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1 、 General Description

This manual provides the information about the material specification and the corresponding quality control system of our product, Isophorone (3,5,5-trimethyl-2-cyclohexen-1-one) . Customers can easily access necessary information of this product according to the table of contents regarding storage, handling and our quality control procedure. We wish customers would satisfy with our product as well as our effort.



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2、Properties of Material



Isophorone

FORMULA : C₉H₁₄O

CHEMICAL NAME : Isophorone

PHYSICAL PROPERTIES :

Molecular Weight (g/mole)	138.21
Appearance	colorless to pale yellow liquid
Boiling Point (°C)	215.2
Melting Point (°C)	-8.1
Density(g/cm ³)	0.92
Flash Point (°C)	85
Vapor Pressure (psi, 20°C)	0.0002

SPECIFICATIONS :

Property	Method	Specified Limit
Appearance	Visual	colorless liquid
Purity, % wt	G.C. Method	99.0 min
Color, APHA	ASTM D1209	50 max.
Water content, ppm	ASTM D1364	0.1 max.
Acid content (% wt, as Acetic acid)	ASTM D1613	0.01 max.

TASCO TECHNOLOGY CORP.

台合科技股份有限公司

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3 、 Storage of Material

The products should be stored at room temperature, dry, well ventilated area and avoid exposing to sunlight. It is strongly recommended to use immediately when cover of the package opened.

4 、 Material Safety Data Sheets

1 、 Identification of the substance/preparation and of the company

Product name : Isophorone
Catalogue No. : —
Identified uses: Industrial solvent. Chemical intermediate. Polyethylene resin. Nitrocellulose resin solvent. Pesticide. Paint.
Company : TASCO Technology Corp., 25-11F MORRISON PLAZA. SEC. 4.JEN-AI RD.TAIPEI, TAIWAN, R.O.C
Emergency telephone No. : 886-7-641-1122/Fax : 886-7-641-1125

2 、 Hazards identification

Toxicological information : Harmful by ingestion., Harmful by skin absorption., Irritant, Carcinogen
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Hazard pictograms :



Signal word: WARNING!

Hazards:

- Combustible liquid.
- Harmful if swallowed or in contact with skin
- Causes serious eye irritation.
- May cause respiratory irritation.
- Suspected of causing cancer.

Hazard classification:

- This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.
- Flammable liquids - Category 4
- Acute toxicity - Category 4 - Oral
- Acute toxicity - Category 4 - Dermal
- Eye irritation - Category 2A
- Carcinogenicity - Category 2
- Specific target organ toxicity - single exposure - Category 3

Precautionary statements:

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- Wash skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/ eye protection/ face protection.
- Use personal protective equipment as required

Other hazards: no data available

3 、 Composition/information on ingredients

Product name : Isophorone
Synonyms name : 3,5,5-Trimethyl-2-cyclohexen-1-one
CAS No. : 78-59-1
Percentage : 99.0 min.

4 、 First aid measures

- After inhalation : Provide fresh air. Call in physician.
- After skin contact : Wash off with soap and plenty of water. Remove contaminated clothing. Call in physician.
- After eye contact : Rinse thoroughly with plenty of water for at least 15 minutes. Call in physician.
- After swallowing : Never give anything by mouth to an unconscious person. Rinse mouth with water. Call in physician.



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Most important symptom & hazard effect :

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Notes to physician :

Skin contact may aggravate preexisting dermatitis. Repeated excessive exposure may aggravate preexisting lung disease. Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5、Fire-fighting measures

Suitable extinguishing media :

water, CO₂, foam, powder

Special risk : The liquid will float on the surface of the water, the fire will be spread by using water. Closed container heating may violently rupture..

Special Fire-fighting measures :

Prevent fire-fighting water from entering surface water or groundwater

Special protective equipment for fire fighting :

Wear self contained breathing apparatus for fire fighting if necessary.

6、Accidental release measures

Person-related precautionary measures :

Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental-protection measures :

Do not let product enter drains.

