

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

Issue Date: OCT. 01,2014

SECTION 1: Identification of the substance / mixture and of the company / undertaking

1.1. Product Identifier

Product name:	Terephthalic acid
Chemical product name:	No data available
Synonyms:	C8-H6-O4, C6H4(COOH)2, "p-benzenedicarboxylic acid", "1, 4-benzenedicarboxylic acid", "p-phthalic acid", "PTA purified terephthalic acid", TPA
Proper shipping name:	No data available
Chemical formula:	C8H6O4
Other means of identification:	No data available
Index number:	No data available
ID number:	No data available
CAS number:	100-21-0
REACH registration number:	01-2119485970-27-0033
EC number:	202-830-0

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses:	Manufacture of poly(ethylene terephthalate) and other polyester polymers, which are then formed into textiles, films, containers and moulded articles..
Uses advised against:	No data available

1.3. Details of the Manufacturer of the safety data sheet

Registered company name:	Hyosung Corporation
Address:	450 Gongdeok-Dong, Mapo-Gu, Seoul 121-720, KOREA
Telephone:	+82-2-
Fax:	+82-2-

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

Email:

Website: <http://www.hyosung.com>

1.4. Details of the Supplier of the safety data sheet

Registered company name:

Hyosung Corporation

Address: 450 Gongdeok-Dong, Mapo-Gu, Seoul 121-720, KOREA

Telephone: +82-2-

Fax: +82-2-

Email:

Website: <http://www.hyosung.com>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

DSD classification: Not classified (Reason for no classification: conclusive but not sufficient for classification)

DPD classification: In case of substances classification has been prepared by following DSD (Directive 67/548/EEC) and CLP (Regulation (EC) No 1272/2008 regulations)

CLP classification: Not classified (Reason for no classification: conclusive but not sufficient for classification)

2.2. Label elements

CLP label elements

Not classified (Reason for no classification: conclusive but not sufficient for classification)

DSD / DPD label elements

Not classified (Reason for no classification: conclusive but not sufficient for classification)

2.3. Other hazards

No data available

SECTION 3: Composition / information on ingredients

3.1. Substances

CAS No.	%	Substance Name	EU REACH No.	Classification according to directive 67/548/EEC[DSD]	Classification according to regulation (EC) No 1272/2008 [CLP]
100-21-0	99.9	Terephthalic acid	01-2119485970-27-0033	Not classified	Not classified

3.2. Mixtures

See 'Information on ingredients' in section 3.1

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

SECTION 4: First aid measures

4.1. Description of first aid measures

General: No data available

Ingestion:

- If swallowed do **NOT** induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

Eye Contact: If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact: If skin or hair contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

Inhalation:

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

4.2. Most important symptoms and effects, both acute and delayed

Inhaled: The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

- Ingestion:** Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health).
- Skin Contact:** Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic).
The material may accentuate any pre-existing dermatitis condition
Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
Open cuts, abraded or irritated skin should not be exposed to this material
Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
- Eye:** Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals. Repeated or prolonged eye contact may cause inflammation (similar to windburn) characterised by a temporary redness of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
- Chronic:** The toxicity of TPA has been investigated in studies using repeated dose dietary exposure and repeated inhalation exposure in studies in the rat. The critical effect of inhalation exposure was found to be local (tracheal) irritation which was observed microscopically at low concentrations. The critical effect of oral exposure is urolithiasis, the formation of urinary calculi and secondary effects on the urinary system including inflammation, hyperplasia, haematuria and increased kidney weights. Effects at high dose levels result in mortality.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically..

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

- Carbon dioxide.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility: Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

5.3. Advice for firefighters

Fire Fighting:

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.

Fire/Explosion Hazard:

- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds.; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.
- In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL).are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC)
- A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.

Combustion products include:
carbon monoxide (CO)
carbon dioxide (CO₂)
other pyrolysis products typical of burning organic material
May emit poisonous fumes.
May emit corrosive fumes

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal Gas tight chemical resistant suit. Limit exposure duration to 1 BA set 30 mins.

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

Protective Equipment:

Minor Spills: Environmental hazard - contain spillage.

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.

Major Spills: Environmental hazard - contain spillage.
Moderate hazard.

