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Safety data sheet

BASF safety data sheet. This is a translation of the country-specific safety data sheet into a language other than that required by law. This document does not replace the safety data sheet provided according to Regulation (EC) No 1907/2006.
Date / Revised: 08.01.2024 Version: 5.0
Date / Previous version: 23.08.2023 Previous version: 4.0
Product: **PHTHALIC ANHYDRIDE MOLTEN**
(ID no. 30034831/SDS_GEN_DE/EN)
Date of print 09.10.2025

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

1.1. Product identifier

PHTHALIC ANHYDRIDE MOLTEN

Chemical name: phthalic anhydride
INDEX-Number: 607-009-00-4
CAS Number: 85-44-9

REACH registration number: 01-2119457017-41-0007, 01-2119457017-41

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

Relevant identified uses: Intermediate, Monomer.

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY
Operating Division Petrochemicals

Telephone: +49 621 60-42151
E-mail address: sds-petrochemicals@basf.com

1.4. Emergency telephone number

International emergency number:
Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Acute Tox. 4 (oral)	H302 Harmful if swallowed.
Skin Corr./Irrit. 2	H315 Causes skin irritation.
Eye Dam./Irrit. 1	H318 Causes serious eye damage.
Resp. Sens. 1	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens. 1	H317 May cause an allergic skin reaction.
STOT SE 3	H335 May cause respiratory irritation.

According to BASF current knowledge and application of the criteria given in Annex I of Regulation (EC) No. 1272/2008, the following classification exceeding the classification given in Regulation (EC) No 1272/2008, Annex VI, Table 3.1 is required.

Acute Tox. 4 (oral)
Skin Corr./Irrit. 2
Eye Dam./Irrit. 1
Resp. Sens. 1
Skin Sens. 1A
STOT SE 3 (irritating to respiratory system)

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to Regulation (EC) No 1272/2008 [CLP]

Pictogram:

Signal Word:

Danger

Hazard Statement:

H318	Causes serious eye damage.
H315	Causes skin irritation.
H302	Harmful if swallowed.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.

Precautionary Statements (Prevention):

P280	Wear protective gloves and eye protection or face protection.
P261	Avoid breathing dust or fume.

Precautionary Statements (Response):

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310	Immediately call a POISON CENTER or physician.
Precautionary Statements (Storage):	
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
Precautionary Statements (Disposal):	
P501	Dispose of contents and container to hazardous or special waste collection point.

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.
See section 12 - Results of PBT and vPvB assessment.
Product does not contain a substance above legal limits included in the list established in accordance with Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties or is identified to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

phthalic anhydride

CAS Number: 85-44-9
EC-Number: 201-607-5
INDEX-Number: 607-009-00-4

Acute Tox. 4 (oral)
Skin Corr./Irrit. 2
Eye Dam./Irrit. 1
Resp. Sens. 1
Skin Sens. 1
STOT SE 3 (irr. to respiratory syst.)
H318, H315, H302, H334, H317, H335

Differing classification according to current knowledge and the criteria given in Annex I of Regulation (EC) No. 1272/2008

Acute Tox. 4 (oral)
Skin Corr./Irrit. 2
Eye Dam./Irrit. 1
Resp. Sens. 1
Skin Sens. 1A
STOT SE 3 (irr. to respiratory syst.)

Regulatory relevant ingredients

phthalic anhydride

Content (W/W): >= 99,8 % - < 100 %	Acute Tox. 4 (oral)
CAS Number: 85-44-9	Skin Corr./Irrit. 2
EC-Number: 201-607-5	Eye Dam./Irrit. 1
INDEX-Number: 607-009-00-4	Resp. Sens. 1
	Skin Sens. 1
	STOT SE 3 (irr. to respiratory syst.)
	H318, H315, H302, H334, H317, H335
	Differing classification according to current knowledge and the criteria given in Annex I of Regulation (EC) No. 1272/2008
	Acute Tox. 4 (oral)
	Skin Corr./Irrit. 2
	Eye Dam./Irrit. 1
	Resp. Sens. 1
	Skin Sens. 1A
	STOT SE 3 (irr. to respiratory syst.)

