

SAFETY DATA SHEET - SDS

PURIFIED TEREPHTHALIC ACID – PTA

In accordance with Regulations (CE) 1907/2006, (CE) 1272/2008 and (EU) 453/2010 (Annex I)

SECTION I - IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

IDENTIFICATION OF THE SUBSTANCE PURIFIED TEREPHTHALIC ACID – PTA

IDENTIFICATION OF THE PRODUCT (CHEMICAL NAME): 1-4 benzene dicarboxylic acid

CAS #: 100-21-0

REACH #: 01-2119485970-27-0058

MAIN APPLICATIONS OF THE PRODUCT: Main raw material for the manufacturing of PET polymer (poly ethylene terephthalate)

DETAILS OF THE MANUFACTURER AND SUPPLIER OF THE SAFETY DATA SHEET

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SECTION II – HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE IN ACCORDANCE WITH REGULATION (CE) N.1272/2008 :

HAZARD CLASS	CLASS CODE AND HAZARD CATEGORY	HAZARD STATEMENT	HAZARD WARNING
Not classified	Not classified	Not classified	Not classified

CLASSIFICATION IN ACCORDANCE WITH DIRECTIVE 67/548/CEE:

Classification	Hazard symbol	Risk phrases
Not classified	Not classified	Not classified

MAIN ADVERSE EFFECTS

PHYSICAL-CHEMICAL EFFECTS	: No adverse physical-chemical effects are expected under normal conditions of use.
HEALTH EFFECTS INGESTION:	Not known.
INHALATION EXPOSURE:	Slight irritant.
CONTACT WITH SKIN:	May cause irritation to skin.
CONTACT WITH EYES:	May cause irritation to eyes.
SENSITIZATION:	The substance might cause allergic skin reactions.
ENVIRONMENTAL EFFECTS	: No adverse environmental effects are expected under normal condition of use.

LABELLING IN ACCORDANCE WITH REGULATION N. 1272/2008/EC:

PICTOGRAM(S)
WARNING
HAZARD STATEMENTS

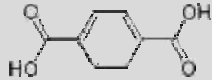


Not foreseen
Not foreseen

OTHER HAZARDS (WHICH DO NOT RESULTS IN THE CLASSIFICATION):

PHYSICAL-CHEMICAL HAZARDS:	The substance is organic, it may form explosive mixtures with air under certain conditions (e.g. temperature, pressure, particle size of dusts, humidity, concentration of combustive agents).
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SECTION III - COMPOSITION/INFORMATION ON INGREDIENTS

NAME OF THE COMPONENT	PURIFIED TEREPHTHALIC ACID	– PTA
CONCENTRATION	99.9 %	
STRUCTURAL FORMULA		
CHEMICAL FORMULA	C ₈ H ₆ O ₄	
MOLECULAR WEIGHT	166.1308 [g/mol]	
SUBSTANCE WITH COMMUNITY OEL	NO	
CAS NAME	Terephthalic acid	
CAS NUMBER	100-21-0	
IUPAC NAME	Terephthalic acid	
EC NUMBER	202-830-0	
IMP URITY/IES (IF CLASSIFIED)	There are no impurities	
ADDITIVE/IES (IF CLASSIFIED)	There are no additives	

SECTION IV - FIRST AID MEASURES

DESCRIPTION OF THE FIRST AID MEASURES:	
EYE CONTACT	Wash immediately with large amounts of water or normal saline. Get medical advice immediately.
SKIN CONTACT	Remove contaminated clothes and shoes immediately. Wash affected area with large amount of water until no evidence of substance remains. Get medical advice immediately.
INGESTION	If the substance is ingested, do not induce vomiting. Get medical advice immediately.
INHALATION	Avoid breathing dusts that may be generated by handling of the product. Remove the person from the exposed area to fresh air immediately. Get medical advice.

MOST IMPORTANT SYMPTOMS AND EFFECTS (ACUTE AND DELAYED):	
ACUTE AND DELAYED EFFECTS	Ingestion: not known. Inhalation exposure: slight irritant. Contact with skin: redness. Contact with eyes: burning sensation, redness of conjunctivae. Sensitization: the substance may cause allergic skin reactions.
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:	
MEDICAL MONITORING	Not foreseen
ANTIDOTES, IF KNOWN	Unknown
CONTRAINDICATIONS	Unknown
IMMEDIATE TREATMENT AT WORKPLACE	Not foreseen

SECTION V - FIRE FIGHTING MEASURES

APPROPRIATED EXTINGUISHING MEANS:	The material can form flammable dust clouds in the air. Combustion will produce toxic and irritant vapors. Use dry chemical powder, carbon dioxide, foam or water in mist form. Cool or remove containers exposed. to fire.
NOT APPROPRIATED EXTINGUISHING MEANS:	Do not use water jet.
COMBUSTION SUBSTANCES:	Toxic and irritating vapors .
SPECIAL PROCEDURES	There is no relevant information
FIREFIGHTERS' PROTECTION:	Autonomous breathing equipment and appropriated protective clothes should be used when extinguishing fire.

