ISOBUTANOL

SECTION 1: CHEMICAL IDENTIFICATION-

PRODUCT NAME:

ISOBUTANOL
CAS NO.：78-83-1

PRODUCT USE：

Synthesis of isobutyl acetate, isobutyl esters, coating, flavor agents, and plasticizer agents.

NFPA Health：1

Flammability：3

Reactivity： 0

SUPPLIER:

2EH plant, Petrochemicals Division, Nan Ya Plastics Corporation
NO 1-1, FORMOSA INDUSTRIAL PARK, MAILIAO, YUNLIN COUNTY, TAIWAN, R.O.C.
Phone Number: +886-5-6818738, Fax Number：+886-5-6812716
Emergency Phone Number: +886 5 6812482

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Formula: $C_4H_{10}O$ / $(CH_3)_2CHCH_2OH$
Formula mass: 74.1
EC No. (EINECS/ELINCS): 603-108-00-1
UN N0.：1212
CAS N0. : 78-83-1
Composition（% ）：＞99.5%
SYNONYMS：2-methyl-1-propanol, Isopropyl carbinol, Isobutyl alcohol

SECTION 2. HAZARDS IDENTIFICATION

IMPORTANT DATA：

PHYSICAL STATE; APPEARANCE:
Colorless liquid, with characteristic odor.
PHYSICAL DANGERS:
The vapor is heavier than air and may travel along the ground; distant ignition possible.

CHEMICAL DANGERS:
Reacts with aluminum, strong oxidants, such as chromium trioxide forming flammable/explosive gas (hydrogen). Attacks some forms of plastic, rubber and coatings.

OCCUPATIONAL EXPOSURE LIMITS
TLV ：50 ppm as TWA；（ACGIH2005）
MAK：100 ppm, 310 mg/m^3；Peak limitation category：I（1）；
Pregnancy risk group：C；（DFG 2004）

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its vapor and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20 ℃.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the skin and is severely irritating to the eyes. Exposure far above the OEL could cause lowering of consciousness. If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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SECTION 4. FIRST-AID MEASURES

EXPOSURE：

- **INHALATION**：
  - Headache. Dizziness. Drowsiness.
  - Ventilation, local exhaust, or breathing protection.
  - Fresh air, rest.
- **SKIN**：
  - Pain. Redness. Dry skin.
  - Protective gloves.
  - Remove contaminated clothes. Rinse skin with plenty of water or shower.

- **EYES**:
  - Pain. Redness.
  - Safety goggles.
  - First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

- **INGESTION**:
  - Abdominal pain. Dizziness. Drowsiness.
  - Do not eat, drink, or smoke during work.
  - Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Refer for medical attention.

SECTION 5: FIRE FIGHTING MEASURES

1. **EXTINGUISHING MEDIA**
   Water spray.
   Carbon dioxide, dry chemical powder or appropriate foam.
   Use water spray to cool fire-exposed containers.
2. **SPECIAL FIREFIGHTING PROCEDURES**
   Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
   Use water spray to cool fire-exposed containers.
3. **UNUSUAL FIRE AND EXPLOSIONS HAZARDS**
   Flammable liquid.
   Vapor may travel considerable distance to source of ignition and flash back.
   Container explosion can occur under fire conditions. In advanced or massive fires the area should be evacuated and the fire should be fought from a remote explosion-resistant location.
   Forms explosive mixtures in air.
4. **FIRE INCOMPATIBILITY**
   Avoid contamination with oxidizing agents i.e. aluminum.
5. **PERSONAL PROTECTION**
   Glasses:
   Safety Glasses. Chemical goggles. Full face- shield.
   Gloves:
   1.BUTYL 2.TEFLON 3.PVA 4.VITON Respirator:
   Type A Filter of sufficient capacity

SECTION 6: ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb small quantities with vermiculite or other absorbent material.
- Wipe up.
- Collect residues in a flammable waste container.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.
- May be violently or explosively reactive. Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labeled containers for recycling.
- Neutralize/decontaminate residue.
- Collect solid residues and seal in labeled drums for disposal.
- Wash area and prevent runoff into drains.
- 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.

SECTION 7: HANDLING AND STORAGE

HANDLING:

Retain product residue, (liquid and/or vapor), and can be dangerous.
Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

STORAGE:

Fireproof. Separated from strong oxidants, strong bases, strong acids, strong reducing agents. Well closed.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- Safety shower and eye bath.
- Use nonsparking tools.
- Mechanical exhaust required.
- Do not breathe vapor.
- Avoid contact with eyes, skin and clothing.
- Avoid prolonged or repeated exposure.
- Niosh/msha-approved respirator.
- Compatible chemical-resistant gloves.

- Chemical safety goggles.
- Wash thoroughly after handling.
- Wash contaminated clothing before reuse.
- Keep container closed.
- Keep away from heat, sparks, and open flame.
- Refrigerate.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling point: 108°C
Melting point: <-90°C
Relative density (water = 1): 0.8
Solubility in water, g/100 ml at 20°C: 8.7
Vapor pressure, kPa at 20°C: 1.2
Relative vapor density (air = 1): 2.55
Relative density of the vapor/air-mixture at 20°C (air = 1): 1.02
Flash point:31°C, close cup
Auto-ignition temperature: 415°C
Explosive limits, vol% in air: 1.7-10.9
Octanol/water partition coefficient as log Pow：0.8

SECTION 10: STABILITY AND REACTIVITY

Stable. Flammable. Incompatible with strong oxidizing agents, aluminium.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicology

Harmful by inhalation or ingestion. May cause narcosis. Skin, eye and respiratory irritant. Typical TLV 50 ppm. Typical STEL 75 ppm

TOXICITY DATA

ORL-RAT LD_{50}: 2460mg/Kg
SKN-RBT LD_{50}: 4240mg/Kg
IHL-RAT LCLO: 8000 ppm/4h
IVN-MUS LD_{50}: 609mg/Kg
IVM-CAT LDLO 18mg/kg
ORL-RBT LDLO 4240 mg/Kg

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SECTION 12: ECOLOGICAL INFORMATION

No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

Evacuate danger area in case of large spills. Collect leaking and spilled liquid in sealable containers as far as possible.
Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer (extra personal protection: complete protective clothing including self-contained breathing apparatus).
Observe all federal, state, and local environmental regulations.

SECTION 14: TRANSPORT INFORMATION

Labels Required

Flammable liquid

DOT Information:

Dangerous Goods Class:	3	Subrisk:	None
UN Number:	1212	Packing Group: III	
Shipping Name：	Isobutanol		

Air Transport IATA:

ICAO/IATA Class:	3	ICAO/IATA Subrisk:	None
UN/ID Number:	1212	Packing Group：III	
Shipping Name:	Isobutanol		

Maritime Transport IMDG:

IMDG Class:	3	IMDG Subrisk:	None
UN Number:	1212	Packing Group: III	
Shipping Name:	Isobutanol		

SECTION 15: REGULATORY INFORMATION

RISKS：

Risk Codes
R：10-20-22-36-37-38
S：7-16-24/25-26

SECTION 16: OTHER INFORMATION

LIMITED EVIDENCE

May produce discomfort of the respiratory system*.
Possible skin sensitiser*.
Vapors potentially cause drowsiness and dizziness*.
* (limited evidence).

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Nan Ya shall not be held liable for any damage resulting from handling or from contact with the above product.

Issue by: 2EH Plant, petrochemicals 1st Division, Nan Ya Plastics Corporation,

Issue date: 2021/01/21