maleic anhydride

Content (W/W): >= 0 % - < 0,05 %	Acute Tox. 4 (oral)
CAS Number: 108-31-6	Skin Corr./Irrit. 1B
EC-Number: 203-571-6	Eye Dam./Irrit. 1
INDEX-Number: 607-096-00-9	Resp. Sens. 1
	Skin Sens. 1A
	STOT RE (Respiratory system) 1 (by inhalation)
	H302, H334, H317, H372, H314
	EUH071
	Differing classification according to current knowledge and the criteria given in Annex I of Regulation (EC) No. 1272/2008
	Acute Tox. 4 (oral)
	Skin Corr./Irrit. 1B
	Eye Dam./Irrit. 1
	Resp. Sens. 1
	Skin Sens. 1A
	STOT RE (Respiratory system) 1 (by inhalation)
	EUH071
	Specific concentration limit:
	Skin Sens. 1A: >= 0,001 %

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

3.2. Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

On skin contact:
Areas affected by molten material should be quickly placed under cold running water.

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

On contact with eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

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

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Hazards: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11. (Further) symptoms and / or effects are not known so far

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

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media:
foam, dry powder, water spray

Unsuitable extinguishing media for safety reasons:
water jet, carbon dioxide

Additional information:
Use extinguishing measures to suit surroundings.

If a metal fire occurs, use dry sand, dry powder for Class D or cement.

5.2. Special hazards arising from the substance or mixture

Advice: Cool endangered containers with water-spray. See SDS section 7 - Handling and storage.

5.3. Advice for fire-fighters

Special protective equipment:
Wear a self-contained breathing apparatus. Special protective equipment for firefighters

Further information:
Evacuate area of all unnecessary personnel. Fight fire from maximum distance.

Extend fire extinguishing measures to the surroundings.

SECTION 6: Accidental Release Measures

Shut off or stop released substance/product under safe conditions. Avoid dispersal of dust in the air (e.g. by clearing dusty surfaces with compressed air).

6.1. Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice.

6.2. Environmental precautions

Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

For small amounts: Allow to solidify and sweep/shovel up. Protect from water.
For large amounts: Allow to solidify and sweep/shovel up. Protect from water.
Collect waste in suitable containers, which can be labeled and sealed.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid all direct contact with the substance/product. Ensure thorough ventilation of stores and work areas. Change clothes immediately after contamination. Avoid the formation and build up of dust - danger of dust explosion.

Protection against fire and explosion:
No special precautions necessary.

Temperature class: T1 (Autoignition temperature > 450 °C).

7.2. Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Keep under inert gas.

Storage class according to TRGS 510 (originally VCI, Germany): (3) Flammable liquids

Protect from temperatures below:150 °C
Protect from temperatures above:190 °C

7.3. Specific end use(s)

See exposure scenario(s) in the attachment to this safety data sheet.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

The surveillance of the workplace by exposure measurements may be necessary, in order to prove the efficiency of safety measures, for example ventilation or the need of respiratory protection. Since this requires a specific competency, only accredited laboratories should be contracted. Regarding suitable methods to assess inhalation exposure, the European Standards EN 482, 689 and 14042 are to be considered. In addition, the TRGS 402 has to be observed in Germany.

108-31-6: maleic anhydride

Short Term Exposure Factor: (TRGS 900 (DE)), Vapor and aerosol
Ceiling limit value/factor: 1
Substance listed with exceeding factor and category of short time value.
OEL 0,081 mg/m3 ; 0,02 ppm (TRGS 900 (DE)), Vapor and aerosol
Ceiling limit value/factor: 2.5
If the occupational exposure limit value (AGW) and the biological limit value (BGW) are complied with, there should be no risk of damage for the unborn child (see TRGS 900, Number 2.7)

PNEC

freshwater: 1 mg/l

marine water: 0,1 mg/l

intermittent release: 5,6 mg/l

STP: 10 mg/l

sediment (freshwater): 3,8 mg/kg

sediment (marine water): 0,38 mg/kg

soil: 0,173 mg/kg

DNEL

worker:
Long-term exposure- systemic effects, dermal: 14 mg/kg

worker:
Long-term exposure- systemic effects, Inhalation: 49,4 mg/m3

consumer:
Long-term exposure- systemic effects, dermal: 5 mg/kg

consumer:
Long-term exposure- systemic effects, Inhalation: 8,7 mg/m3

consumer:
Long-term exposure- systemic effects, oral: 5 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:
Suitable respiratory protection for higher concentrations or long-term effect: Combination filter for gases/vapours of organic, inorganic, acid inorganic and alkaline compounds (e.g. EN 14387 Type ABEK).