Procedures for cleaning :

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.



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7、Handling and storage

Handling :

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Normal measures for preventive fire protection.

Storage :

Keep container tightly closed in a dry and well-ventilated place.

8、Exposure controls/personal protection

Engineering controls : Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. °

Exposure limits

TWA	STEL	CEILING	BEI
5 ppm	10 ppm	—	—

Personal protective equipment : —

Respiratory protection : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Organic vapor cartridge.

Hand protection : Handle with gloves. The glove material : Polyvinyl alcohol、Responder、4H

Eye protection : Face shield and safety glasses

Skin protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Industrial hygiene : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9、Physical and chemical properties

State : liquid

Form : liquid, clear



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Color : Colorless to yellow	Odor : pungent
pH value : no data available	Boiling point : 213-214 °C
Melting point : -8.1°C	Flash point : 85 °C Test method : () open cup (√) closed cup
Vapor pressure : 0.006 psi (20°C)	Vapor density :
Density : 0.922 g/cm ³	Solubility : 1.46 % at 20 °C

10、Stability and reactivity

Stability : Stable under normal temperatures and pressures °
Probable hazard reaction under special condition : Polymerization will not occur.
Conditions to be avoid : —
Substances to be avoid : Strong oxidizing agents, Strong acids, Strong bases
Hazardous decomposition products : Hazardous decomposition products formed under fire conditions. - Carbon oxides

11、Toxicological information

Acute toxicity :
Acute oral toxicity
Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. LD50, Rat, > 1,000 mg/kg
Acute dermal toxicity
Prolonged or widespread skin contact may result in absorption of potentially harmful amounts. LD50, Rabbit, 1,163 - 1,500 mg/kg
Acute inhalation toxicity
Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.
Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
LC50, Rat, male, 4 Hour, dust/mist, 7 mg/l
Skin : irritations



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Eye : irritations

Local effects : —

Sensatization : —

Chronic toxicity : —

Special effects : —

12、Ecological information

Toxicity

Toxicity to fish:

NOEC - *Cyprinodon variegatus* (sheepshead minnow) - 170 mg/l - 96 h

LC50 - *Pimephales promelas* (fathead minnow) - 145 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates.

LC50 - *Daphnia magna* (Water flea) - 120 mg/l - 48 h

Persistence and degradability

Bioaccumulative potential :

Bioaccumulation

Lepomis macrochirus (Bluegill) - 14 d

Bioconcentration factor (BCF): 7

13、Disposal considerations

Disposal in a manner :

Handle the waste in accordance with the local EPA regulation.

14、Transport information

UN Number : 3082

Special transport method and attention : —

15、Regulatory information

All the activities mentioned above must meet the law and regulation of the country where user is in.

16、Additional information

Reference	MERCK chemical database
Remark	"—" means no data , and "/" means not suitable.

- ※ This information is only suitable for this product, and It does not suit that if this product is to be a additive agent or mixed with other chemicals.
- ※ The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from



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its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

5 、 Data of Packing

5.1 Drum type :

5.1.1 The specification of the 53gal. drum is :

Volume : 208L

Material : Use JIS G3141 SPCC-SD DOS-A

Size : inside diameter $570 \pm 3\text{mm}$

Height : $886 \pm 5\text{mm}$

Nozzle : inside diameter (I.D.) 2" \times 2

Thickness : $1.2 \pm 0.08\text{mm}$

Weight : $18 \pm 0.5\text{KG}$

5.2 Isotank :

5.2.1 The specification of the isotank is :

Volume : 24~25KL(ca. 20 tons)

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6 、 Definition of the LOT NO.

6.1 Definition of the LOT NO. :

LOT NO. have 8 numbers, the Numbers definitions from left to right is :

- 1 、 The 1st to the 2nd number are refer to the product code: " IF "
- 2 、 The 3rd to the 4th number are refer to the right two numbers of the year. (Year 2017 take 17)
- 3 、 The 5th number is refers to the manufactured month (A~L) of the year.
- 4 、 The 6th number is refers to the packaging specification code: "1" for the isotank. "2" for the 208L drum.
- 5 、 The 7th to the 8th numbers are refer to the series numbers.

