

Safety data sheet

according to 1907/2006/EC, Article 31 as amended

Printing date 12.07.2023

Version number 2

Revision: 12.07.2023

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

- **1.1 Product identifier**
- **Trade name:** Maleic acid; lab grade
- **Article number:** 50-2800-70
- **CAS Number:**
110-16-7
- **EC number:**
203-742-5
- **Index number:**
607-095-00-3
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
- **Product category**
 - PC1 Adhesives, sealants
 - PC3 Air care products
 - PC9a Coatings and paints, thinners, paint removers
 - PC19 Intermediate
 - PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents
 - PC21 Laboratory chemicals
 - PC23 Leather treatment products
 - PC28 Perfumes, fragrances
 - PC32 Polymer preparations and compounds
 - PC34 Textile dyes, and impregnating products
 - PC39 Cosmetics, personal care products
- **Application of the substance / the mixture**
Intermediate
Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Severn Biotech Ltd.
Unit 2,
Park Lane,
Kidderminster,
Worcestershire.
DY11 6TJ
UK
Tel: 0044 1562 825286
Fax: 0044 1562 825284
email: info@severnbiotech.com
- **Further information obtainable from:** Product safety department.
- **1.4 Emergency telephone number:**
Members of the public seeking specific information on poisons should contact:
In England and Wales: NHS 111 - dial 111
In Scotland: NHS 24 - dial 111

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



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Acute Tox. 4 H302 Harmful if swallowed.
 Acute Tox. 4 H312 Harmful in contact with skin.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 STOT SE 3 H335 May cause respiratory irritation.

· 2.2 Label elements

· Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the GB CLP regulation.

· Hazard pictograms GHS05, GHS07

· Signal word Danger

· Hazard statements

H302+H312 Harmful if swallowed or in contact with skin.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

· Precautionary statements

P260 Do not breathe dust.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P302+P352 IF ON SKIN: Wash with plenty of 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.

· 2.3 Other hazards

· Results of PBT and vPvB assessment

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· 3.1 Chemical characterisation: Substances

· CAS No. Description

110-16-7 Maleic acid

· Identification number(s)

· **EC number:** 203-742-5

· **Index number:** 607-095-00-3

SECTION 4: First aid measures

· 4.1 Description of first aid measures

· General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:** Supply fresh air and to be sure call for a doctor.

· After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

· After eye contact:

Check for and remove any contact lenses.

Rinse opened eye for several minutes under running water. Then consult a doctor.

· After swallowing:

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

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- **Information for doctor:** Treat symptomatically and supportively.
- **4.2 Most important symptoms and effects, both acute and delayed**
 - Allergic reactions
 - Coughing
 - Headache
 - Breathing difficulty
 - Corrosive damage to gastro-intestinal tract.
- **Hazards** Danger of pulmonary oedema.
- **4.3 Indication of any immediate medical attention and special treatment needed**
 - No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
 - CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
 - Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**
 - Combustible
 - Formation of toxic gases is possible during heating or in case of fire.
 - As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.
 - Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
- **5.3 Advice for firefighters**
- **Protective equipment:**
 - Wear self-contained respiratory protective device.
 - Wear fully protective suit.
 - Do not inhale explosion gases or combustion gases.
- **Additional information**
 - Cool endangered receptacles with water spray.
 - Collect contaminated fire fighting water separately. It must not enter the sewage system.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
 - Avoid formation of dust.
 - Ensure adequate ventilation
 - Keep ignition sources away - no smoking.
 - Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
 - Do not allow to penetrate the ground/soil.
 - Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
 - Pick up mechanically.
 - Send for recovery or disposal in suitable receptacles.
 - Ensure adequate ventilation.
- **6.4 Reference to other sections**
 - See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 - Prevent formation of dust.

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- Ensure good ventilation/exhaustion at the workplace.
 Avoid direct contact (skin/eye contact, ingestion and/or inhalation of fume/mist/dust) with the product in the undiluted form.
 Safety showers and eye wash facilities should be available at the work area.
- **Information about fire - and explosion protection:**
 There is a risk of a dust explosion if the following conditions are met:
 - The substance is present in very finely distributed form (powder, dust).
 - The substance is whirled up in sufficient quantity in the air.
 - An ignition source is present (flame, spark, electrostatic discharge, etc.)
 Keep ignition sources away - Do not smoke.
 Protect against electrostatic charges.
 - **7.2 Conditions for safe storage, including any incompatibilities**
 - **Storage:**
 - **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.
 - **Information about storage in one common storage facility:**
 Store away from oxidising agents.
 Store away from foodstuffs.
 - **Further information about storage conditions:**
 Store in a banded area.
 Store in cool, dry conditions in well sealed receptacles.
 - **Storage class:** 8 B
 - **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical facilities:** No further data; see section 7.
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **DNELs**
 Workers - Inhalation; Long term systemic effects: 3 mg/m³
 Workers - Inhalation; Short term systemic effects: 3 mg/m³
 Workers - Inhalation; Long term local effects: 3 mg/m³
 Workers - Inhalation; Short term local effects: 3 mg/m³
- **PNECs**
 Fresh water: 100 µg/l
 Intermittent release: 428.1 µg/L
 Marine water: 10 µg/l
 STP: 44.6 mg/l
 Sediment (Freshwater): 334 µg/kg
 Sediment (Marine water): 33.4 µg/kg
 Soil: 41.5 µg/kg
 No potential for bioaccumulation.
- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 Do not breathe dust
 Do not eat, drink, smoke or sniff while working.
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing
 Wash hands before breaks and at the end of work.
 Avoid contact with the eyes and skin.
 Ensure that eyewash stations and safety showers are close to the workstation location.
 A safe system of work must be formulated and followed to ensure safe working with this product. Relevant workers must receive suitable and sufficient training and supervision.
- **Respiratory protection:** Use suitable respiratory protective device in case of insufficient ventilation.

