



SAFETY DATA SHEET

**Product: MALEIC ANHYDRIDE**  
**Registration No: 01 - 2119472428 - 31 - 0008**

Revision: 00

Date: 12 /28/2010

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**1- IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

Identification of the substance:

Product name: **MALEIC ANHYDRIDE**

Use of the substance:

1. Industrial use, as an Intermediate.
2. Polymer preparations and compounds.
3. Manufacture of rubber products.
4. Used as laboratory reagent.
5. Used in the manufacture of bulk large scale chemicals (including petroleum products).

Supplier identification

Company: Thirumalai chemicals Limited  
Address: No-25B Sipcot Industrial Complex  
Ranipet - 632 403. Tamil Nadu, India  
Telephone: +91-4172-244441 / 244442 / 244446  
Fax: +91-4172-244308  
Email: [yuvaraj@mktg.thirumalaichemicals.com](mailto:yuvaraj@mktg.thirumalaichemicals.com)

**2- HAZARDS IDENTIFICATION**

Most important hazards: Harmful if swallowed. Irritating to respiratory system and skin. Risk of serious eye damage.

Product effects

Adverse human health effects:

May cause burns to skin, eyes and gastrointestinal tract. May cause irritation to the respiratory tract and allergic reactions by inhalation and skin contact.



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Environmental effects: May cause damage to the environment due to acid pH.

Physical and chemical hazards: When in contact with water it forms Maleic Acid. May produce acid smoke and fumes if burning.

Specific hazards: Not applicable.

Main symptoms: Skin and mucous membranes burns. Redness, tearing and eye pain. Cough, sore throat, difficulty breathing, nausea, burning sensation and abdominal pain.

Classification of the chemical product:

Classification system adopted: European Chemical Bureau – European Community: Directive 67/548/EEC (substances).

Hazard Class and Category: Acute toxicity (oral)  
Respiratory and skin sensitization  
Serious eye damage  
Respiratory and skin irritation

Risk Phrases: R22: Harmful if swallowed.  
R34 - causes burns  
R42/43: May cause sensitization by inhalation and skin contact.

Classification system adopted: REGULATION (EC) No 1272/2008 of the European Parliament and of the Council, of 16 December 2008.

Hazard Class and Category: Acute toxicity (oral) - Category 4  
Skin Corrosion - Category 1B  
Sensitization — Respiratory - Category 1  
Sensitization — Skin - Category 1

Hazard statements: H302: Harmful if swallowed  
H314: Causes severe skin burns and eye damage.

Hazard statements: H317: May cause an allergic skin reaction. H318: Causes serious eye damage

H334: May cause allergy or asthma symptoms or breathing difficulties



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if inhaled

**3- COMPOSITION/INFORMATION ON INGREDIENTS**

Substance name:	MALEIC ANHYDRIDE
Chemical formula:	C4H2O3
Synonym:	2,5-Furandione, Cis- butenedioic Anhydride
Concentration:	More than 99.5% (W/W)
CAS Number:	108-31-6
EINECS number:	203-571-6
Classification:	<b>Directive 67/548/EEC</b> Xn; R22 – C; R34 – R42/43 <b>REGULATION (EC) No 1272/2008</b> Acute Tox. 4(oral); H302, Skin Corr. 1B-H314; Resp Sens.1- H334; Skin Sens.1- H317

**4- FIRST-AID MEASURES**

Exposure routes	
Inhalation:	Remove to fresh air and keep at rest. Monitor respiratory function. If breathing is difficult, give oxygen. If necessary, give artificial respiration. Seek medical attention.
Skin contact:	Remove contaminated clothing and shoes. Wash with plenty of soap and water. Seek medical attention.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.
Ingestion:	Rinse mouth of victim with plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek medical



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attention.

Protection of first-aiders  
and/or special notes to a  
physician:

Avoid contact with this product while helping the victim; keep the victim warmed. Symptomatic treatment should include, above said notes.

**5- FIRE-FIGHTING MEASURES**

Suitable extinguishing media:

Combustible if heated. Compatible with dry chemical, water spray, carbon dioxide and polyvalent foam.

Special hazard arising from  
the chemical:

May produce irritating and toxic gases if burning.

Special protective equipment  
for fire-fighters:

Use self-contained breathing apparatus (SCBA) operated in positive pressure mode and complete protective clothing.

**6- ACCIDENTAL RELEASE MEASURES**

Personal precautions:

Remove ignition sources. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin and eyes.

Use protective gloves, safety goggles and protective clothing.

Environmental precautions:

Prevent from entering into watercourses, sewerage and confined areas.

Cleaning up methods:

Appropriate containment  
techniques:

Solid: collect with a clean shovel, put in clean and dry vessels and cover them. Remove them from the spilling area.

Appropriate clean up

Discard any product, waste, container or wrapper available in an



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procedures: appropriate manner as not to harm the environment, according to federal regulations.

Inappropriate containment or clean up techniques: Do not discard directly in the environment or the sewage network.

**7- HANDLING AND STORAGE**

Appropriate technical measures for handling

Precautions for safe handling:

Avoid inhalation, contact with skin and eyes. Do not handle near incompatible materials. Use proper personal protective equipment as indicated in Section 8.

Hygiene measures:

Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wash hands before eating, drinking, smoking or going to the toilet. Take off all contaminated clothing and wash before reuse.

Appropriate technical measures for storage

Conditions for safe storage:

Keep only in original container, in a cool, dry, well-ventilated place. Keep away from food. Store locked up. Keep out of reach of children.  
Avoid static electricity by grounding.