SECTION VI - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :	Avoid contact with clothing and skin (Wear waterproof boots, nitrile rubber gloves, wide vision glasses (TYVEK coveralls and respiratory protection).
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ENVIRONMENTAL PRECAUTIONS:

Do not throw water. Collect spillage, transfer to a suitable container and remove the contaminated soil to another container independent. The final disposal of this product should be monitored as well, following the law

CLEANING METHODS:

Collect the spilled material and transfer it into suitable containers for disposal as waste or reprocessing material. Caution, because spills may be slippery.

SECTION VII - HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

RECOMMENDATIONS FOR HANDLING

Handle away from sparkles and flames - sources of ignition
 Handle in a well ventilated place
 Avoid contact with incompatible materials
 Wear suitable Personal Protection Equipment (see section 8)
 Keep the substance away from drains, surface or ground waters

RECOMMENDATIONS FOR PERSONAL HYGIENE

Do not eat, drink and smoke in the working areas
 Wash hands after handling the substance
 Remove contaminated clothing and protective equipment before entering eating areas

CONDITION FOR SAFE STORAGE INCLUDING ANY INCOMPATIBILITIES:

The substance is organic, it may form explosive mixtures with air under certain conditions

RISK MANAGEMENT MEASURES RELATED TO:
 POTENTIAL IGNITION SOURCES

As with all dry powders it is advisable to ground mechanical equipment in contact with dry material to dissipate the potential build up of static electricity

WEATHER CONDITIONS

Do not expose to high temperatures and heat sources

AMBIENT PRESSURE

It is not expected any procedure of restriction

TEMPERATURE

Store in original container tightly closed in a cool (15 - 25°C), dry place

SUNLIGHT

Do not expose to the direct light of the sun

HUMIDITY

Do not store in a damp place

VIBRATION

It is not expected any procedure of restriction

The adoption of the Risk Management procedure related to the physical and chemical properties is also based on the local Risk Assessment done by the employer in its workplace conditions (use of the substance), particularly when a standardized exposure scenario is not available.

MATERIAL TO KEEP THE INTEGRITY OF THE SUBSTANCE:

STABILISERS	Use of stabilizers is not expected
ANTIOXIDANTS	Use of antioxidants is not expected
OTHER ADVICE:	
VENTILATION REQUIREMENTS	Requested on the base of the storage of the substance
SPECIFIC DESIGN OF STORAGE ROOMS	Not requested on the based of the classification
PACKAGING COMPATIBILITIES	See also section 10
SPECIFIC END USE(S):	There is no specific recommendations.

SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS:

NATIONAL/EUROPEAN OCCUPATIONAL EXPOSURE LIMITS	Not established
OTHER NATIONAL/EUROPEAN OCCUPATIONAL EXPOSURE LIMITS	Not established
NATIONAL/EUROPEAN BIOLOGICAL LIMITS (BEI)	Not established
OTHER NATIONAL/EUROPEAN BIOLOGICAL LIMITS (BEI)	Not established
RECOMMENDED MONITORING PROCEDURES	The measurements of the substance/s in the workplace be carried out in accordance with standardized method described by EN guidance.
DNEL VALUES	<p>DNELs for workers Dermal: 67 mg/kg bw/d. (Exposure pattern: long-term, sy effects) Inhalation: 23 mg/m³ (Exposure pattern: long-term, sy effects).</p> <p>DNELs for general population Dermal: 33 mg/kg bw/d. (Exposure pattern: long-term, effects. Inhalation: 5.8 mg/m³ (Exposure pattern: long-term, sy effects). Oral: 3.3 mg/kg bw/d (Exposure pattern: long-term, sy effects).</p>
PNEC VALUES	<p>PNEC water PNEC fresh water (mg/l): 0.38 mg/L. PNEC marine water (mg/l): 0.038 mg/L. PNEC aqua, intermittent releases (mg/l): 1.9 mg/L.</p>

