SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

SECTION 1: Identification

1.1 GHS Product identifier

Product name Benzene-1,2,4-tricarboxylic acid 1,2-anhydride

1.2 Other means of identification

Product number -
Other names Anhydrosepedonin; 1,3-dioxo-1,3-dihydro-isobenzofuran-5-carboxylic acid; Anhydrotrimellitic acid

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.
Uses advised against no data available

1.4 Supplier's details

Company Shanghai Yien Chemical Technology Co., Ltd
Address Building 6, 28 Yingong Road, Fengxian District, Shanghai Chemical Industry Zone, Shanghai, 201400, China
Telephone +86-400-133-2688

1.5 Emergency phone number

Emergency phone number +86-400-133-2688
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Serious eye damage, Category 1
Skin sensitization, Category 1
Specific target organ toxicity – single exposure, Category 3
Respiratory sensitization, Category 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger
Hazard statement(s) H318 Causes serious eye damage
H317 May cause an allergic skin reaction

H335 May cause respiratory irritation
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statement(s)

Prevention	P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P271 Use only outdoors or in a well-ventilated area. P284 [In case of inadequate ventilation] wear respiratory protection.
Response	P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P317 Get medical help. P302+P352 IF ON SKIN: Wash with plenty of water/... P333+P317 If skin irritation or rash occurs: Get medical help. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P319 Get medical help if you feel unwell. P342+P316 If experiencing respiratory symptoms: Get emergency medical help immediately.
Storage	P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride	Benzene-1,2,4-tricarboxylic acid 1,2-anhydride	552-30-7	209-008-0	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

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

Following eye contact

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

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, ingestion, skin and/or eye contact Symptoms: Irritation eyes, skin, nose, respiratory system; pulmonary edema, respiratory sensitization; rhinitis, asthma, cough, wheezing, dyspnea (breathing difficulty), malaise (vague feeling of discomfort), fever, muscle aches, sneezing Target Organs: Eyes, skin, respiratory system (NIOSH, 2016)

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

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool . Cover skin burns with dry sterile dressings after decontamination . Poisons A and B

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Water spray, powder.

5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use water spray, powder.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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.

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.

6.3 Methods and materials for containment and cleaning up

Personal protection: P3 filter respirator for toxic particles. Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. Prevent build-up of electrostatic charges (e.g., by grounding). Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Dry. Separated from bases and strong oxidants. Ventilation along the floor.Dry. Separated from bases and strong oxidants. Ventilation along the floor.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 0.0005 mg/m3, as TWA; 0.002 mg/m3 as STEL; (skin); (SEN).MAK: (respirable fraction): 0.04 mg/m3; peak limitation category: I(1); sensitization of respiratory tract (SA)

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

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

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. Flakes and tablets.
Colour	White to yellow.
Odour	no data available
Melting point/freezing point	167.2 °C. Atm. press.:1 013 kPa.
Boiling point or initial boiling point and boiling range	> 380 - < 440 °C. Atm. press.:1 atm.
Flammability	Combustible Solid
Lower and upper explosion limit/flammability limit	no data available
Flash point	227 °C. Atm. press.:1 atm.
Auto-ignition temperature	> 400 °C. Remarks:Melting was observed at ca. 160 degrees C, but no significant relative self-ignition phenomena occurred at up to 400 degrees C, the highest temperature applied.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = 0.54. Temperature:20 °C.
Vapour pressure	0 Pa. Temperature:32 °C.;0 Pa. Temperature:40 °C.;0 Pa. Temperature:25 °C. Remarks:Extrapolated from measured data.
Density and/or relative density	1.487 g/cm³. Temperature:20 °C.;1.487. Temperature:20 °C.;1.489. Temperature:20 °C.
Relative vapour density	6.6 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts violently with bases and oxidants. Reacts slowly with water. This produces trimellitic acid.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Combustible.Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.TRIMELLITIC ANHYDRIDE reacts exothermically with water. This reaction is expected to be slow, but can become vigorous if local heating accelerates it. Reaction with water is accelerated by acids. Incompatible with acids, strong oxidizing agents, alcohols, amines, and bases. Incompatible with strong oxidizing agents, strong acids or strong bases. (NTP, 1992).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Reacts violently with bases and oxidants. Reacts slowly with water to form trimellitic acid.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Mouse oral 1900 mg/kg
- Inhalation: LC50 Rat inhalation >2330 mg/cu m/4 hr
- 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

The substance is severely irritating to the eyes. The substance is irritating to the skin and respiratory tract. Inhalation of dust may cause asthma-like reactions.

STOT-repeated exposure

Repeated or prolonged inhalation may cause asthma. The substance may cause allergic reactions with flu-like symptoms and 'pulmonary disease-anaemia syndrome'.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Leuciscus idus melanotus - > 957 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 792 mg/L - 48 h.
- Toxicity to algae: NOEC - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - > 1 000 mg/L - 96 h.
- Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - 100 - 500 mg/L - 3 h.

12.2 Persistence and degradability

AEROBIC: Based upon the hydrolysis of trimellitic anhydride in aqueous environments(1), biodegradation is not expected to be a primary removal process in aquatic systems(SRC). A biodegradation study based on BOD measurements, using an activated sludge seed, and an initial chemical concentration of 100 ppm, reported an 89-101% degree of biodegradation over a period of four weeks(2); however this was probably for trimellitic acid since the anhydride hydrolyzes so rapidly(SRC).

12.3 Bioaccumulative potential

Based on the structural similarities to phthalic anhydride, trimellitic anhydride is expected to have a similar hydrolysis rate(SRC). Phthalic anhydride has been reported to hydrolyze rapidly in water(1) and estimated half-lives of approximately 1.5 minutes and 2.7 minutes were calculated(SRC) using reported observed rate constants of 7.9X10-3/sec(2) and 4.3X10-3/sec(3), respectively. Based upon this hydrolysis rate, trimellitic anhydride bioconcentration is not expected to be an important environmental fate process(SRC).

12.4 Mobility in soil

Based on the structural similarities to phthalic anhydride, trimellitic anhydride is expected to have a similar hydrolysis rate(SRC). Phthalic anhydride has been reported to hydrolyze rapidly in water(1) and estimated half-lives of approximately 1.5 minutes and 2.7 minutes were calculated(SRC) using reported observed rate constants of 7.9X10-3/sec(2) and 4.3X10-3/sec(3), respectively. Based upon this hydrolysis rate, trimellitic anhydride adsorption to soil and leaching are not expected to be important processes(SRC).

12.5 Other adverse effects

no data available

SECTION 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.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

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 IMO instruments

no data available

SECTION 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
Benzene-1,2,4-tricarboxylic acid 1,2-anhydride	Benzene-1,2,4-tricarboxylic acid 1,2-anhydride	552-30-7	209-008-0
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.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date	July 15, 2019
Revision Date	July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service

- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

The symptoms of allergic reactions including asthma do not become manifest until 4 to 12 hours.Anyone who has shown symptoms of asthma due to this substance should avoid all further contact.The occupational exposure limit value should not be exceeded during any part of the working exposure.Do NOT take working clothes home.

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

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