



## MATERIAL SAFETY DATA SHEET

MSDS No.

01

MALEIC ANHYDRIDE

Effective From

26-11-2020

**1. PRODUCT AND COMPANY IDENTIFICATION****1.1 Product identifiers**

Product name : Maleic anhydride

Product Number : 63200  
Index-No. : 607-096-00-9

CAS-No. : 108-31-6

EC No. : 203-571-6  
REACH Registration No. : 01- 2120813754-54-XXXX

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

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Bloomchemag bv  
: Sint-Antoniusstraat 16 b1  
B-2400, Mol, Belgium

Telephone : +91 120 4659134  
E-mail : info@bloomchemag.com

**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 4), H302  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318  
Respiratory sensitisation (Category 1), H334  
Skin sensitisation (Category 1), H317  
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Respiratory system, H372  
Specific target organ toxicity - repeated exposure, Oral (Category 2), Kidney, H373  
Acute aquatic toxicity (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)

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.



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H372	Causes damage to organs (/\$/*_ORG_REP_INHA\$/) through prolonged or repeated exposure if inhaled.
H373	May cause damage to organs (/\$/*_ORG_REP_ORAL\$/) through prolonged or repeated exposure if swallowed.
H402	Harmful to aquatic life.
Precautionary statement(s)	
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P285	In case of inadequate ventilation wear respiratory protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS**

Corrosive to the respiratory tract.  
Sternutator.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substances**

Synonyms	: 2,5-Furandione
Formula	: C4H2O3
Molecular weight	: 98.06 g/mol
CAS-No.	: 108-31-6
EC-No.	: 203-571-6
Index-No.	: 607-096-00-9

**Hazardous components**

Component	Classification	Concentration
<b>Maleic anhydride</b>	Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Resp. Sens. 1; Skin Sens. 1; STOT RE 1; STOT RE 2; Aquatic Acute 3; H302, H314, H317, H318, H334, H372, H373, H402	<= 100 %



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#### 4. FIRST AID MEASURES

##### 4.1 Description of first aid measures

###### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

###### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. **In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

###### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

###### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

#### 5. FIREFIGHTING MEASURES

##### Extinguishing media

**5.1 Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture:** Carbon oxides

**5.3 Advice for fire fighters:** Wear self-contained breathing apparatus for firefighting if necessary

**5.4 Further information:** No data available

#### 6. ACCIDENTAL RELEASE MEASURES

##### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

##### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

##### 6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections:** For disposal see section 13.

#### 7. HANDLING AND STORAGE

##### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combu formation should be taken into consideration before additional processing Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.



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**7.2 Conditions for safe storage, including any incompatibilities**  
Keep container tightly closed in a dry and well-ventilated place.

Moisture sensitive.

**7.3 Specific end use(s)**  
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

**Components with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
Maleic anhydride	108-31-6	TWA	0.100000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye, skin, & Upper Respiratory Tract irritation Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) Not classifiable as a human carcinogen Sensitizer		
		TWA	0.250000 ppm 1.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	0.250000 ppm 1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.010000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Respiratory sensitization Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) Not classifiable as a human carcinogen Sensitizer		
		TWA	0.01 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Dermal Sensitization Respiratory sensitization Respiratory sensitization 2015 Adoption Not classifiable as a human carcinogen		

**8.2 Exposure controls**

**Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks.

**Personal protective equipment**

**Eye/face protection:** Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber



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Minimum layer thickness: 0.11 mm

Break through time: 480 min

Splash contact

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industria situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use (EN 143) respirator cartridges as a backup to engineering controls. If th full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

- |   |   |
|---|---|
| a) Appearance                                       | Form: solid<br>Colour: white  |
| b) Odour  | No data available   |
| c) Odour Threshold                                  | No data available   |
| d) pH   | No data available   |
| e) Melting point/freezing point                     | Melting point/range: 52 - 54 °C (126 - 129 °F)<br>Melting point/range: 51 - 56 °C (124 - 133 °F) - lit. |
| f) Initial boiling point and boiling range          | 200 °C (392 °F) - lit.  |
| g) Flash point                                      | ( )No data available  |
| h) Evaporation rate                                 | No data available   |
| i) Flammability (solid, gas)                        | No data available   |
| j) Upper/lower flammability or explosive limits     | No data available   |
| k) Vapour pressure                                  | 0.2 hPa at 22 °C (72 °F) - OECD Test Guideline 104  |
| l) Vapour density                                   | No data available   |
| m) Relative density                                 | 1.48 g/cm <sup>3</sup> at 20 °C (68 °F) -   |
| n) Water solubility                                 | No data available   |
| o) Partition coefficient: n- log Pow: octanol/water | -2.609 at 20 °C (68 °F) - OECD Test Guideline 107   |
| p) Auto-ignition temp.                              | No data available   |
| q) Decomposition                                    | No data available   |



