

SECTION 1. ----- PRODUCT AND COMPANY IDENTIFICATION-----

Product Name	Maleic acid (Toxic acid)
Product Code(s)	MA0333
Recommended Use	For Laboratory Research Use Only Not for Human or Animal Drug Use
Recommended Use	Commonly used stain for detection of protein bands following electrophoresis

SECTION 2. ----- HAZARDS IDENTIFICATION -----

GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)

- Acute toxicity, Oral (Category 4)
- Eye irritation (Category 2)
- Skin irritation (Category 2)
- Specific target organ toxicity - single exposure (Category 3), vascular
- Skin sensitization (Category 1)

Labelling in accordance with 29 CFR 1910.1200 (OSHA HCS)

Pictogram



Signal word

Warning

Hazard statement(s)

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

Precautionary statement(s)

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|--------------------|--|
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| P302 + P352 | IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell. |
| P304 + P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. |
| P305 + P351 + P338 | 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 |
| P308 + P311 | If exposed or concerned: call a POISON CENTER/doctor. |

Hazards not otherwise classified (HNOC)

No data available

SECTION 3. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

Chemical Name	EC No.	CAS-No	Weight %
Maleic acid	203-742-5	110-16-7	95-100

SECTION 4. ----- 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

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5. ----- FIRE FIGHTING MEASURES -----

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products

Explosion data - sensitivity to mechanical impact

No data available

Explosion data - sensitivity to static discharge

No data available

SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----

Personal precautions

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

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.

SECTION 7. ----- HANDLING AND STORAGE-----

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Dust explosion class: St2

Conditions for safe storage

Keep in a dry place.

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -

Personal protective equipment

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).

Hand 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.

Eye 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 and 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.

Hygiene measures

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

Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

Appearance

Form	powder
Colour	white

Safety data

pH	No data available
Melting point/freezing point	Melting point/range: 137 - 140 °C (279 - 284 °F) - lit.
Boiling point	160 °C (320 °F)
Flash point	127 °C (261 °F) - closed cup
Flammability (solid, gas)	The product is not flammable. - Flammability (solids)
Ignition temperature	No data available
Auto-ignition temperature	No data available
Lower explosion limit	2.7 %(V)
Vapour pressure	No data available

Water solubility	788 g/l at 20 °C (68 °F)
Partition coefficient: n-octanol/water	log Pow: -1.3 at 20 °C (68 °F)
Relative vapour density	No data available
Odour	No data available
Odour Threshold	No data available
Evaporation rate	No data available

SECTION 10. -----STABILITY AND REACTIVITY -----

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

No data available

Materials to avoid

Oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

Acute toxicity

Oral LD50

LD50 Oral - Rat - 1,090 mg/kg
Remarks: Read-across (Analogy)

Inhalation LC50

LC50 Inhalation - Rat - 1 h - > 720 mg/m³

Dermal LD50

LD50 Dermal - Rabbit - 1,560 mg/kg
Remarks: Behavioral:Tremor.

Other information on acute toxicity

No data available

Skin corrosion/irritation

Skin - Rabbit - Irritating to skin. - OECD Test Guideline 404
Remarks: Read-across (Analogy)

Serious eye damage/eye irritation

Eyes - Rabbit - Risk of serious damage to eyes. - OECD Test Guideline 405
Remarks: Read-across (Analogy)

Respiratory or skin sensitisation

in vivo assay - Mouse - May cause sensitisation by skin contact. - OECD Test Guideline 429

Germ cell mutagenicity

Genotoxicity in vitro - Hamster - ovary - with and without metabolic activation - negative

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.

Reproductive toxicity

No data available

Teratogenicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

Gastrointestinal disturbance

Synergistic effects

No data available

Additional Information

RTECS: Not available

SECTION 12. ----- ECOLOGICAL INFORMATION -----

Toxicity

Toxicity to fish	static test LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - 75 mg/l - 96 h Remarks: Read-across (Analogy)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - <i>Daphnia magna</i> (Water flea) - 42.81 mg/l - 48 h Method: OECD Test Guideline 202
Toxicity to algae	static test EC50 - <i>Pseudokirchneriella subcapitata</i> - 74.35 mg/l - 72 h Method: OECD Test Guideline 201
Toxicity to bacteria	EC50 - <i>Photobacterium phosphoreum</i> - 12.5 mg/l - 15 min

Persistence and degradability

Biodegradability	aerobic Result: 97.08 % - Readily biodegradable Method: OECD Test Guideline 301B
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Bioaccumulative potential

Bioaccumulation	<i>Leuciscus idus melanotus</i> - 3 d Bioconcentration factor (BCF): < 10
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Mobility in soil

No data available

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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 -----

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

SECTION 14. ----- TRANSPORT INFORMATION -----

IMDG

Not dangerous goods

IATA

Not dangerous goods

SECTION 15. ----- REGULATORY INFORMATION -----

WHMIS Classification

D2B	Toxic Material Causing Other Toxic Effects	Moderate skin irritant Moderate respiratory irritant Severe eye irritant
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This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

SECTION 16. ----- OTHER INFORMATION -----

Issuing Date	09-Feb-2009
Revision Date	05-October-2017
Revision Note	No information available.
Recommended Restrictions	No information available

Disclaimer

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End of SDS