	<p>PNEC sediment PNEC fresh water: 0.52 mg/kg sediment dw. PNEC marine water: 0.052 mg/kg sediment dw.</p> <p>PNEC soil PNEC: 0.71 mg/kg soil dw.</p> <p>PNEC for sewage treatment plant PNEC STP: 50 mg/L.</p>
EXPOSURE CONTROLS:	
APPROPRIATE ENGINEERING CONTROLS	The adoption of the most appropriate engineering controls is also based on the local Risk Assessment done by the employer in its workplace conditions (use of the substance), particularly when a standardized exposure scenario is not available.
Individual protection measures, such as Personal Protective Equipment (PPE):	If the results of the risk evaluation done in accordance with Directive 98/24/EEC showed that the collective and general risk management measures are not sufficient to reduce the risks and, if the exposure to the substance cannot be reduced by other containment means, appropriate PPE must be adopted in compliance with technical EN guidance indication.
EYE AND FACE PROTECTION	Safety goggles as for EN 166; facial shield
SKIN PROTECTION HANDS PROTECTION	Gloves resistant to chemical agents as for the EN 374, parts 1, 2 e 3 and the European Directive 89/89/CEE. The gloves material must be waterproof and stable against the substance content. Select the glove material on the basis of the type of the material, typical or minimal breakdown times, permeability ranges, and thickness. Material : nitrile (nitrilic rubber), ipoallergenic Thickness : not inferior to 0.12 mm
OTHER, BODY PROTECTION	Select the suitable protective equipment based on the activity of use and possible exposure. Wear gauntlets, boots, bodysuit and other devices in accordance with EN 14605 in case of sketches or EN 13982 in case of powders.
RESPIRATORY PROTECTION	When the risk evaluation foresees the need to use respirator devices with assisted ventilation, use a powder filter like P1, P2 and P3. Use only devices approved by the Competent Authorities such as NIOSH (USA) and CEN (EU). For your information powders are divided in three categories: 2a (inert powder with TLV= 10 mg/m ³), 2b (hazardous powders with TLV = 0,1-10 mg/m ³ (excluding asbestos), 2c (toxic powders with TLV < 0,1 mg/m ³ (asbestos, carcinogens, bacteria, viruses, enzymes, spores, etc). Cat. 2a: P1 filter, Cat. 2b: P2 filter, Cat.2c: P3 filter.
THERMAL HAZARDS	Not foreseen in the standard use. Assess possible Personal Protection Equipment on the basis of specific uses of the substance.
ENVIRONMENTAL EXPOSURE CONTROLS:	Environmental controls are not needed.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Free flowing powder.
COLOUR:	White
ODOR:	Inodorous
pH:	There is no relevant information
BOILING POINT:	There is no relevant information
MELTING POINT:	425°C in sealed tube
FLASH POINT:	There is no relevant information
AUTOIGNITION TEMPERATURE:	There is no relevant information
EXPLOSIVE PROPERTIES:	<ul style="list-style-type: none"> • Lower flammable limit: 40% v/v • Maximum pressure increase rate: 45500kPa/s. • Explosion maximum pressure: 790kPa.
VAPOUR PRESSURE:	0.00000003 Pa at 10 °C
DENSITY:	1.5 g/ml
SOLUBILITY IN WATER:	Insoluble (15mg/l at 10 °C)
VOLATILE MATERIAL (%):	There is no relevant information
VOLATILE ORGANIC COMPOUNDS:	There is no relevant information
FURTHER INFORMATION:	<ul style="list-style-type: none"> • Distribution coefficient: log P n -octane/water: 1.2 -2 • Powder flammable class: A • Minimum ignition temperature (°C): 500 • Minimum ignition energy (mJ): 50 • Maximum density (g/ml): 1.12 • Temperature of Sublimation: > 300 °C

SECTION X – STABILITY AND REACTIVITY

CHEMICAL STABILITY:	Stable product
POLYMERISATION RISK:	There is no relevant information
CONDITIONS TO AVOID:	Keep away from strong oxidant agents
INCOMPATIBLE MATERIALS OR SUBSTANCES:	There is no relevant information
HAZARDOUS DECOMPOSITION PRODUCTS:	The incomplete combustion may produce carbon monoxide and other harmful products.

SECTION XI – TOXICOLOGICAL INFORMATION

EYE CONTACT: Low irritation to rabbit eyes. It may cause physical abrasion in contact with eyes. Permanent damage is unlikely.

SKIN CONTACT: Skin contact: non-irritating after repeated application on rats' skin. It is unlikely to cause irritation to human skin. It may cause physical abrasion in contact with the skin. It is unlikely to be hazardous by skin absorption.

INHALATION: High dust concentrations may be irritating to the upper respiratory tract.

INGESTION: Low oral toxicity.