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temperature

- r) Viscosity No data available  
s) Explosive properties No data available  
t) Oxidizing properties No data available

**9.2 Other safety information**

No data available

**10. STABILITY AND REACTIVITY****10.1 Reactivity:** No data available**10.2 Chemical stability:** Stable under recommended storage conditions**10.3 Possibility of hazardous reactions:** No data available**10.4 Conditions to avoid:** No data available**10.5 Incompatible materials**

Strong oxidizing agents, Strong acids, Strong bases, Strong reducing agents, Alkali metals, Amines

**10.6 Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

**11. TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****Acute toxicity**

LD50 Oral - Rat - male and female - 1,090 mg/kg(Maleic anhydride)

(OECD Test Guideline 401)

LC50 Inhalation - Rat - 1 h - &gt; 4.35 mg/l(Maleic anhydride)

LD50 Dermal - Rabbit - female - 2,620 mg/kg(Maleic anhydride)

No data available(Maleic anhydride)

**Skin corrosion/irritation**

Skin - Rabbit(Maleic anhydride)

Result: Causes burns. - 4 h

**Serious eye damage/eye irritation**

Eyes - Rabbit(Maleic anhydride)

Result: Corrosive

**Respiratory or skin sensitisation**

- Rat(Maleic anhydride)

Result: May cause sensitisation by inhalation.

Buehler Test - Guinea pig(Maleic anhydride)

Result: May cause sensitisation by skin contact.

(OECD Test Guideline 406)

**Germ cell mutagenicity**

Ames test(Maleic anhydride)

Salmonella typhimurium

Result: negative

OECD Test Guideline 475(Maleic anhydride)

Rat - male and female



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Result: negative

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity****Specific target organ toxicity - single exposure**

No data available(Maleic anhydride)

**Specific target organ toxicity - repeated exposure**

Inhalation - Causes damage to organs through prolonged or repeated exposure. - Respiratory system  
Oral - May cause damage to organs through prolonged or repeated exposure. - Kidney

**Aspiration hazard**

No data available(Maleic anhydride)

**Additional Information**

Repeated dose toxicity - Rat - male - Lowest observed adverse effect level - 250 mg/kg(Maleic anhydride) RTECS: ON3675000

Cough, Shortness of breath, Headache, Nausea, Vomiting(Maleic anhydride)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Maleic anhydride)

**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

Toxicity to fish static test LC50 - Oncorhynchus mykiss (rainbow trout) - 75 mg/l - 96 h(Maleic anhydride)

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 330 mg/l - 48 h(Maleic anhydride)

Toxicity to algae Growth inhibition EC50 - Selenastrum capricornutum (green algae) - > 150 mg/l - 72 h(Maleic anhydride) (OECD Test Guideline 201)

Toxicity to bacteria EC10 - Pseudomonas putida - 44.6 mg/l - 18 h(Maleic anhydride) (DIN 38 412 Part 8)

**12.2 Persistence and degradability**

Biodegradability Biotic/Aerobic - Exposure time 28 d(Maleic anhydride)  
Result: 73 - 81 % - Readily biodegradable.

**12.3 Bioaccumulative potential: No data available****12.4 Mobility in soil: No data available(Maleic anhydride)****12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

Harmful to aquatic life.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.





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**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chem scrubber.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 2215      Class: 8      Packing group: III  
Proper shipping name: Maleic anhydride  
Reportable Quantity (RQ) :      5000 lbs

Poison Inhalation Hazard: No

**IMDG**

UN number: 2215      Class: 8      Packing group: III      EMS-No: F-A, S-B  
Proper shipping name: MALEIC ANHYDRIDE

**IATA**

UN number: 2215      Class: 8      Packing group: III  
Proper shipping name: Maleic anhydride

**15. REGULATORY INFORMATION****SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Maleic anhydride	108-31-6	1993-04-24

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Maleic anhydride	108-31-6	1993-04-24

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Maleic anhydride	108-31-6	1993-04-24

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Maleic anhydride	108-31-6	1993-04-24

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**16. OTHER INFORMATION**

Full text of H-Statements referred to under sections 2 and 3.

H302

Harmful if swallowed.



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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 through prolonged or repeated exposure if inhaled.
H372	Causes damage to organs (/*_ORG_REP_INHA*/) through prolonged or repeated exposure if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure if swallowed.
H373	May cause damage to organs (/*_ORG_REP_ORAL*/) through prolonged or repeated exposure if swallowed.
H402	Harmful to aquatic life.

**HMIS Rating**

Health hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

**NFPA Rating**

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.