Hand protection:
Suitable chemical resistant safety gloves (EN ISO 374-1) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) etc. Manufacturer's directions for use should be observed because of great diversity of types. Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Use additional heat protection gloves when handling hot molten masses (EN 407), e.g. of textile or leather.

Eye protection:
Tightly fitting safety goggles (splash goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

Heat-protection suit

General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

Environmental exposure controls

All appropriate measures must be taken to prevent the release of this product to the environment and to limit the dispersion of any release when it occurs. Suitable risk management measures should be in place.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

State of matter:	solid	
Form:	liquid, hot molten	
Colour:	colourless, clear	
Odour:	acidulous	
Odour threshold:	not determined	
Melting point:	131,6 °C Literature data.	
Boiling point:	284,5 °C (1.013,25 hPa) Literature data.	
Flammability:	not flammable	(UN Test N.1 (ready combustible solids))
Lower explosion limit:	For solids not relevant for classification and labelling.	
Upper explosion limit:	For solids not relevant for classification and labelling.	
Flash point:	152 °C	(closed cup)
Auto-ignition temperature:	not applicable	
Self-ignition temperature:	Temperature: 580 °C Literature data.	Test type: Self-ignition at high temperatures.

Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.		
pH value:	not applicable, hydrolyzes, The products resulting from hydrolysis react strongly acidic.		
Viscosity, dynamic:	1,19 mPa.s (132 °C) Literature data. 1,125 mPa.s (155 °C) Literature data.		
Thixotropy:	not thixotropic		
Solubility in water:	hydrolyzes		
Partitioning coefficient n-octanol/water (log Kow):	1,60	(measured)	
	(20 °C) Literature data.		
Vapour pressure:	0,0006 hPa (26,6 °C) Literature data.	(measured)	
Relative density:	1,527 (20 °C) Literature data.		
Density:	1,527 g/cm3 (20 °C) Literature data.		
Relative vapour density (air):	not applicable		

Particle characteristics

Particle size distribution: The substance / product is marketed or used in a non solid or granular form. -

9.2. Other information

Information with regard to physical hazard classes

Explosives

Explosion hazard: Based on the chemical structure there is no indication of explosive properties.

Impact sensitivity: Based on the chemical structure there is no shock-sensitivity.

Oxidizing properties

Fire promoting properties: Based on its structural properties the product is not classified as oxidizing.

Flammable solids

Burning rate: 0 mm/s (UN Test N.1 (ready combustible solids))

Pyrophoric properties

Self-ignition temperature: Test type: Spontaneous self-ignition at room-temperature.

Based on its structural properties the product is not classified as self-igniting.

Self-heating substances and mixtures

Self heating ability: It is not a substance capable of spontaneous heating.

Substances and mixtures, which emit flammable gases in contact with water

Formation of flammable gases:
Forms no flammable gases in the presence of water.

Corrosion to metals

Corrodes metals in the presence of water or moisture.

Other safety characteristics

Bulk density:
not applicable

pKA:
Study scientifically not justified.

Information on: Phthalic acid

Adsorption/water - soil: KOC: 31; log KOC: 1,49 (OECD Guideline 106)

Surface tension:
Based on chemical structure, surface activity is not to be expected.

Molar mass: 148,12 g/mol

SAPT-Temperature:
Study scientifically not justified.

Evaporation rate:
Value can be approximated from Henry's Law Constant or vapor pressure.

SECTION 10: Stability and Reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals: Corrodes metals in the presence of water or moisture.

Formation of flammable gases: Remarks: Forms no flammable gases in the presence of water.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

Reacts with water. Reacts with certain metals (e.g. iron).