For example :

IF17D101—The Isophorone product is loaded in isotank and produced in April 2017 with the series number 01.



Name	Isophorone	Warning	1. May cause combustion 2. Harmful if inhalation 3. Avoid to contact with skin and eyes
		Protection	1. Places ventilating place, prevents the static electricity 2. Tightly closed 3. Wear protective gloves, protective eyeglasses, Safety mask.
Manufacture	TASCO TECHNOLOGY CORP.		
Address	25-11 MORRISON PLAZA. SEC. 4. JEN-AI RD., TAIPEI, TAIWAN, R.O.C TEL : 886-2-2741-5577		
(For more detail information, please reference the MSDS)			

LOT NO.	
Total weight	KGS
Net weight	KGS

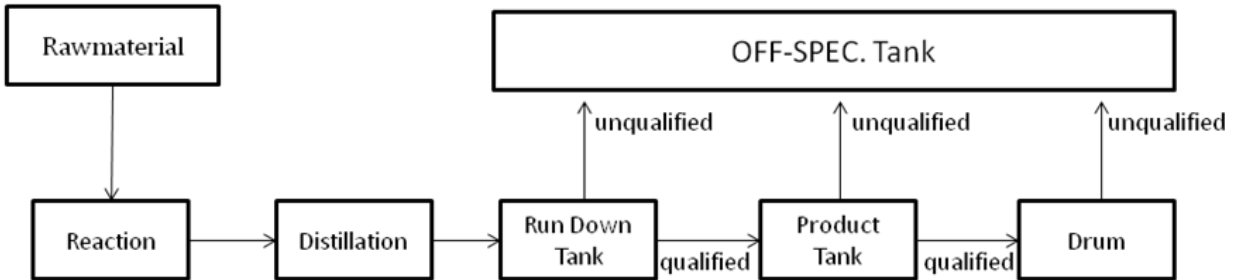


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7、Quality Control Flow Chart

TASCO PTBP-UNIT QC FLOW CHART and RELATIVE INFORMATION

7.1 QC FLOW CHART



7.2 Sample Analysis

	Analysis equipments	Frequency	Department	Sampling location
Run down tank	GC ASTM D-1364 ASTM D-1209 ASTM D-1613	1 time/week	R&D Analysis group	S-7332
Product Tank	(the same as above)	1 time/batch	(the same as above)	S-7921
Drum	(the same as above)	Sampling before filing to the 53Gal.drum	(the same as above)	53Gal.Drum



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8 、 Sampling System and Analysis Method

Sampling system

8.1 Process and Tank area

- 8.1.1 The cleaned glass sampling bottle will be dried in the oven before sampling, And indicates the serial number of the sampling point on the bottle cap.
- 8.1.2 When sampling, turn on the sampling valve and at first, purge the accumulated liquid in the dead end of the sampling point into the recycle collection bucket.
- 8.1.3 After the liquid at the sampling point was cleaned, sample approximately 100 c.c. sample into the glass sampling bottle. After washing the bottle inside, pour the liquid into the recycle collection bucket. Repeat 3 times.
- 8.1.4 Again take approximately 100 c.c. sample, and close the sampling valve.
- 8.1.5 Cover the bottle cap of the glass sampling bottle.

9 、 Sample Preserve

- 9. Sample preserve : The preserve period of the samples is six month. The samples should be stored at a room temperature, dry, well ventilated area and never exposed to sunlight.

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11. Custom services

Please contact following person if had question,

For commercial:

Mr. Howard Lai/Sales Department

TEL: (02)27415577 ext. 222 FAX: (02)27717331

For QC problem:

Mr. Long Whei Chiang/R&D sec.

TEL: (07)6411122 ext. 351 FAX: (07)6411125