

Trade name: Acid maleicum/Sigma-Aldrich GmbH 63189

Substance number: 060260

Version: 4 / CH

Date revised: 17.12.2018

Replaces Version: 3 / CH

Print date: 01.10.19

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

1.1. Product identifier

Acid maleicum/Sigma-Aldrich GmbH 63189

Item No. 06026000

Registration no.

Registration no. 01-2119488705-25-XXXX

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

Use of the substance/preparation

Manufacture of pharmaceutical products, analytics

1.3. Details of the supplier of the safety data sheet

Address/Manufacturer

Hänseler AG

Industriestrasse 35

9100 Herisau

Telephone no. 0041 (0)71 353 58 58

E-mail address of sdb@haenseler.ch

person responsible

for this SDS

1.4. Emergency telephone number

Switzerland :145 / Abroad +41 (0)44 251 51 51

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (Regulation (EC) No. 1272/2008)

Classification (Regulation (EC) No. 1272/2008)

Acute Tox. 4 H302

Skin Irrit. 2 H315

STOT SE 3 H335

Skin Sens. 1 H317

Acute Tox. 4 H312

Eye Dam. 1 H318

The product is classified and labelled in accordance with Regulation (EC) No 1272/2008

For explanation of abbreviations see section 16.

2.2. Label elements

Labelling according to regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

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H302	Harmful if swallowed.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.

Precautionary statements

P261.1	Avoid breathing dust.
P280.2	Wear protective gloves/eye/face protection.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
P313	Get medical advice/attention.
P501.3	Disposal in compliance with local and national regulations.

Hazardous component(s) to be indicated on label (Regulation (EC) No. 1272/2008)

contains Maleic acid

SECTION 3: Composition/information on ingredients**Molecular weight**

Value	116.07	g/mol
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Hazardous ingredients**Maleic acid**

CAS No.	110-16-7	
EINECS no.	203-742-5	
Registration no.	01-2119488705-25-XXXX	
Concentration	>= 78	%
Classification (Regulation (EC) No. 1272/2008)		
	Acute Tox. 4	H302
	Skin Irrit. 2	H315
	Eye Irrit. 2	H319
	Skin Sens. 1	H317
	STOT SE 3	H335

Concentration limits (Regulation (EC) No. 1272/2008)

Skin Sens. 1 H317 >= 0.1

SECTION 4: First aid measures**4.1. Description of first aid measures****After inhalation**

Ensure supply of fresh air. Summon a doctor immediately.

After skin contact

After contact with skin, wash immediately with plenty of water. Remove contaminated, soaked clothing immediately and dispose of safely. Summon a doctor immediately.

After eye contact

In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.

After ingestion

Rinse out mouth and give plenty of water to drink. Summon a doctor immediately.

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

Allergic symptoms, Coughing, Shortness of breath, Muscle cramps or pains, Vomiting

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water, Carbon dioxide, Foam, Dry powder

Non suitable extinguishing media

not applicable

5.2. Special hazards arising from the substance or mixture

The product is combustible. In case of combustion evolution of dangerous gases possible. Forms explosive mixture with air are possible.

5.3. Advice for firefighters

Special protective equipment for fire-fighting

Use self-contained breathing apparatus. Use personal protective clothing.

Other information

Collect contaminated fire-fighting water separately, must not be discharged into the drains. Do not discharge into surface waters/groundwater.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with skin, eyes and clothing. Do not inhale dust. Ensure adequate ventilation. Remove persons to safety.

6.2. Environmental precautions

Do not empty into drains. Retain and dispose of contaminated wash water.

6.3. Methods and material for containment and cleaning up

To pick up dry. Take up mechanically and collect in suitable container for disposal. Clean up affected area. Avoid raising dust.

6.4. Reference to other sections

Information regarding Safe handling, see Section 7. Information regarding personal protective measures, see Section 8. Information regarding waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on protection against fire and explosion

The product is capable of dust explosions.

7.2. Conditions for safe storage, including any incompatibilities

Recommended storage temperature

Value 15 - 25 °C

Requirements for storage rooms and vessels

Keep container tightly closed and dry.

