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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

Isophthalic acid, 99%

Code I 1656

2. Hazard identification

2.1 Classification of the substance or mixture

Not classified.

2.2 GHS label elements, including precautionary statements

Pictogram(s) No symbol.

Signal word No signal word.

Hazard statement(s) none

Precautionary statement(s)

Prevention none

Response none

Storage none

Disposal none

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
isophthalic acid	isophthalic acid	121-91-5	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth.

4.2 Most important symptoms/effects, acute and delayed

May cause slight to moderate irritation of eyes, skin, and mucous membranes on prolonged contact. Ingestion may cause gastrointestinal irritation. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

/SRP:/ Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Poisons A and B/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Fire Extinguishing Agents: Water, dry powder, foam, carbon dioxide (USCG, 1999)

5.2 Specific hazards arising from the chemical

Behavior in Fire: Dust forms explosive mixture in air. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

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

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	white powder
Colour	Crystalline powder
Odour	no data available
Melting point/ freezing point	340\°C(lit.)
Boiling point or initial boiling point and boiling range	120\°C
Flammability	Combustible.
Lower and upper explosion limit / flammability limit	no data available
Flash point	107\°C(lit.)
Auto-ignition temperature	>650\°C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.00025186 Pa·s at 619.15K (346\°C)
Solubility	In water:0.01 g/100 mL (25 \°C)
Partition coefficient n-octanol/water (log value)	log Kow = 1.66
Vapour pressure	0mmHg at 25\°C
Density and/or relative density	1.54
Relative vapour density	no data available

Particle characteristics no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

SUBLIMES WITHOUT DECOMP

10.3 Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air. ISOPHTHALIC ACID is a carboxylic acid. Carboxylic acids donate hydrogen ions if a base is present to accept them. They react in this way with all bases, both organic (for example, the amines) and inorganic. Their reactions with bases, called "neutralizations", are accompanied by the evolution of substantial amounts of heat. Neutralization between an acid and a base produces water plus a salt. Carboxylic acids with six or fewer carbon atoms are freely or moderately soluble in water; those with more than six carbons are slightly soluble in water. Soluble carboxylic acid dissociate to an extent in water to yield hydrogen ions. The pH of solutions of carboxylic acids is therefore less than 7.0. Many insoluble carboxylic acids react rapidly with aqueous solutions containing a chemical base and dissolve as the neutralization generates a soluble salt. Carboxylic acids in aqueous solution and liquid or molten carboxylic acids can react with active metals to form gaseous hydrogen and a metal salt. Such reactions occur in principle for solid carboxylic acids as well, but are slow if the solid acid remains dry. Even "insoluble" carboxylic acids may absorb enough water from the air and dissolve sufficiently in it to corrode or dissolve iron, steel, and aluminum parts and containers. Carboxylic acids, like other acids, react with cyanide salts to generate gaseous hydrogen cyanide. The reaction is slower for dry, solid carboxylic acids. Insoluble carboxylic acids react with solutions of cyanides to cause the release of gaseous hydrogen cyanide. Flammable and/or toxic gases and heat are generated by the reaction of carboxylic acids with diazo compounds, dithiocarbamates, isocyanates, mercaptans, nitrides, and sulfides. Carboxylic acids, especially in aqueous solution, also react with sulfites, nitrites, thiosulfates (to give H₂S and SO₃), dithionites (SO₂), to generate flammable and/or toxic gases and heat. Their reaction with carbonates and bicarbonates generates a harmless gas (carbon dioxide) but still heat. Like other organic compounds, carboxylic acids can be oxidized by strong oxidizing agents and reduced by strong reducing agents. These reactions generate heat. A wide variety of products is possible. Like other acids, carboxylic acids may initiate polymerization reactions; like other acids, they often catalyze (increase the rate of) chemical reactions.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and fumes.

11. Toxicological information

Acute toxicity

Oral: LD50 Rat oral 12200 mg/kg bw

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Isophthalic acid, present at 100 mg/L, reached 78 of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test indicating ready biodegradability(1). Under aerobic conditions and following OECD guideline 301B, approximately 9%, 46%, 64%, and 77% of isophthalic acid contained in sludge was degraded after 2, 5, 7, and 12 days, respectively(2). Isophthalic acid is degraded by aerobic microorganisms isolated from soil and marine sediment(3,4); cultures

isolated from marine cultures also degraded isophthalic acid under anaerobic conditions(4). After an acclimation to an activated sludge inoculum over a 24 day period, 84% of isophthalate was consumed in a respiratory test(5). Isophthalic acid completely degraded in 8 days in a biodegradation test that used a soil inoculum(6). In another screening test, 95% of COD was removed in 5 days using an acclimated activated sludge inoculum(7). In anaerobic biodegradation tests using granular and digested sewage sludge inoculum, isophthalic acid (as isophthalate) could be completely mineralized with a lag phase for 50% degradation ranging from 74 to 156 days(8). Using bacteria from river water as inocula (Songhua River, China) and a sealed-bottled method, isophthalic acid was found to be readily biodegradable with first-order rate constant of 1.43/day(9).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for isophthalic acid(SRC), using a log Kow of 1.66(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low.

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of isophthalic acid can be estimated to be 79(SRC). According to a classification scheme(2), this estimated Koc value suggests that isophthalic acid is expected to have high mobility in soil(SRC). Isophthalic acid is a dibasic (2 displaceable hydrogen atoms) acid whose pKa1 is 3.70 and pKa2 is 4.60 at 25°C(3) indicating that isophthalic acid will be largely dissociated in the environment in the anion form and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(4).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN3295 IMDG: UN3295 IATA: UN3295

14.2 UN Proper Shipping Name

ADR/RID: HYDROCARBONS, LIQUID, N.O.S.
IMDG: HYDROCARBONS, LIQUID, N.O.S.
IATA: HYDROCARBONS, LIQUID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packing group, if applicable

ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
isophthalic acid	isophthalic acid	121-91-5	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse

the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