- CAUTION: Advise personnel in area.
- Alert Emergency Services and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

See section 6.1

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Safe handling**
- Avoid all personal contact, including inhalation.
 - Wear protective clothing when risk of exposure occurs.
 - Use in a well-ventilated area.
 - Prevent concentration in hollows and sumps.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

Fire and explosion protection

See section 5

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

- Other information**
- Store in original containers.
 - Keep containers securely sealed.
 - Store in a cool, dry, well-ventilated area.
 - Store away from incompatible materials and foodstuff containers

7.2. Conditions for safe storage, including any incompatibilities

- Suitable container:**
- Polyethylene or polypropylene container.
 - Check all containers are clearly labelled and free from leaks.

- Storage Incompatibility:**
- Avoid strong bases.
 - Avoid reaction with oxidising agents

Reaction with nitric acid may be explosive.

Package Material Incompatibilities: Not applicable

7.3. Specific end use(s)

See section 1.2

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Derived No Effect Level (DNEL)

Exposure Pattern	Workers	General Population
Long term - dermal, systemic effects	67 mg/kg bw/d (based on AF of 150)	33 mg/kg bw/d (based on AF of 300)
Long term - inhalation, systemic effects	23 mg/m ³ (based on AF of 150)	5.8 mg/m ³ (based on AF of 300)
Long term - oral, systemic effects	No data available	3.3 mg/kg bw/d
Long term - dermal, local effects	No data available	No data available
Long term - inhalation, local effects	No data available	No data available

Occupational Exposure Limits (OEL)

The following materials had no OELs on our records : Not applicable

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- even when particulates are relatively large, a certain proportion will be powdered by mutual friction.

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:

(a): particle dust respirators, if necessary, combined with an absorption cartridge;

(b): filter respirators with absorption cartridge or canister of the right type;

(c): fresh-air hoods or masks

- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.

8.2.2. Personal protection

Eye and face protection:

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]

Skin protection:

See Hand protection: below

Hand protection:

NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Experience indicates that the following polymers are suitable as glove materials

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocautchouc

Body protection: See Other protection: below

- Other protection:**
- Overalls.
 - P.V.C. apron.
 - Barrier cream.
 - Skin cleansing cream.

Respiratory protection: Not applicable

8.2.3. Environmental exposure controls

See section 12

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Off-white crystalline powder
Odour	No data available
Odour threshold	No data available
pH(1% solution)	2.16 (saturated)
Melting point / freezing point	sublimes at 402 - 404 °C atmospheric pressure
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	non flammable
Upper / lower flammability or exposure limits	No data available
Vapour pressure	0.00158 Pa(cal., Modified Grain method)
Vapour density	No data available
Relative density	1.58 g/cm ³ at 25 °C
Solubility(ies)	ca. 17 to 19 mg/L at 25 °C (in water)
Partition coefficient: n-octanol / water	Log Kow (Pow): 2 at 25 °C

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

Auto-ignition temperature	496°C
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	non explosive
Oxidizing properties	no oxidizing properties
Physical state	Divided solid
Upper Explosive Limit	No data available
Lower Explosive Limit	0.05g/l
Surface Tension	No data available
Volatile Component (%vol)	Negligible
Gas group	No data available
Molecular weight	166.13

9.2. Other information

No data available

SECTION 10: Stability and reactivity

- 10.1. Reactivity** See section 7.2
- 10.2. Chemical stability**
- Presence of incompatible materials.
 - Product is considered stable.
 - Hazardous polymerisation will not occur.
- 10.3. Possibility of hazardous reactions** See section 7.2
- 10.4. Conditions to avoid** See section 7.2
- 10.5. Incompatible materials** See section 7.2
- 10.6. Hazardous decomposition products** See section 5.3

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicity

- Oral (rat) LD50: >15380 mg/kg bw
- Dermal : >2000 mg/kg bw
- Inhalation: LC50 (4 h): LC50 (2 h): > 1000 mg/m³ air

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

Skin corrosion/irritation: not-irritating(rabbit)

Eye corrosion/irritation: not-irritating(rabbit)

Respiratory sensitization : not sensitising

Skin Sensitization: not sensitizing(guinea pig)

Carcinogenicity: Non carcinogenicity.