10.4. Conditions to avoid

No special precautions other than good housekeeping of chemicals.

10.5. Incompatible materials

Substances to avoid:
Alkalines, water, amines, alcohols, amine compounds

10.6. Hazardous decomposition products

Hazardous decomposition products:
Phthalic acid
The substances/groups of substances mentioned may be released upon the reaction with water.

SECTION 11: Toxicological Information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Assessment of acute toxicity:

Of moderate toxicity after single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

Experimental/calculated data:

LD50 rat (oral): 1.530 mg/kg
LC50 rat (by inhalation): > 2,14 mg/l 4 h (OECD Guideline 403)
An aerosol was tested.
LD50 rabbit (dermal): > 10.000 mg/kg

Irritation

Assessment of irritating effects:

Skin contact causes irritation. May cause severe damage to the eyes. EU-classification

Experimental/calculated data:

Skin corrosion/irritation

rabbit: Slightly irritating.

Serious eye damage/irritation

rabbit: Irritant.

Respiratory/Skin sensitization

Assessment of sensitization:

The substance may cause sensitization of the respiratory tract. Sensitization after skin contact possible.

Experimental/calculated data:

Guinea pig maximization test guinea pig: skin sensitizing (OECD Guideline 406)
guinea pig: respiratory sensitizing (other)

Germ cell mutagenicity

Assessment of mutagenicity:

No mutagenic effect was found in various tests with bacteria and mammalian cell culture.

Carcinogenicity

Assessment of carcinogenicity:
In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Assessment of reproduction toxicity:
Repeated oral uptake of the substance did not cause damage to the reproductive organs.

Developmental toxicity

Assessment of teratogenicity:

No indications of a developmental toxic / teratogenic effect were seen in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Specific target organ toxicity (single exposure)

Assessment of STOT single:
Causes temporary irritation of the respiratory tract.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

No substance-specific organtoxicity was observed after repeated administration to animals.

Aspiration hazard

not applicable

Interactive effects

No data available.

11.2. Information on other hazards

Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:
LC50 (7 d) 560 mg/l, Brachydanio rerio (OECD Guideline 203, semistatic)
The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates:
EC50 (48 h) > 640 mg/l, Daphnia magna (Daphnia test acute, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The details of the toxic effect relate to the nominal concentration.

Aquatic plants:
No observed effect concentration (72 h) > 100 mg/l, Scenedesmus subspicatus (OECD Guideline 201, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The statement of the toxic effect relates to the analytically determined concentration.

Microorganisms/Effect on activated sludge:
EC50 (3 h) > 1.000 mg/l, activated sludge (DIN EN ISO 8192, aerobic)

Chronic toxicity to fish:
No observed effect concentration (60 d) 10 mg/l, Salmo gairdneri, syn. O. mykiss (OECD Guideline draft, semistatic)
The details of the toxic effect relate to the nominal concentration.

Chronic toxicity to aquatic invertebrates:
No observed effect concentration (21 d) 16 mg/l, Daphnia magna (OECD Guideline 211, other)

Assessment of terrestrial toxicity:
No toxic effects have been observed in studies with terrestric plants.

Soil living organisms:
No data available.

Terrestrial plants:
EC50 731 mg/l, Lactuca sativa (Orientating study)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Other terrestrial non-mammals:
No data available.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):
Readily biodegradable (according to OECD criteria).

Elimination information:
85 % BOD of the ThOD (14 d) (OECD 301C; ISO 9408; 92/69/EWG, C.4-F) (aerobic, Inoculum conforming to MITI requirements (OECD 301C))
Literature data.

Assessment of stability in water:
In contact with water the substance will hydrolyse rapidly.

Information on Stability in Water (Hydrolysis):
$t_{1/2}$ 30 - 61 s (25 °C, pH value6,8 - 7,2), (other, pH 7)

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
Does not significantly accumulate in organisms.

Bioaccumulation potential:
No data available.

12.4. Mobility in soil

Assessment transport between environmental compartments:
Volatility: The substance will not evaporate into the atmosphere from the water surface.
Adsorption in soil: Adsorption to solid soil phase is not expected.

