

Safety data sheet

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BASF Safety data sheet according to the United Nations' Globally Harmonized System (UN GHS)

Date / Revised: 08.01.2024

Version: 4.0

Product: **PHTHALIC ANHYDRIDE MOLTEN**

(ID no. 30034831/SDS_GEN_00/EN)

Date of print 18.10.2025

1. Identification

Product identifier

PHTHALIC ANHYDRIDE MOLTEN

Chemical name: phthalic anhydride

INDEX-Number: 607-009-00-4

CAS Number: 85-44-9

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

Relevant identified uses: Intermediate, Monomer.

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

Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

2. Hazards Identification

Classification of the substance or mixture

According to UN GHS criteria

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

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

Label elements

Globally Harmonized System (GHS)

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.
P271	Use only outdoors or in a well-ventilated area.
P284	In case of inadequate ventilation wear respiratory protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P270	Do not eat, drink or smoke when using this product.
P264	Wash contaminated body parts thoroughly after handling.

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.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P330	Rinse mouth.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

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P501 Dispose of contents and container to hazardous or special waste collection point.

Other hazards

According to UN GHS criteria

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.

3. Composition/Information on Ingredients

Substances

Chemical nature

Phthalic anhydride

CAS Number: 85-44-9

EC-Number: 201-607-5

INDEX-Number: 607-009-00-4

Hazardous ingredients (GHS)

According to UN GHS criteria

Phthalic anhydride

Content (W/W): $\geq 99,8 \%$ - $< 100 \%$

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

STOT SE 3 (irr. to respiratory syst.)

Skin Sens. 1A

H318, H315, H302, H334, H317, H335

Maleic anhydride

Content (W/W): $\geq 0 \%$ - $< 0,05 \%$

CAS Number: 108-31-6

EC-Number: 203-571-6

INDEX-Number: 607-096-00-9

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)

Aquatic Acute 3

H302, H334, H317, H372, H314, H402

EUH071

Specific concentration limit:

Skin Sens. 1A: $\geq 0,001 \%$

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Mixtures

Not applicable

4. First-Aid Measures

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.

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

Indication of any immediate medical attention and special treatment needed

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

5. Fire-Fighting Measures

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.

Special hazards arising from the substance or mixture

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

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.

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).

Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice.

Environmental precautions

Discharge into the environment must be avoided.

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.

7. Handling and Storage

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.

Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Keep under inert gas.

Protect from temperatures below: 150 °C

Protect from temperatures above: 190 °C

Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

8. Exposure Controls/Personal Protection

Control parameters

Components with occupational exposure limits

85-44-9: Phthalic anhydride

108-31-6: Maleic anhydride

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.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

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Form:	liquid, hot molten	
Colour:	colourless, clear	
Odour:	acidulous	
Odour threshold:	not determined	
pH value:	not applicable, hydrolyzes, The products resulting from hydrolysis react strongly acidic.	
Melting point:	131,6 °C Literature data.	
Boiling point:	284,5 °C (1.013,25 hPa) Literature data.	
Flash point:	152 °C	(closed cup)
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	
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.	
Ignition temperature:	not applicable	
Vapour pressure:	0,0006 hPa (26,6 °C) Literature data.	(measured)
Density:	1,527 g/cm ³ (20 °C) Literature data.	
Relative density:	1,527 (20 °C) Literature data.	
Relative vapour density (air):	not applicable	
Solubility in water:	hydrolyzes	
Partitioning coefficient n-octanol/water (log Kow):	1,60 (20 °C) Literature data.	(measured)
Self ignition:	Based on its structural properties the product is not classified as self-igniting.	Test type: Spontaneous self-ignition at room-temperature.
	Temperature: 580 °C Literature data.	Test type: Self-ignition at high temperatures.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:	1,19 mPa.s (132 °C) Literature data.	

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Explosion hazard: 1,125 mPa.s
(155 °C)
Literature data.
Based on the chemical structure there is no indication of explosive properties.

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

Other information

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

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

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.

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

Molar mass: 148,12 g/mol

10. Stability and Reactivity**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.

Chemical stability

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

Possibility of hazardous reactions

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

Conditions to avoid

No special precautions other than good housekeeping of chemicals.

Incompatible materials

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Substances to avoid:

Alkalines, water, amines, alcohols, amine compounds

Hazardous decomposition products

Hazardous decomposition products:

Phthalic acid

The substances/groups of substances mentioned may be released upon the reaction with water.

11. Toxicological Information**Information on toxicological effects**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 toxicityAssessment of reproduction toxicity:

Repeated oral uptake of the substance did not cause damage to the reproductive organs.

Developmental toxicityAssessment 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 organotoxicity was observed after repeated administration to animals.

Aspiration hazard

not applicable

12. Ecological Information

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)

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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 terrestrial 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.

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 value 6,8 - 7,2), (other, pH 7)

Bioaccumulative potential

Assessment bioaccumulation potential:

Does not significantly accumulate in organisms.

Bioaccumulation potential:

No data available.

Mobility in soil

Assessment transport between environmental compartments:

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Volatility: The substance will not evaporate into the atmosphere from the water surface.

Adsorption in soil: Adsorption to solid soil phase is not expected.

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

Other adverse effects

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

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.

13. Disposal Considerations

Waste treatment methods

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

Contaminated packaging:

Disposal must be made according to official regulations.

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.
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Date of print 18.10.2025

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

Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

15. Regulatory Information**Safety, health and environmental regulations/legislation specific for the substance or mixture**

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Full text of classifications, hazard symbols and 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
STOT SE	Specific target organ toxicity — single exposure
Skin Sens.	Skin sensitization
STOT RE	Specific target organ toxicity — repeated exposure
Aquatic Acute	Hazardous to the aquatic environment - acute
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.
H402	Harmful to aquatic life.
EUH071	Corrosive to the respiratory tract.

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.

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