SECTION 8: Exposure controls/personal protection

8.2. Exposure controls

Exposure controls

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See Section 7. No measures exceeding the ones mentioned necessary.

General protective and hygiene measures

Remove contaminated, soaked clothing immediately and dispose of safely. Preventative skin protection.
Wash hands and face after work.

Respiratory protection

necessary; Filter apparatus, filter A/P3

Hand protection

Gloves	
Use	Permanent hand contact
Reference substance	Maleic acid
Appropriate Material	nitrile rubber - NBR
Material thickness	0.11 mm
Breakthrough time	> 480 min

Gloves	
Use	Short-term hand contact
Reference substance	Maleic acid
Appropriate Material	nitrile rubber - NBR
Material thickness	0.11 mm
Breakthrough time	> 480 min

Eye protection

Safety glasses

Body protection

Protective clothing

Environmental exposure controls

Do not allow to enter drains or water courses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	Crystalline powder		
Colour	white		
Odour	slightly acidic		
Particle size			
Type	Average. particle size		
Particle size	Aver	0.356	mm
	age		
pH value			
Value	1.3		
Concentration/H ₂ O	100	g/l	
Temperature	20	°C	
Melting point			
Value	130	to	135 °C
Freezing point			
Remarks	No data available		
Source	Safety Data Sheet Supplier		
Initial boiling point and boiling range			
Value	157.8 °C		
Pressure	997	hPa	
Flash point			
Remarks	Not applicable		

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Flammability (solid, gas)

No data available

Source Safety Data Sheet Supplier

Upper/lower flammability or explosive limits

Remarks No data available

Source Safety Data Sheet Supplier

Vapour pressure

Value	<	0.1		hPa
Temperature		20	°C	
Method		OECD 104		

Density

Value		1.59		g/cm ³
Temperature		20	°C	

Solubility in water

Value		478.8		g/l
Temperature		20	°C	
Method		OECD 105		

Solubility(ies)

Remarks No data available

Partition coefficient: n-octanol/water

Reference substance		Maleic acid		
log Pow		-1.3		
Temperature		20	°C	
Method		OECD 107		

Minimum ignition energy

Minimum ignition energy	>	30	to	100	MJ
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Decomposition temperature

Value	>	135		°C
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Viscosity**dynamic**

Remarks No data available

Explosive properties

evaluation no

Oxidising properties

Remarks Not applicable

9.2. Other information**Bulk density**

Value		750	to	800	kg/m ³
Source		Safety Data Sheet Supplier			

SECTION 10: Stability and reactivity**10.1. Reactivity**

Danger of dust explosion

10.2. Chemical stability

Stable under recommended storage and handling conditions (see section 7).

10.3. Possibility of hazardous reactions

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Oxidising agents. Reducing agents. To avoid thermal decomposition, do not overheat.

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials

Reacts violently with: Oxidising agents, Bases, Reducing agents

10.6. Hazardous decomposition products

No data available.

Other information

Danger of dust explosion

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute oral toxicity**

ATE	708	mg/kg
Method	calculated value (Regulation (EC) No. 1272/2008)	

Acute oral toxicity (Components)**Maleic acid**

Species	rat	
LD50	708	mg/kg

Acute dermal toxicity

ATE	1'560	mg/kg
Method	calculated value (Regulation (EC) No. 1272/2008)	

Acute dermal toxicity (Components)**Maleic acid**

Species	rabbit	
LD50	1560	mg/kg

Acute inhalative toxicity (Components)**Maleic acid**

Species	rat	
LC50	720	mg/m ³
Duration of exposure	1	h

Maleic acid**Skin corrosion/irritation**

Species	Human	
Duration of exposure	24	h
evaluation	Moderately irritating	
Remarks	Irritating to skin.	

Serious eye damage/irritation

Reference substance	Maleic acid
Species	rabbit
evaluation	strongly irritant
Remarks	Risk of serious damage to eyes.