12.5. Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT

(Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

12.6. Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

12.7. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

12.8. Additional information

Other ecotoxicological advice:
The product should not be allowed to reach either ground or open waters. Do not allow to enter soil, waterways or waste water channels.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Dispose of in accordance with national, state and local regulations.

Contaminated packaging:
Disposal must be made according to official regulations.

SECTION 14: Transport Information

Land transport

ADR

UN number or ID number:	UN3256
UN proper shipping name:	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. (PHTHALIC ANHYDRIDE)
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	no
Special precautions for user:	Tunnel code: D/E

RID

UN number or ID number:	UN3256
UN proper shipping name:	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. (PHTHALIC ANHYDRIDE)
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	no
Special precautions for user:	None known

Inland waterway transport

ADN

UN number or ID number:	UN3256
UN proper shipping name:	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. (PHTHALIC ANHYDRIDE)
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	no
Special precautions for user:	None known

Transport in inland waterway vessel

Not evaluated

Sea transport

IMDG

UN number or ID number:	UN 3256
UN proper shipping name:	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. (PHTHALIC ANHYDRIDE)
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	no Marine pollutant: NO
Special precautions for user:	EmS: F-E; S-D

Air transport

IATA/ICAO

UN number or ID number:	UN 3256
UN proper shipping name:	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. (PHTHALIC ANHYDRIDE)
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	No Mark as dangerous for the environment is needed
Special precautions for user:	None known

14.1. UN number or ID number
See corresponding entries for “UN number or ID number” for the respective regulations in the tables above.

14.2. UN proper shipping name
See corresponding entries for “UN proper shipping name” for the respective regulations in the tables above.

14.3. Transport hazard class(es)
See corresponding entries for “Transport hazard class(es)” for the respective regulations in the tables above.

14.4. Packing group
See corresponding entries for “Packing group” for the respective regulations in the tables above.

14.5. Environmental hazards
See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

14.6. Special precautions for user
See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

SECTION 15: Regulatory Information

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

Prohibitions, Restrictions and Authorizations

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 3, 75

Hazardous Incident Ordinance (Germany):

Listed in above regulation: no

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU):
Listed in above regulation: no

Classification according to 'TA-Luft' (Germany):

5.2.5 class I: Organic gases class I

Water hazard class (§6 AwSV para.4 (Legal binding announcement of the substance in the Federal Gazette)): (1) Weakly water polluting. ID-No.: 732

German Regulation TA Luft (Technical Instruction on Air Quality Control, i.e. first Directive to the Federal Immission Control Ordinance)
Law on the Protection of Working Youth

15.2. Chemical Safety Assessment

Chemical Safety Assessment performed

SECTION 16: Other Information

Assessment of the hazard classes according to UN GHS criteria (most recent version)

Acute Tox. 4 (oral)
STOT SE 3 (irritating to respiratory system)
Eye Dam./Irrit. 1
Skin Corr./Irrit. 2
Resp. Sens. 1
Skin Sens. 1A

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Acute Tox.	Acute toxicity
Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
Resp. Sens.	Respiratory sensitization
Skin Sens.	Skin sensitization
STOT SE	Specific target organ toxicity — single exposure
STOT RE	Specific target organ toxicity — repeated exposure
H318	Causes serious eye damage.
H315	Causes skin irritation.
H302	Harmful if swallowed.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H372	Causes damage to organs (Respiratory system) through prolonged or repeated exposure (inhalation).

H314	Causes severe skin burns and eye damage.
EUH071	Corrosive to the respiratory tract.

