

Section 1. Product and Company Identification

Product Name Maleic Anhydride
CAS Number 108-31-6

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Section 2. Hazards Identification

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 sensitization (Category 1), H334
Skin sensitization (Category 1), H317
Acute aquatic toxicity (Category 3), H402

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard Statements

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.
H402 Harmful to aquatic life.

Precautionary Statements

P260 Do not breathe dust or mist.



- 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 or doctor/ physician 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): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
- 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 or doctor/ physician.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
- P363 Wash contaminated clothing before reuse.
- P405 Store locked up.
- P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not Otherwise Classified (HNOC) or not covered by GHS: Sternutator.

Section 3. Composition / Information on Ingredients

Common Name Maleic Anhydride
Synonym(s) 2,5-Furandione
Formula C₄H₂O₃
CAS Number 108-31-6

| COMPONENT | CAS NUMBER | CONCENTRATION |
|------------------|------------|---------------|
| Maleic Anhydride | 108-31-6 | ≤ 100% |

Section 4. First Aid Measures

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.

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Skin Contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

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



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

Most Important Symptoms and Effects, both Acute and Delayed: The most important known symptoms and effects are described in the labelling and/or in section 11.

Indication of any Immediate Medical Attention and Special Treatment Needed: No data available

Section 5. Firefighting Measures

Extinguishing Media

Suitable Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special Hazards arising from the Substance or Mixture: Carbon oxides

Advice for Firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further Information: No data available

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

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.

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.

Reference to Other Sections: For disposal see section 13.

Section 7. Handling and Storage

Precautions for Safe Handling: Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for Safe Storage, including any Incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Moisture sensitive.

Storage class (TRGS 510): Non-combustible, corrosive hazardous materials



Section 8. Exposure Controls / Personal Protection

Control Parameters
Components with Workplace Control Parameters

| Component | CAS Number | 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/m ³ | 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/m ³ | 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 2014 Adoption Not classifiable as a human carcinogen | | |

Exposure Controls

Appropriate Engineering Controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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.

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 a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a 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.

Section 9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Form: Solid

Color: White

Odor: No data available

Odor Threshold: No data available

pH: No data available

Melting/Freezing Range: 52 - 54°C (126 - 129°F)

Melting/Freezing Range: 51 - 56°C (124 - 133°F) - lit.

Initial Boiling Point and Boiling Range: 200°C (392°F) - lit.

Flash Point: No data available

Evaporation Rate: No data available

Flammability (solid, gas): No data available

Upper/Lower Flammability or Explosive Limits: No data available

Vapor Pressure: 0.33 hPa (0.25 mmHg) at 20°C (68°F)

Vapor Density: No data available

Relative Density: 1.48 g/cm³ at 20°C (68°F)

Water Solubility: No data available

Partition Coefficient (n-Octanol/Water): log Pow: -2.61 at 20°C (68°F)

Auto-ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Explosive Properties: No data available

Oxidizing Properties: No data available

Other Safety Information: No data available

Section 10. Stability and Reactivity

Reactivity: No data available

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: No data available

Conditions to Avoid: No data available

Incompatible Materials: Strong oxidizing agents, Strong acids, Strong bases, Strong reducing agents, Alkali metals, Amines

Hazardous Decomposition Products

Other Decomposition Products: No data available

In the event of fire: see section 5

Section 11. Toxicological Information

Information on Toxicological Effects

Acute Toxicity

LD50 Oral - Rat: 400 mg/kg

LD50 Oral - Rat: 1,090 mg/kg (OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rabbit: 2,620 mg/kg

Skin Corrosion/Irritation

Skin - Rabbit

Result: Causes burns.

Serious Eye Damage/Eye Irritation

Eyes - Rabbit

Result: Severe eye irritation

Respiratory or Skin Sensitization

Buehler Test - Guinea pig

Result: May cause sensitization by skin contact.

May cause allergic respiratory and skin reactions (OECD Test Guideline 406)

- Rat

Result: Probability of respiratory sensitization in humans based on animal testing

May cause allergic respiratory and skin reactions

Germ Cell Mutagenicity

Carcinogenicity

Carcinogenicity - Rat - Subcutaneous

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic: Tumors at site or application.

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: No data available

Reproductive toxicity - Rat - Oral

Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated). Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile non-pregnant females).

Reproductive toxicity - Rat - Oral

Effects on Newborn: Growth statistics (e.g., reduced weight gain).

No data available

Developmental Toxicity - Rat - Oral

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific Target Organ Toxicity - Single Exposure: No data available

Specific Target Organ Toxicity - Repeated Exposure: No data available

Aspiration Hazard: No data available

Additional Information

RTECS: ON3675000

Cough, Shortness of breath, Headache, Nausea, Vomiting

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

Section 12. Ecological Information

Toxicity: Toxicity to fish LC50 - *Gambusia affinis* (Mosquito fish): 230 mg/L (96 h)

Toxicity to daphnia and other aquatic invertebrates

EC50 - *Daphnia magna* (Water flea): 88 mg/L (24 h)

Toxicity to algae EC50 - *Desmodesmus subspicatus* (green algae): 29 mg/L (72 h)

Persistence and Degradability

Biodegradability Biotic/Aerobic - Exposure time 7 d

Result: 98 % - Readily biodegradable

Bioaccumulative Potential: No data available

Mobility in soil: No data available

Results of PBT and vPvB Assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other Adverse Effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.



Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 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

Section 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:

Maleic anhydride (CAS-No. 108-31-6)

Revision Date 1993-04-24

SARA 311/312 Hazards: Acute Health Hazard

Massachusetts Right to Know Components

Maleic anhydride (CAS-No. 108-31-6)

Revision Date 1993-04-24

Pennsylvania Right to Know Components

Maleic anhydride (CAS-No. 108-31-6)

Revision Date 1993-04-24



New Jersey Right to Know Components

Maleic anhydride (CAS-No. 108-31-6)

Revision Date 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.

HMIS Rating

Health: 3

Flammability: 0

Reactivity: 0

NFPA Rating

Health: 3

Flammability: 0

Reactivity: 0

Section 16. Other Information

Disclaimer: 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.

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