

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 1 of 12

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

1.1. Product identifier

Maleic acid anhydride > 99 % for synthesis pastilles

REACH Registration Number: 01-2119472428-31-XXXX
CAS No: 108-31-6
Index No: 607-096-00-9
EC No: 203-571-6

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

Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
E-mail: info@analytichem.de
Contact person: Abteilung Produktsicherheit
E-mail: produktsicherheit@analytichem.de
Internet: www.analytichem.de
Responsible Department: Abteilung Produktsicherheit
Telefax: 0203/5194-290
Telephone: 0203/5194-107/117

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute Tox. 4; H302
Skin Corr. 1B; H314
Eye Dam. 1; H318
Resp. Sens. 1; H334
Skin Sens. 1A; H317
STOT RE 1; H372

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 2 of 12

Pictograms:



Hazard statements

- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H372 Causes damage to organs (Respiratory tract, lung / Respiratory system) through prolonged or repeated exposure if inhaled.

Precautionary statements

- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- 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.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Special labelling of certain mixtures

- EUH071 Corrosive to the respiratory tract.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: C₄H₂O₃
Molecular weight: 98,06 g/mol

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
108-31-6	maleic anhydride			100 %
	203-571-6	607-096-00-9	01-2119472428-31-XXXX	
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Resp. Sens. 1, Skin Sens. 1A, STOT RE 1; H302 H314 H318 H334 H317 H372 EUH071			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
108-31-6	203-571-6	maleic anhydride	100 %
		dermal: LD50 = 2620 mg/kg; oral: LD50 = 1090 mg/kg Skin Sens. 1A; H317: >= 0,001 - 100	

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 3 of 12

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Self-protection of the first aider

After inhalation

Provide fresh air.

Call a physician immediately.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water.

Do NOT induce vomiting. Do not allow a neutralisation agent to be drunk.

Call a physician immediately.

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

Irritant, corrosive

Allergic reactions, Cough

Dyspnoea, Risk of serious damage to eyes.

Asthmatic complaints

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water spray jet

Carbon dioxide (CO₂)

Unsuitable extinguishing media

Full water jet

Dry extinguishing powder.

5.2. Special hazards arising from the substance or mixture

Combustible solids

Hazardous combustion products

Danger of dust explosion

In case of warming: Vapours are heavier than air, spread along floors and form explosive mixtures with air.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 4 of 12

For non-emergency personnel

- Provide adequate ventilation.
- Use personal protection equipment.
- Avoid contact with skin, eyes and clothes.
- Remove persons to safety.
- Emergency procedures
- Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

No special environmental measures are necessary.

6.3. Methods and material for containment and cleaning up

For containment

- Cover drains.
- Prevent spread over a wide area (e.g. by containment or oil barriers).
- Collect in closed and suitable containers for disposal.
- Take up carefully when dry. Take up dust-free and set down dust-free.

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

- Read label before use.
- Handle and open container with care.
- Provide adequate ventilation.
- Avoid contact with skin, eyes and clothes.
- Avoid dust formation. Do not breathe dust.
- Use extractor hood (laboratory).

Advice on protection against fire and explosion

No special fire protection measures are necessary.

Advice on general occupational hygiene

- Take off contaminated clothing.
- Wash hands before breaks and after work.
- When using do not eat or drink.

Further information on handling

- Take off contaminated clothing and wash it before reuse.
- Wash hands before breaks and after work.
- Draw up and observe skin protection programme.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

- Keep container tightly closed and dry.
- Store in a place accessible by authorized persons only.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 5 of 12

Further information on storage conditions

storage temperature < +30°C.
Protect from sunlight. Store in a well-ventilated place.
Protect against: Humidity

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
108-31-6	Maleic anhydride (Inhalable Fraction and Vapour)	0.01	-		TWA (8 h)	

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
108-31-6	maleic anhydride			
Worker DNEL, long-term		inhalation	systemic	0,4 mg/m ³
Worker DNEL, acute		inhalation	systemic	0,8 mg/m ³
Worker DNEL, long-term		inhalation	local	0,4 mg/m ³
Worker DNEL, acute		inhalation	local	0,8 mg/m ³

PNEC values

CAS No	Substance	Value
108-31-6	maleic anhydride	
Environmental compartment		
Freshwater		0,1 mg/l
Freshwater (intermittent releases)		0,428 mg/l
Marine water		0,01 mg/l
Freshwater sediment		0,334 mg/kg
Marine sediment		0,033 mg/kg
Micro-organisms in sewage treatment plants (STP)		44,6 mg/l
Soil		0,042 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 6 of 12

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Wear suitable protective clothing. Take off immediately all contaminated clothing.
Wash hands before breaks and after work.

