COMET CHEMICAL COMPANY LTD.

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	**Isobutyl Acetate**
Version #	01
Issue date	06-24-2014
Chemical name	Isobutyl Acetate
Chemical description	Aliphatic carboxylic acid ester
CAS #	110-19-0
MSDS Number	COM257
Product use	Professional use only
Synonym(s)	Acetic acid, 2-methylpropyl ester
Manufacturer information	Refer to supplier
Supplier	Comet Chemical 3463 Thomas Street Innisfill, ON L9S 3W4 CA Information (M-F 8:00-5:00): 705-436-5580 24 Hour Number (Newalta): 800-567-7455

2. Hazards Identification

Emergency overview

Clear, colorless liquid. Strong fruity odor.
DANGER
EXTREMELY FLAMMABLE LIQUID AND VAPOR.
Will be easily ignited by heat, spark or flames. Vapors may cause a flash fire or ignite explosively.
May cause mild skin and eye irritation. May cause central nervous system effects.

Potential health effects

Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	May cause mild eye irritation.
Skin	Direct skin contact may cause slight or mild, transient irritation.
Inhalation	May cause irritation of respiratory tract. May cause irritation to the nose, throat and upper respiratory tract.
Ingestion	Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system.
Target organs	Central nervous system. Respiratory system.
Chronic effects	Prolonged skin contact may cause dermatitis (rash), characterized by red, dry, itching skin.
Signs and symptoms	May cause mild eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Direct skin contact may cause slight or mild, transient irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. May cause central nervous system effects. May cause irritation to the nose, throat and upper respiratory tract. Symptoms may include coughing, choking and wheezing. Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Potential environmental effects	See ECOLOGICAL INFORMATION, Section 12.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Isobutyl Acetate	110-19-0	100

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin contact	Immediately flush skin with plenty of water. Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.

Inhalation	Move to fresh air. If breathing is difficult, trained personnel should give oxygen. If not breathing, give artificial respiration. Seek immediate medical attention/advice.
Ingestion	Seek immediate medical attention/advice. Do not induce vomiting. Drink 1 or 2 glasses of water. Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Notes to physician	Treat symptomatically. This product is a CNS depressant.
General advice	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	Flammable by WHMIS criteria. Extremely flammable liquid and vapor. This material may be ignited by heat, sparks, flames, or other sources of ignition (e.g static electricity, pilot lights, or mechanical / electrical equipment). Vapors are heavier than air and may spread along floors. Vapors may travel considerable distance to a source of ignition and flash back. Heat may cause the containers to explode. Vapors may form explosive mixtures with air.
Extinguishing media	
Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.
Explosion data	
Sensitivity to static discharge	May be sensitive to static discharge.
Sensitivity to mechanical impact	Not expected to be sensitive to mechanical impact.
Hazardous combustion products	Carbon oxides. Other irritating fumes and smoke.
General fire hazards	Vapors may travel considerable distance to a source of ignition and flash back. Vapors are heavier than air and may spread along floors.

6. Accidental Release Measures

Personal precautions	Wear appropriate protective equipment and clothing during clean-up. Ventilate the contaminated area. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. See Section 8 of the MSDS for Personal Protective Equipment.
Environmental precautions	For large (industrial) releases, prevent spill from entering a waterway.
Methods for containment	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.
Methods for cleaning up	Ventilate the contaminated area. Remove sources of ignition. Use only non-sparking tools. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand). Local authorities should be advised if significant spillages cannot be contained. For waste disposal, see section 13 of the MSDS.
Other information	Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling	Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. All equipment used when handling the product must be grounded. Do not use in areas without adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid breathing mist or vapor. Do not taste or swallow. Wear appropriate personal protective equipment. Avoid contact with incompatible materials. Wash hands after handling and before eating.

Storage

Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. The pressure in sealed containers can increase under the influence of heat. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS). Keep in an area equipped with sprinklers. Use care in handling/storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Material	Type	Value
Iso-butyl Acetate (CAS 110-19-0)	TWA	150 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Iso-butyl Acetate (CAS 110-19-0)	PEL	700 mg/m3
		150 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection

Chemical goggles and face shield are recommended. Eye wash fountain and emergency showers are recommended.

Skin protection

Wear chemical protective equipment that is specifically recommended by the manufacturer. Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.Impervious gloves. Advice should be sought from glove suppliers.

Respiratory protection

Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. A NIOSH/MSHA approved air-purifying respirator with the appropriate chemical cartridges or a positive-pressure, air-supplied respirator may be used to reduce exposure. Advice should be sought from respiratory protection specialists.

Hand protection

Gloves impervious to the material are recommended. Advice should be sought from glove suppliers.

9. Physical & Chemical Properties

Appearance

Clear, colorless liquid with fruity odor.

Physical state

Liquid.

Form

Transparent liquid.

Color

Clear colorless or nearly colorless

Odor

Sweet, ester odor. Fruity.

Odor threshold

1.1 ppm

pH

Not available.

