clothing, flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineer protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance	liquid
Color	Clear, colorless
Form	liquid
Odor	Fruity. (Slight.)
Odor Threshold	0.64 ppm
Flash point	22 °C - closed cup
Flammability	Upper explosion limit: 10.5 %(V) Lower explosion limit: 1.3 %(V)
Boiling point/boiling range	117.2°C (243°F)
Melting point/range	-98.6°C (-145.5°F)
Auto-ignition temperature	430 °C at 1,019 hPa
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapor pressure	13 mmHg at 20 °C
Vapor density	4.01 - (Air = 1.0)
Density	0.875 g/cm ³ @ 20 °C, 68 °F
Relative density	0.870 g/mL at 25 °C
Water solubility	Soluble in hot water, diethyl ether, acetone. Partially soluble in cold water.
Viscosity	No data available
pH	No data available
Evaporation rate	No data available
Partition coefficient: n-octanol/water	log Pow: 2.3 at 25 °C

10. STABILITY AND REACTIVITY

Stability:

The product is stable.

Hazardous Decomposition Products:

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

Incompatibility with various substances:

Highly reactive with oxidizing agents, metals, acids.

Conditions to Avoid:

Heat, flames and sparks.

11. TOXICOLOGICAL INFORMATION:

Routes of Entry:

Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 4763 mg/kg [Rabbit]. Acute dermal toxicity (LD50): 17400 mg/kg [Rabbit].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified None. by NTP, None. by OSHA. A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Classified None. for human. TERATOGENIC EFFECTS: Classified None. for human. The substance is toxic to lungs, upper respiratory tract, eyes, eye, lens or cornea.

Other Toxic Effects on Humans: Very hazardous in case of skin contact (irritant, permeator), of inhalation (lung irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

12. ECOLOGICAL INFORMATION:

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 4763 mg/kg [Rabbit]. Acute dermal toxicity (LD50): 17400 mg/kg [Rabbit].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified None. by NTP, None. by OSHA. A4 (Not classifiable for human or animal.) by ACGIH.

MUTAGENIC EFFECTS: Classified None. for human. **TERATOGENIC EFFECTS:** Classified None. for human. The substance is toxic to lungs, upper respiratory tract, eyes, eye, lens or cornea.

Other Toxic Effects on Humans: Very hazardous in case of skin contact (irritant, permeator), of inhalation (lung irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

13. DISPOSAL CONSIDERATIONS:

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. TRANSPORT INFORMATION:

DOT	Class 3: Flammable liquid.
Identification	Isobutyl Acetate : UN 1213 PG: II
Special Provisions for Transport	Not available.

15. OTERE INFORMATION:

NFPA Ratings: Health: 2 Flammability: 3 Reactivity: 0

Protective Equipment:

Gloves, Lab coat, Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate Splash goggles.