Abbreviations
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN = The European Agreement concerning the International Carriage of Dangerous Goods by Inland waterways. ATE = Acute Toxicity Estimates. CAO = Cargo Aircraft Only. CAS = Chemical Abstract Service. CLP = Classification, Labelling and Packaging of substances and mixtures. DIN = German national organization for standardization. DNEL = Derived No Effect Level. EC50 = Effective concentration median for 50% of the population. EC = European Community. EN = European Standards. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IBC-Code = Intermediate Bulk Container code. IMDG = International Maritime Dangerous Goods Code. ISO = International Organization for Standardization. STEL = Short-Term Exposure Limit. LC50 = Lethal concentration median for 50% of the population. LD50 = Lethal dose median for 50% of the population. TLV = Threshold Limit Value. MARPOL = The International Convention for the Prevention of Pollution from Ships. NEN = Dutch Norm. NOEC = No Observed Effect Concentration. OEL = Occupational Exposure Limit. OECD = Organization for Economic Cooperation and Development. PBT = Persistent, Bioaccumulative and Toxic. PNEC = Predicted No Effect Level. PPM = Parts per million. RID = The European Agreement concerning the International Carriage of Dangerous Goods by Rail. TWA = Time Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Annex: Exposure Scenarios

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5. Formulation & (re)packing of substances and mixtures
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1. Short title of exposure scenario
General measures applicable to all activities
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

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2. Short title of exposure scenario
Production
IS; PROC1, PROC2, PROC8b, PROC9

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance	0,0006 hPa

during use	
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC1	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0034
PROC1	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed

	continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm^2)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Local exhaust ventilation	Effectiveness: 90 %
Exposure estimate and reference to its source	
PROC2	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,137 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0137

PROC2	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	

Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC8b, PROC9	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0686
PROC8b, PROC9	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

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3. Short title of exposure scenario

Use as an intermediate
IS; SU8, SU9; PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9; PC19

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to	

prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC1	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0034
PROC1	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass

Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm^2)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Local exhaust ventilation	Effectiveness: 90 %
Exposure estimate and reference to its source	
PROC2	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,137 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0137
PROC2	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m^3
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC8b, PROC9	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic

Exposure estimate	0,686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0686
PROC8b, PROC9	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use	

suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC3	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0034
PROC3, PROC4	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
PROC4	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0686
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

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4. Short title of exposure scenario

Use as Monomer
IS; SU10, SU11, SU12; PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9; PC32

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa

Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC1	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0034
PROC1	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or

	processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Local exhaust ventilation	Effectiveness: 90 %
Exposure estimate and reference to its source	
PROC2	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,137 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0137

PROC2	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	

Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC8b, PROC9	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0686
PROC8b, PROC9	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control	

emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC3	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0034
PROC3, PROC4	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
PROC4	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0686
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

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5. Short title of exposure scenario

Formulation & (re)packing of substances and mixtures
IS; SU10; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8b, PROC9

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

	Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm^2)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC1	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0034
PROC1	
Assessment method	ECETOC TRA v2.0 Worker

	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential	

exposure only.	
Local exhaust ventilation	Effectiveness: 90 %
Exposure estimate and reference to its source	
PROC2	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,137 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0137
PROC2	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in	Effectiveness: 90 %

combination with ‘basic’ employee training.	
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC8b, PROC9	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0686
PROC8b, PROC9	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	

Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC3	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0034
PROC3, PROC4	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
PROC4	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0686
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	

Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm^2)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection. Wear chemically resistant gloves in combination with 'basic' employee training.	
Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC5	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0069
PROC5	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m^3
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra

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6. Short title of exposure scenario

Use as laboratory reagent/agent
PW; PROC15; PC21

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	phthalic anhydride Content: >= 99,8 % -
Physical state	Melted mass
Vapour pressure of the substance during use	0,0006 hPa
Duration and Frequency of activity	480 min 220 days per year
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm^2)
Risk Management Measures	
Provide basic employee training to prevent/minimize exposures. Ensure good work practices are implemented.	
Handle substance within closed system. Transfer via enclosed lines Sample via a closed loop or other system to avoid exposure. Ensure use of exhaust scrubbers to control emissions. Ensure that the worker is in a seperated (control) room with independent air supply	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes during all process steps Use suitable eye protection. Wear suitable face shield Wear suitable respiratory protection.	

Risk Management Measures are based on qualitative risk characterisation., Personal measures have to be applied in case of potential exposure only.	
Exposure estimate and reference to its source	
PROC15	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0034
PROC15	
Assessment method	ECETOC TRA v2.0 Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,617 mg/m³
Risk Characterization Ratio (RCR)	0,0192
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

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