Mutagenicity:

- In vitro Ames test: negative
- In vitro Chromosomal aberration test :positive, negative
- In vivo Micronucleus assay: negative
- In vivo Unscheduled DNA synthesis: negative

* No evidence of genotoxicity was seen in studies in vivo investigating relevant endpoints: Terephthalic acid is therefore considered not to be genotoxic and no classification is proposed.

Reproductive toxicity:

Effects on fertility

No evidence of reproductive toxicity was seen in a modern two-generation study.
(route: oral) NOAEL: 2010.9 mg/kg bw/d

Developmental toxicity

No evidence of developmental toxicity was seen in an inhalation study in rats exposed to TPA at levels of up to 10 mg/m³ (Ryan et al, 1990).
(route: inhalation) NOAEC: 10 mg/m³

Specific target organ toxicity(single exposure): No classification for specific target organ toxicity is proposed.

Specific target organ toxicity(repeated exposure): No relevant effects

NOAEL: 125 mg/kg bw/d (sub-chronic; rat)

Target organs: urogenital: urinary bladder

Aspiration hazard: Not available

SECTION 12: Ecological information

12.1. Toxicity

Environmental fate:

The majority of the terephthalic acid released to the environment will partition primarily to soil

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

(67.3%) and water (32.7%) with negligible amounts found in air (<1%) and sediment (<1%) compartments. Terephthalic acid is expected to partition to water and soil, where it will biodegrade and not persist or bioaccumulate.

The pKa values of 3.52 and 4.46 indicate that TPA is nearly completely disassociated under environmental conditions.

Terephthalic acid is expected to undergo atmospheric oxidation in air with half-life of 8.6 days for phthalate esters:

Ecotoxicity:

Fish

: Golden orfe (*L. idus melanotus*) 96 -h LC50 (static): >961 mg TPA-equiv/L, 96 -h NOEC: 961 mg TPA-equiv/L;

Flathead minnow (*P. promelas*) 96 -h LC50: >100 mg TPA-equiv/L;

Daphnia magna

: *D. magna* 48 -h EC50 (semi-static): >20.1 mg TPA/L, 48 -h NOEC: 20.1 mg TPA/L;

D. magna, *Dugesia tigrina* (flatworm) and *Helisoma trivolvis* (gastropod mollusc): 96 -h LC50 values all >100 mg TPA-equiv/L

Algae No data available

12.2. Persistence and degradability

Terephthalic acid is readily biodegradable and therefore does not satisfy the criteria for classification as persistent (P).

12.3. Bioaccumulative potential

The calculated BCF of Terephthalic acid is 3.16 L/kg wet weight and below the threshold of 2000. Terephthalic acid does not satisfy the criterion for classification as bioaccumulative (B).

12.4. Mobility in soil

High mobility (estimated)

12.5. Results of PBT and vPvB assessment

Terephthalic acid is neither a PBT nor a vPvB substance.

Persistence Assessment

Terephthalic acid is readily biodegradable and therefore does not satisfy the criteria for classification as persistent (P).

Bioaccumulation Assessment

The calculated BCF of Terephthalic acid is 3.16 L/kg wet weight and below the threshold of 2000. Terephthalic acid does not satisfy the criterion for classification as bioaccumulative (B).

Toxicity Assessment

The long-term NOECs for freshwater algae and invertebrates are 19.0 and 19.5 mg/L, respectively, for the free acid form of TPA. Both values exceed the trigger value of 0.01 mg/L.

Terephthalic acid does not satisfy the environmental effects criterion for classification as toxic (T).

A substance is identified as a PBT substance if it fulfils all three PBT criteria described above. P and B criteria are not fulfilled, and therefore the substance cannot be classified as PBT.

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

A substance is identified as a vPvB substance if it fulfils both vPvB criteria described above. The P and the B criterion are not fulfilled.