Respiratory protection

Respiratory protection necessary at: dust formation
Filtering device with filter or ventilator filtering device of type: A-(P2)

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	solid
Colour:	white
Odour:	like: Hydrocarbons, aromatic
Odour threshold:	not determined
Melting point/freezing point:	51-53 °C
Boiling point or initial boiling point and boiling range:	202 °C
Flammability:	not determined
Lower explosion limits:	1,4 vol. %
Upper explosion limits:	7,1 vol. %
Flash point:	103 °C
Auto-ignition temperature:	475 °C
Decomposition temperature:	>200 °C
pH-Value (at 20 °C):	0,8 (550 g/l hydrolyse)
Viscosity / kinematic:	not determined
Water solubility: (at 20 °C)	Decomposes in contact with water.
Solubility in other solvents	not determined
Dissolution rate:	not determined
Partition coefficient n-octanol/water:	-2,61

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 7 of 12

Dispersion stability:	not determined
Vapour pressure: (at 55 °C)	1,32 hPa
Vapour pressure:	not determined
Density:	1,48 g/cm ³
Relative density:	not determined
Bulk density:	700-800 kg/m ³
Relative vapour density:	not determined
Particle characteristics:	not determined

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

Danger of dust explosion

Sustaining combustion:

No data available

Self-ignition temperature

Solid:

not determined

Gas:

not applicable

Oxidizing properties

Not oxidising.

Other safety characteristics

Evaporation rate:

not determined

Solvent separation test:

not determined

Solvent content:

not determined

Solid content:

100%

Sublimation point:

not determined

Softening point:

not determined

Pour point:

not determined

not determined:

Viscosity / dynamic:

1,6 mPa·s

(at 60 °C)

Flow time:

not determined

Further Information

not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

Danger of dust explosion.

In case of warming: Vapours are heavier than air, spread along floors and form explosive mixtures with air.

10.2. Chemical stability

Protect against: Humidity, Heat

10.3. Possibility of hazardous reactions

Oxidising agent, Water

Alkali metals, Amines

Strong alkali, Alcohol

10.4. Conditions to avoid

Heat

Humidity

10.5. Incompatible materials

No data available

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 8 of 12

10.6. Hazardous decomposition products

No data available

Further information

No data available

SECTION 11: Toxicological information

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

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Harmful if swallowed.

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

Pulmonary oedema

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
108-31-6	maleic anhydride				
	oral	LD50 1090 mg/kg	Rat	(1984)	OECD Guideline 401
	dermal	LD50 2620 mg/kg	Rabbit	Publication (1977)	The method used for skin absorption toxicology

Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Risk of serious damage to eyes.

Sensitising effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled. (maleic anhydride)

May cause an allergic skin reaction. (maleic anhydride)

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure. (maleic anhydride)

Organs affected:

lung

Respiratory tract

(Respiratory system)

Aspiration hazard

Based on available data, the classification criteria are not met.

No data available

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 9 of 12

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

No data available

Further information

Irritant, corrosive

Allergic reactions, Cough

Dyspnoea, Risk of serious damage to eyes.

Asthmatic complaints

SECTION 12: Ecological information

12.1. Toxicity

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
108-31-6	maleic anhydride					
	Acute fish toxicity	LC50 75 mg/l	96 h	Lepomis macrochirus	Publication (1982)	other: EPA-660/3-75-009, EPA Methods for
	Acute algae toxicity	ErC50 mg/l 74,35	72 h	Pseudokirchneriella subcapitata	Study report (2010)	OECD Guideline 201
	Acute crustacea toxicity	EC50 mg/l 42,81	48 h	Daphnia magna	Study report (2010)	OECD Guideline 202
	Crustacea toxicity	NOEC 10 mg/l	21 d	Daphnia magna	Publication (1988)	other: Prolonged toxicity test according

12.2. Persistence and degradability

98 %; 7 d

OECD 301E

Readily biodegradable (according to OECD criteria).

12.3. Bioaccumulative potential

No data available

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
108-31-6	maleic anhydride	-2,61

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Do not empty into drains.

Further information

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 10 of 12

13.1. Waste treatment methods**Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Send to a physico-chemical treatment facility under observation of official regulations. Do not empty into drains.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information**Land transport (ADR/RID)**

14.1. UN number or ID number:	UN 2215
14.2. UN proper shipping name:	MALEIC ANHYDRIDE
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Classification code:	C4
Limited quantity:	5 kg
Excepted quantity:	E1
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 2215
14.2. UN proper shipping name:	MALEIC ANHYDRIDE
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Classification code:	C4
Limited quantity:	5 kg
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number or ID number:	UN 2215
14.2. UN proper shipping name:	MALEIC ANHYDRIDE
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Special Provisions:	-
Limited quantity:	5 kg
Excepted quantity:	E1
EmS:	F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 2215
14.2. UN proper shipping name:	MALEIC ANHYDRIDE
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Special Provisions:	A803
Limited quantity Passenger:	5 kg
Passenger LQ:	Y845
Excepted quantity:	E1
IATA-packing instructions - Passenger:	860

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 11 of 12

IATA-max. quantity - Passenger:	25 kg
IATA-packing instructions - Cargo:	864
IATA-max. quantity - Cargo:	100 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 1 - slightly hazardous to water

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 9,11,12,13.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service
 LC50: Lethal concentration, 50%
 LD50: Lethal dose, 50%
 Acute Tox: Acute toxicity
 Skin Corr: Skin corrosion
 Eye Dam: Eye damage
 Resp. Sens: Respiratory sensitisation
 Skin Sens: Skin sensitisation
 STOT RE: Specific target organ toxicity - repeated exposure

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H372	Causes damage to organs (Respiratory tract, lung / Respiratory system) through prolonged or repeated exposure if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Maleic acid anhydride > 99 % for synthesis pastilles

Revision date: 01.09.2023

Product code: 19908

Page 12 of 12

EUH071

Corrosive to the respiratory tract.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.