Sensitization

Reference substance	Maleic acid
Remarks	May cause sensitization by skin contact.
Source	Safety Data Sheet Supplier

Mutagenicity

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Reference substance	Maleic acid
Species	Salmonella typhimurium
Method	Ames test
Remarks	negative
Source	Safety Data Sheet Supplier

Mutagenicity (Components)**Maleic acid**

Species	mammal, species unspecified
evaluation	No mutagenicity according to various in vitro tests.
Method	OECD 476
Remarks	negative

Maleic acid

Species	Salmonella typhimurium
Method	OECD 471
Remarks	negative

Carcinogenicity

Remarks	No evidence available on carcinogenicity.
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Specific Target Organ Toxicity (STOT)

evaluation	May cause damage to organs. Route of exposure inhalative Organs: Respiratory tract
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Other information

Observe the usual precautions for handling chemicals.

SECTION 12: Ecological information**12.1. Toxicity****Fish toxicity**

Reference substance	Maleic acid
Species	Fathead minnow (Pimephales promelas)
LC50	5 mg/l
Duration of exposure	96 h
Source	Safety Data Sheet Supplier

Fish toxicity (Components)**Maleic acid**

Species	rainbow trout (Oncorhynchus mykiss)
LC50	75 mg/l
Duration of exposure	96 h

Daphnia toxicity

Reference substance	Maleic acid
Species	Daphnia magna
EC50	316.2 mg/l
Duration of exposure	48 h
Source	Safety Data Sheet Supplier

Daphnia toxicity (Components)**Maleic acid**

Species	Daphnia magna
EC50	42.81 mg/l
Duration of exposure	48 h

Algae toxicity (Components)

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Maleic acid

Species	Pseudokirchneriella subcapitata	
ErC50	74.35	mg/l
Duration of exposure	72	h

Bacteria toxicity (Components)**Maleic acid**

Species	Photobacterium phosphoreum	
EC50	12.5	mg/l
Duration of exposure	15	min

12.2. Persistence and degradability**Biodegradability**

Reference substance	Maleic acid	
Value	92	%
Duration of test evaluation	20	d
Source	Readily biodegradable Literature value	

Biodegradability (Components)**Maleic acid**

Value	97	%
Duration of test	28	d
Method	OECD 301	

Chemical oxygen demand (COD) (Components)**Maleic acid**

Value	830	mg/g
Source	Theoretischer Sauerstoffbedarf (ThSB)	

Biochemical oxygen demand (BOD5) (Components)**Maleic acid**

Value	77	%(m)
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12.3. Bioaccumulative potential**Partition coefficient: n-octanol/water**

Reference substance	Maleic acid	
log Pow	-1.3	
Temperature	20	°C
Method	OECD 107	

Octanol/water partition coefficient (log Pow) (Components)**Maleic acid**

log Pow	-1.3	
Temperature	20	°C
Method	OECD 107	

12.6. Other adverse effects**General information / ecology**

Do not allow it to reach soil, ground water, water bodies or sewage system.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations for the product**

Disposal in compliance with local and national regulations.

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Disposal recommendations for packaging

Dispose of as unused product.

SECTION 14: Transport information

	Land transport ADR/RID	Marine transport IMDG/GGVSee	Air transport ICAO/IATA
14.1. UN number	Non-dangerous goods	The product does not constitute a hazardous substance in sea transport.	The product does not constitute a hazardous substance in air transport.
14.2. UN proper shipping name	(Maleic acid)	(Maleic acid)	(Maleic acid)

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Water Hazard Class (Germany)**Water Hazard Class
(Germany)

WGK 1

Remarks

Classification according to Annex 4 VwVwS

SECTION 16: Other information**Hazard statements listed in Chapter 3**

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

CLP categories listed in Chapter 3

Acute Tox. 4	Acute toxicity, Category 4
Eye Irrit. 2	Eye irritation, Category 2
Skin Irrit. 2	Skin irritation, Category 2
Skin Sens. 1	Skin sensitization, Category 1
STOT SE 3	Specific target organ toxicity - single exposure, Category 3

Supplemental information

Relevant changes compared with the previous version of the safety data sheet are marked with: ***
This information is based on our present state of knowledge. However, it should not constitute a guarantee for any specific product properties and shall not establish a legally valid relationship.