12.6. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

**Product /
Packaging
disposal:**

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- **DO NOT** allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

Waste treatment options: Not available

Sewage disposal options: No relevant data

SECTION 14: Transport information

Labels Required: No data available

14.1. UN number : None

14.2. UN proper shipping name : No data available

14.3. Transport hazard class(es) : No data available

14.4. Packing group : None

14.5. Environmental hazard : No relevant data

14.6. Special precautions for user: No data available

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

Terephthalic acid (CAS: 100-21-0)

"EU Directive 2002/72/EC Plastic materials and articles intended to come into contact with foodstuffs - Annex II Section A: List of authorised monomers and other starting substances", "European Chemicals Agency (ECHA) List of substances identified for registration in 2010", "European Customs Inventory of Chemical Substances (English)", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)", "OECD Representative List of High Production Volume (HPV) Chemicals"

This safety data sheet is in compliance with the following EU legislation and its adaptations – as far as applicable - : 67/548/EEC, 1999/45/EC, 76/769/EEC, 98/24/EC, 92/85/EEC, 94/33/EC, 91/689/EEC, 1999/13/EC, as well as the following British legislation:

- The Control of Substances Hazardous to Health Regulations (COSHH) 2002.(UK)
- COSHH Essentials
- The Management of Health and Safety at Work Regulations 1999 (UK)

15.2. Chemical safety assessment

No data available

RISK

- None under normal operating conditions.

SECTION 16: Other information

LIMITED EVIDENCE

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

Ingredient Name	CAS no.
Terephthalic acid	100-21-0

OTHER

- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the REACH registration document from the Chemical Safety Report for this substance.
- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.
- For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 16 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

The above information 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 its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

Annex to extended safety data sheet (eSDS) (REACH)

Exposure scenario

Use of the preparation / substance in the following processes is inadvisable in the Industrial / Professional Worker and Consumer use scenarios unless the following exposure controls are modified:

- Respiratory Protection
- A lower duration of use
- Increased Ventilation

Safety Data Sheet

According to Regulation (EC) No 1972/2008 (CLP)

EC number:
202-830-0

Terephthalic acid

CAS number:
100-21-0

9 EXPOSURE ASSESSMENT

9.1.1.1 Workers exposure

The need to carry out an human health exposure assessment and risk characterisation for Terephthalic acid was assessed under the terms of the ECHA document "Guidance on information requirements and chemical safety assessment" Part B, draft chapter B.8 which deals with the scope of the exposure assessment.

According to this guidance chapter, it is not required to carry out an exposure assessment and risk characterisation for human health if it can be demonstrated that there is "no hazard" for the human populations. In order to assess the need or not to conduct an exposure assessment it is important to review the human health related endpoint and to establish as to whether or not there is a potential risk to humans when using the substance. The guidance sets out some criteria in a flow chart as follows:

1 - Under Section 8, it was established that Terephthalic acid is not a PBT (or vPvB) substance. Therefore, it can be concluded that exposure assessment and risk characterisation should not be required.

2 - The substance is not classified for acute and long term toxicity (systemic and local effects) according to Directive 67/548/EEC and Regulations (EC) 1272/2008). Therefore, it can be concluded that exposure assessment and risk characterisation should not be required.

3 - There are no additional systemic effects that would trigger a potential risk to be controlled. In the rat, the critical effect of oral exposure is urolithiasis, the formation of urinary calculi and secondary effects on the urinary system including inflammation, hyperplasia, haematuria and increased kidney weights and was reported at dose levels above 250 mg/kg bw/day. Effects at high dose levels (1000 mg/kg bw/day) resulted in mortality. However, the relevance of these effects to humans is questionable since, for anatomical reasons, rodents are more susceptible to urolithiasis than humans. In addition, the human population will not be exposed to concentration as high as administered to the rats. Therefore, it is unlikely that the human population would be at risk when using Terephthalic acid.

Based on the above, it can be concluded that Terephthalic acid does not pose a risk to the human populations and meets the criteria for classification of "no hazard" according to REACH. No further investigation is therefore required.

9.1.1.2 Consumer exposure

As discussed above Terephthalic acid is considered to be non-hazardous to human health based on the REACH characterisation criteria. As such no exposure estimation for the consumer exposure is required.

9.1.1.2.1 Indirect exposure of humans via the environment (oral)

Indirect exposure of humans via the environment is unlikely due to lifecycle of substance, its physico-chemical properties, ready biodegradation and hydrolysis in water. Therefore, the risk of secondary/indirect exposure is expected to be negligible. Terephthalic acid is readily biodegradable.