CHRONIC EFFECTS IN HUMANS: Inhalation studies in animals have shown that repeated exposures produce no significant effects. Terephthalic acid when administered in high levels to rats has been associated to bladder tumors. No effect was observed below a level of 1% in the diet. Additional research demonstrated that the tumors are directly related to bladder stone formation, once it is caused by urine super saturation in rats fed with high doses of terephthalic acid. This effect is unlikely to happen in humans because of the access and levels used are inadequate for the foreseeable use conditions. There is no mutagenic evidence or clastogenic potential.

SECTION XII - ECOLOGICAL INFORMATION

Terephthalic acid is relatively non-toxic to aquatic organisms. The results of the acute toxicity tests for terephthalic acid and its sodium salt for various freshwater species are shown below:

ECOTOXICITY:	Water Flea (daphnia magna)	48 h	EC50	982 mg/l
	Golden Fish orfe (leuciscus idus melanotus)	96 h	LC50	922 mg/l
	Green Seaweed (scenedesmus subspicatus)	96 h	NO EFFECT	402 mg/l
	Microbes (Iodo ativado)	3 h	EC50	1390 mg/l

The tests above were conducted in accordance with relevant OECD protocols and in accordance with good laboratory practice (LPG). Terephthalic acid has been shown to biodegrade in water under various test methods and in the soil suspension inoculum, according to published reports. In a modified test (OECD guideline 301b), more than 60% of theoretical CO₂ was generated in 5 days, and more than 80% of theoretical CO₂ was generated in 14 days, in two concentrations of terephthalic acid, meeting the criteria of "readily biodegradable".

BIOACCUMULATION: The substance has low potential for bioaccumulation

OTHER HARMFUL EFFECTS: There is no relevant information

SECTION XIII - DISPOSAL CONSIDERATION

METHODS OF TREATMENT
AND DISPOSAL OF PRODUCT,
WASTE AND PACKAGING
USED

Terephthalic acid and packaging are not considered solid urban or hazardous waste, therefore, considered special waste, handling and disposal must comply with the provisions of the competent authorities. Terephthalic acid can be recycled if it is not contaminated..

SECTION XIV - TRANSPORT INFORMATION

Product classified as not dangerous for the environment.

Terephthalic acid is not regulated as a hazardous material by DOT, IMO or IATA..

SECTION XV - REGULATORY INFORMATION

All other information on regulation are reported if not provided in other sections/subsection of the Safety Data Sheet.

SAFETY, HEALTH AND ENVIRONMENTAL
REGULATION/LEGISLATION SPECIFIC FOR
THE SUBSTANCE

Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (Official Journal L 183, 29/06/1989 P. 0001 – 0008) and following amendment and National reinforcements.

Council Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to the personal protective equipment.

Council Directive 9 8/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) Official Journal L 131, 05/05/1998 P. 0011 – 0023

SECTION XVI – OTHER INFORMATION

REVIEW NUMBER: 1

DATE: 09.28.2020

BIBLIOGRAPHIC SOURCES:

Terephtalic acid Chemical Safety Report
Chemidplus Lite
stneasy.fiz-karlsruhe.de
pubchem.ncbi.nlm.

ACRONYMS

- ACGIH: American Conference of Governmental Industrial Hygienists
- ADR: Agreement concerning the carriage of dangerous goods by Road
- BCF: Bioaccumulative factor
- BEI: Biological Exposure Indices (Indici di esposizione biologica)
- CAS: Chemical Abstract Service (division of the American Chemical Society)
- CLP: Classification, Labelling and Packaging
- CMR: Carcinogens, Mutagens, Toxic for reproduction substances
- EINECS: European Inventory of existing Commercial Substances
- EPA: US Environmental Protection Agency
- GHS: Globally Harmonised System
- IARC: International Agency for Research on Cancer
- IATA: International Air Transport Association Code
- IMDG: International Maritime Dangerous Goods Code
- IUPAC: International Union of Pure and Applied Chemistry
- LOEL: Lowest Observed Effect Level
- N.A.: Not Applicable
- N.A.: Not Available
- NOAEL: No Observed Adverse Effect Level)
- NTP: National Toxicology Program
- OEL: Occupational Exposure Limit
- OSHA: Occupational Safety and Health Administration
- PPE: Personal protective Equipment
- PBT: Persistent, Bioaccumulative and Toxic substances
- RID: Regulation concerning the International carriage of Dangerous goods by rail
- TLV/TWA: Threshold Limit Value/Threshold Weighted Average
- vPvB: very Persistent, very Bioaccumulative

THE INFORMATION CONTAINED HEREIN IS INTENDED TO DESCRIBE THE PRODUCT FROM THE
STANDPOINT OF SAFETY REQUIREMENTS AS THE MANUFACTURER'S MSDS.