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· Protection of hands:



Protective gloves.

Use gloves tested and approved under appropriate government standards such as NIOSH (US) or EN374 (EU).

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Safety glasses with side-shields conforming to EN166.

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Goggles recommended during refilling

· Body protection:



Protective work clothing

Body protection must be chosen depending on product properties, activity and possible exposure.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Solid
Colour:	White
Odour:	Characteristic
Odour threshold:	Not determined.

· **pH-value:** Not applicable.

· Change in condition

Melting point/freezing point:	132 °C
Initial boiling point and boiling range:	158 °C

· **Flash point:** Not applicable.

· **Flammability (solid, gas):** Product is not flammable.

· **Decomposition temperature:** Not determined.

· **Ignition temperature:** Not determined.

· **Explosive properties:** Product is not explosive. However, formation of explosive air/dust mixtures are possible.

· Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

· **Vapour pressure:** Not applicable.

· **Density at 20 °C:** 1.59 g/cm³

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· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with water at 20 °C:	400 g/l
· Partition coefficient: n-octanol/water:	-1.3 log POW
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· 9.2 Other information	NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
There is a risk of a dust explosion if the following conditions are met:
 - The substance is given in very finely distributed form (powder, dust).
 - The substance is whirled up in sufficient quantity in the air.
 - An ignition source is present (flame, spark, electrostatic discharge, etc.)
 Decomposes on heating, producing toxic fumes.
- **10.3 Possibility of hazardous reactions** Reacts with metals forming hydrogen.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:**
Strong oxidising agents.
Strong bases.
- **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Maleic anhydride

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
 - **Acute toxicity**
Harmful if swallowed or in contact with skin.
 - **LD/LC50 values relevant for classification:**
- | | | |
|--------|------|----------------------|
| Oral | LD50 | 2,870 mg/kg (rat) |
| Dermal | LD50 | 1,560 mg/kg (rabbit) |
- **Primary irritant effect:**
 - **Skin corrosion/irritation**
Causes severe skin burns and eye damage.
 - **Serious eye damage/irritation**
Causes serious eye damage.
 - **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
 - **Subacute to chronic toxicity:**
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: The substance may have effects on the kidneys.
Prolonged or repeated skin contact may irritate and cause dermatitis.
 - **Additional toxicological information:**
ROUTES OF EXPOSURE: Can be absorbed into the body by inhalation and by ingestion.

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INHALATION RISK: A harmful concentration of airborne particles can be reached quickly especially if powdered.

Inhalation may cause lung oedema, but only after initial corrosive effects on eyes and/or airways have become manifest. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**
May cause respiratory irritation.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

EC50 (96 h)	42.81 mg/l (Bacteria)
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- **12.2 Persistence and degradability** biodegradable
- **12.3 Bioaccumulative potential** Product is not expected to bioaccumulate.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

· Recommendation

Recommended Hierarchy of Controls:

- Minimise waste;
- Reuse if not contaminated;
- Recycle, if possible; or
- Safe disposal (if all else fails).

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Contact waste processors for recycling information.

Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.

· Uncleaned packaging:

· Recommendation:

Disposal must be made according to official regulations.

Container remains hazardous when empty. Continue to observe all precautions.

Containers, even those that are "empty," may contain residues that can develop flammable and/or hazardous vapours upon heating. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

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· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

<ul style="list-style-type: none"> · 14.1 UN-Number · ADR/RID/ADN, IMDG, IATA 	UN3261
<ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR/RID/ADN · IMDG, IATA 	UN3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (Maleic acid) CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (Maleic acid)
<ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR/RID/ADN, IMDG, IATA 	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> · Class · Label
<ul style="list-style-type: none"> · Class · Label 	8 Corrosive substances. 8
<ul style="list-style-type: none"> · 14.4 Packing group · ADR/RID/ADN, IMDG, IATA 	III
<ul style="list-style-type: none"> · 14.5 Environmental hazards: · Marine pollutant: 	No
<ul style="list-style-type: none"> · 14.6 Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups · Stowage Category · Segregation Code 	Warning: Corrosive substances. 80 F-A,S-B (SGG1) Acids A SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
<ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code 	Not applicable.
<ul style="list-style-type: none"> · Transport/Additional information: 	
<ul style="list-style-type: none"> · ADR/RID/ADN · Limited quantities (LQ) · Excepted quantities (EQ) · Transport category · Tunnel restriction code 	5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g 3 E
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
<ul style="list-style-type: none"> · UN "Model Regulation": 	UN 3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (MALEIC ACID), 8, III

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SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Product safety department.
- **Abbreviations and acronyms:**
 - RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 - IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
 - ICAO: International Civil Aviation Organisation
 - ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
 - ADR: Accord relatif au transport international 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 Harmonised System of Classification and Labelling of Chemicals
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - DNEL: Derived No-Effect Level (UK REACH)
 - PNEC: Predicted No-Effect Concentration (UK REACH)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - Acute Tox. 4: Acute toxicity – Category 4
 - Skin Corr. 1B: Skin corrosion/irritation – Category 1B
 - Eye Dam. 1: Serious eye damage/eye irritation – Category 1
 - Skin Sens. 1: Skin sensitisation – Category 1
 - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

GB