Incompatible products:

Strong oxidants, alkaline metals, pyridine, amines, alkalis, quinoline.

Packaging compatibilities

Recommended use:

Solid: Polypropylene packages.  
Molten: stainless steel tanks.



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**8- EXPOSURE CONTROLS/PERSONAL PROTECTION**

Substance	TLV – TWA (ACGIH)	REL – TWA (NIOSH)	PEL - TWA (OSHA)
	(ppm)	(ppm)	(ppm)
Exposure limit values: <b>Maleic Anhydride</b>	0.25	0.25	0.25

Exposure controls:

Engineering controls measures:

The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. It is recommended safety shower and eye bath available near work side. Compressed air lines used for respiratory protection should be provided with purifiers. Engineering controls are the most effective way of reducing product exposure.

Personal protective equipment:

Eye/face protection:

Protective safety goggles.

Skin/body protection:

Protective clothing. Safety leather shoes with rubber impermeable sole.

Solid:

Latex or PVC gloves. Overalls of single canvas with long sleeves and hood.

Molten:

Scrap gloves, scrap jacket and trousers and facial protection.

Respiratory protection:

Full face piece respirator for organic vapors. In cases of high potential of exposure use a supplied-air respirator, full facepiece, operated in positive-pressure mode.

Special precautions:

Avoid wear contact lenses while using this product.

Hygiene measures:

Do not eat, drink or smoke while using this product. Wash hands before eating, drinking, smoking or going to the toilet. Take off all contaminated clothing and wash before reuse.

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**9- PHYSICAL AND CHEMICAL PROPERTIES**

## General information:

Physical state: Briquettes

Colour: Colorless

Odour: Pungent

## Important health, safety and environmental information:

Boiling point: 202°C

Vapour pressure: 0.16 mm Hg at 20 Deg C

Density: 1.48 g/cm<sup>3</sup> at 20°C

Solubility in water (g/ltr): 400 at 20°C

Molecular weight 98.06



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Reactivity: Hydrolysis in water

Melting point: 53 – 58°C

**10- STABILITY AND REACTIVITY**

Stability: Stable under normal conditions of storage and handling.  
Polymerization will not occur.

Incompatible materials: Strong oxidants, alkaline metals, piridine, amines, alkalis, quinoline.

Hazardous decomposition products: Maleic acid.

**11- TOXICOLOGICAL INFORMATION**

Acute toxicity: LD<sub>50</sub> (oral, rats): 1090 mg/kg

LC50 (inhalation, rats): >4.35 mg/L

LC50 (dermal, rats):2620mg/kg

Skin corrosion/irritation: Corrosive.

Serious eye damage/irritation: Category 1 (irreversible effects on the eye)

Respiratory or skin sensitization: Sensitizing.

Germ cell mutagenicity: Not mutagenic

Carcinogenicity: Not listed as carcinogenic (IARC).

Reproductive toxicity: NOAEL, rat: 55mg/kg).

Developmental toxicity: NOAEL 140mg/L.



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12- ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Fresh water: LC50(96 h) 75mg/L

Daphnia: EC50 : 5600 mg/L (short term toxicity)  
NOEC (21 days): 10mg/L (long term toxicity)

Algae: NOEC (72h): = 150mg/L

Persistence/degradability: Not Persistent

Bioaccumulative potential: Bioaccumulation is not expected

13- DISPOSAL CONSIDERATION

Recommended methods for safe and environmentally preferred disposal

Disposal methods:

Prior to implementing land disposal of waste residue (including waste sludge), consult local legislation for adequate disposal methods. Empty containers can retain product residues and shall be disposed in accordance with the provisions proposed for the product.

14- TRANSPORT INFORMATION

Solid

International regulations

Road transport ADR/RID	Class:	8	Number letter:	NA
	Warning sign:	Corrosive	UN No:	2215
Maritime transport IMDG	Class:	8	UN No:	2215
	EmS number:	NA	Packaging group:	III
Air transport ICAO/IATA	Class:	8	UN No:	2215
			Packaging group:	III

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15-REGULATORY INFORMATION

**Regulatory: REGULATION (EC) No 1907/2006 of the European Parliament and of the Council, of 18 December 2006.**

Labelling: health, safety and environmental information

Hazard classes: Acute toxicity (oral) hazard category 4: Skin Corrosion category 1B: Respiratory sensitization Category 1, Skin sensitization Category 1



GHS07

Hazard Pictograms:



GHS05



GHS08

Signal word:

Danger.

Hazard statements:

H302: Harmful if swallowed  
H314: Causes severe skin burns and eye damage  
H317: May cause an allergic skin reaction  
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Precautionary statements :

- P260: Do not breathe dust/fume/gas/mist/vapours/spray.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264: Wash 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.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P285: In case of inadequate ventilation wear respiratory protection.
- P301+P312: If swallowed call a poison center or doctor if feel unwell.
- P301+P330+P331: If swallowed rinse mouth, do not induce vomiting.
- P302+P352: If on skin wash with plenty of soap and water.
- P303+P361+P353: If on skin or hair, remove immediately all contaminated clothing. Rinse skin with water shower.
- 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 so.
- P332+P313: If skin irritation occurs get medical advice/attention.
- P363: Wash contaminated clothing before reuse.
- P405: Store locked up.
- P501: Dispose of contents/container in accordance to local legislation.

## 16. Other Information

The information provided in this safety data sheet is given in good faith and is correct to the best of our knowledge and information at the date of publication. It is designed only as guidance for safe handling, storage, transportation, use and disposal. No warranty is expressed (or) implied.