Vapor pressure

13 mm Hg at 20 °C

Vapor density

4

Boiling point

241.7 °F (116.5 °C)

Melting point/Freezing point

-145.84 °F (-98.8 °C)

Solubility (water)

Slightly soluble

Specific gravity

0.87 at 20 °C

Relative density

Not available.

Flash point

62.6 °F (17.0 °C) Closed Cup

Flammability limits in air, upper, % by volume

10.5 %

Flammability limits in air, lower, % by volume	2.4 %
Auto-ignition temperature	793.4 °F (423 °C)
Evaporation rate	Not available.
Partition coefficient (n-octanol/water)	1.8
Molecular weight	116.16 g/mol
Molecular formula	C6-H12-O2
Other data	
Density	0.87 g/cm3
Solubility (other)	Soluble in all proportions in most organic solvents, such as ethanol, diethyl ether, ketones, other esters.

10. Chemical Stability & Reactivity Information

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Keep away from heat, sparks and open flame. Keep away from direct sunlight. Keep away from heat. Avoid contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Strong acids. Strong alkalis. Some plastics.
Hazardous decomposition products	No hazardous decomposition products are known. The following may be released during a fire: Carbon oxides. Other irritating fumes and smoke.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	**Species**	**Test Results**
Iso-butyl Acetate (CAS 110-19-0)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours
		38.01 mg/l, 4 hours
Oral		
LD50	Rat	13400 mg/l

Acute effects	This product is not classified as an acute toxicity hazard. See data above for individual ingredient acute toxicity data. May cause central nervous system effects.
Sensitization	Not expected to be a skin or respiratory sensitizer.
Chronic effects	Chronic skin contact with low concentrations may cause dermatitis.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Causes mild skin irritation.
Serious eye damage/irritation	Direct contact may cause very mild, temporary irritation and redness.
Mutagenicity	Not expected to be mutagenic.
Reproductive effects	Not expected to be hazardous by WHMIS criteria. This product is not expected to cause reproductive or developmental effects.
Teratogenicity	Not expected to be hazardous by WHMIS criteria. This product is not expected to be a teratogen.

Symptoms and target organs May cause mild eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Direct skin contact may cause slight or mild, transient irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system. May cause central nervous system effects. May cause irritation to the nose, throat and upper respiratory tract. Symptoms may include upper respiratory irritation, coughing, and breathing difficulties. Inhalation of extremely high concentrations may cause dizziness, disorientation, incoordination, narcosis, nausea or narcotic effects.

Epidemiology No epidemiological data is available for this product.

Synergistic materials Not available.

12. Ecological Information

Ecotoxicological data

Product		Species	Test Results
Iso-butyl Acetate (CAS 110-19-0)			
Aquatic			
Acute			
Algae	EC50	Green Algae (Scenedesmus subspicatus)	370 mg/l, 72 hours
Crustacea	EC50	Water flea (Daphnia magna)	25 mg/l, 48 hours
Fish	LC50	Japanese rice fish (Oryzias latipes)	17 mg/l, 96 hours
Chronic			
Crustacea	EC50	Water flea (Daphnia magna)	23 mg/l, 21 days

Ecotoxicity Harmful to aquatic life.

Environmental effects Harmful to aquatic organisms.

Aquatic toxicity The product should not be allowed to enter drains, water courses or the soil.

Persistence and degradability Readily biodegradable.

Partition coefficient
1.78

Mobility in environmental media High water solubility indicates a high mobility in soil.

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

TDG

UN number UN1213
UN proper shipping name ISOBUTYL ACETATE
Transport hazard class(es)
Class 3
Subsidiary risk -
Packing group II
Environmental hazards Not available.
Special precautions for user Read safety instructions, MSDS and emergency procedures before handling.

IATA

UN number UN1213
UN proper shipping name ISOBUTYL ACETATE
Transport hazard class(es)
Class 3

Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN1213
UN proper shipping name	ISOBUTYL ACETATE
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-D
Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.

IATA; IMDG; TDG

15. Regulatory Information

Canadian regulations	This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.
WHMIS status	Controlled
WHMIS classification	B2 - Flammable Liquids

WHMIS labeling

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other Information

HMIS® ratings

Health: 2*
Flammability: 3
Physical hazard: 0

NFPA ratings

Health: 1
Flammability: 3
Instability: 0

Disclaimer

Prepared by: ICC The Compliance Center Inc. 1-888-442-9628
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Legend to abbreviations and acronyms used in the SDS

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Services
CEPA: Canadian Environmental Protection Act
CPR: Controlled Products Regulation
DSL: Domestic Substance List
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods
IUCLID: International Uniform Chemical Information Database
LC: Lethal Concentration
LD: Lethal Dose
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OECD: Organisation for Economic Co operation and Development
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TWA: Time Weighted Average
STEL: Short Term Exposure Limit

References

Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2014 (Chempendium, RTECs, HSDB, INCHEM)
European Chemicals Agency, Classification Legislation, 2014.
Material Safety Data Sheet from manufacturer.
OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2014.