

## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 PRODUCT IDENTIFIER

- Chemical name Malic acid
- REACH Registration Number pending due by 2018

#### 1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE AND USES ADVISED AGAINST

Malic acid is used in food as food additive and can be used for in paper, in metal electroplating, water treatment, personal care products, paint textile,...

#### 1.3 DETAILS OF THE SUPPLIER

- Company identification

US:  
Tate & Lyle Ingredients Americas, LLC.  
2200 E.Eldorado Street  
Decatur, IL 62521

Europe:  
Tate & Lyle Slovakia s.r.o.  
Boleraz 114  
919 08 bolezaz  
Slovakia

#### 1.4 EMERGENCY PHONE NR.

CHEMTREC  
Toll-Free: 1-800-424-9300 (USA and Canada)  
Non Toll-Free +1-703-527-3887 (Global)

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

According with the version of the Globally Harmonized system of Classification and labeling adopted in the United states and Regulation 1272/2008/EC [CLP]: Eyes irritant category 2(H319)

#### 2.2 LABEL ELEMENTS

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	1 / *

## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR



GHS07

Signal word:  
Warning

Hazard Statement:  
Causes serious eye irritation. H319

Precautionary Statement:  
Wash hands thoroughly after handling. P264  
Wear eye protection. P280

Precautionary Statement. IF IN EYES: P305  
Response :  
Rinse cautiously with water for several minutes. P351  
Remove contact lenses, if present and easy to do Continue  
rinsing. P338  
If eye irritation persists: P337  
Get medical advice/attention. P313

### 2.3. OTHER HAZARDS

#### FIRE AND EXPLOSION HAZARD:

May form combustible dust concentrations in air. Possibility of dust explosion. It is recommended that all dust control equipment and material transport systems involved are engineered to prevent conditions contributing to dust explosions. Do not allow dust to accumulate on flat surfaces, on rafters or building structural components. Keep away from all ignition sources including heat, sparks and flame.

## SECTION 3 : COMPOSITION / INFORMATION OF INGREDIENTS

- Chemical name Malic acid  
- CAS number 6915-15-7

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	2 / *

## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR

- EINECS number 230-022-8  
- Synonyms Butanedioic acid, hydroxy acidulant , food additive E 296

## SECTION 4: FIRST AID MEASURES

### 4.1 DESCRIPTION OF FIRST AID MEASURES

- General advise Seek medical attention if irritation develops after first aid application
- Inhalation Move people from the exposure to fresh air.
- Skin contact Wash skin with soap and water.
- Eye contact Remove particulates by irrigating with eye wash solution or clean water, holding eyelids apart.
- Ingestion Wash mouth and flush throat upto the stomach.

### 4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

ROUTE(S) OF ENTRY: Skin Contact; Eye Contact

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE SKIN CONTACT: This product is irritating to the skin resulting in reddening, stinging, and swelling.

ACUTE EYE CONTACT: This product is irritating to the eyes resulting in stinging, reddening, tearing, and swelling.

CHRONIC EFFECTS OF EXPOSURE: No applicable information was found concerning any adverse chronic health effects from overexposure to this product.

CARCINOGENICITY: The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE: Persons with pre-existing eye or skin disorders may be more susceptible to the effects of this product.

### 4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED.

None Anticipated

## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1 EXTINGUISHING MEDIA

Water spray, dry powder, carbon dioxide or media appropriate for surrounding fire. Use of water jet may cause explosive dust conditions.

### 5.2 SPECIFIC HAZARDS

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	3 / *

## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR

**FIRE AND EXPLOSION HAZARD:** Possibility of dust explosion. It is recommended that all dust control equipment and material transport systems involved are engineered to prevent conditions contributing to dust explosions. Do not allow dust to accumulate on flat surfaces, on rafters or building structural components. Use of water jet may cause explosive dust conditions. SEE NFPA 61, Standard for the prevention of Fire and Dust Explosions in Agricultural and Food Processing Facilities, 2008 or later Edition, and other related standards.

### 5.3 SPECIFIC PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS

Wear self-contained breathing apparatus and full protective gear. Use water spray to cool fire exposed containers.

### FLAMMABILITY CLASS (OSHA)

Not applicable

### HAZARDOUS COMBUSTION PRODUCTS

Carbon dioxide and carbon monoxide

## SECTION 6 : ACCIDENTAL RELEASE MEASURES

### 6.1 PERSONAL PRECAUTIONS

Use personal protective equipment. Wear eye protection. Avoid contact with skin and eyes.

### 6.2 ENVIRONMENTAL PRECAUTIONS

Prevent further leakage or spillage if safe to do so. No special environmental precautions required

### 6.3 METHODS FOR CLEANING UP

Vacuum or sweep spills. Minimize dust generation.

If washing down spilled area is necessary, use copious amounts of water and control runoff.

Follow local, state and federal regulations for product disposal

### 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

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	4 / *

## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR

See NFPA 61, Standard for the Prevention of Fire and Dust Explosions in Agricultural and Food Processing Facilities, 2008 Edition, and other related standards. Use with adequate ventilation. Minimize dust generation and accumulation; dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are disturbed.

All dust control equipment and material transport systems involved are engineered to prevent conditions contributing to dust explosions and may require explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Bonding and grounding systems may be required.

Dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) should be designed to limit or prevent leakage of dust into the work area.

Do not allow dust to accumulate on flat surfaces, on rafters or building structural components. Routine housekeeping should be instituted to reduce dust accumulation. Use Avoid dispersal of dust in the air; use vacuum or wet sweeping methods. Do not use compressed air to clean surfaces.

Keep away from all ignition sources including heat, sparks, and flame. Where dust accumulations occur use non-sparking tools.

### 7.2 CONDITIONS OF SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in a cool dry place. Store in a tightly closed container/bag.

The packaging material should have reasonable moisture and air barriers and comply with food regulations.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 CONTROL PARAMETERS

Exposure limits: Nuisance dust (also called particulate not otherwise regulated (PNOR)).

OSHA PEL: 15 mg/ mg/m<sup>3</sup> Total dust

5 mg/m<sup>3</sup> Respirable dust

ACGIH TLV: 10 mg/m<sup>3</sup> Inhalable dust

5 mg/m<sup>3</sup> Respirable dust

15 mg/m<sup>3</sup> Total dust

### 8.2 EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS:

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	5 / *

## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR

Ventilation: See NFPA 61, Standard for the Prevention of Fire and Dust Explosions in Agricultural and Food Processing Facilities, 2008 Edition, and National Fire Protection Association 650, Standard for Pneumatic Conveying Systems for Handling Combustible Materials, 1997 Edition and other related standards. Normal industrial hygiene measures should be sufficient for protection of employees from exposure to dusts. Local and mechanical exhaust is desirable when dumping bags.

### APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT:

Eye protection: Safety glasses are recommended. Safety goggles are desirable when dumping bags.

Emergency wash facilities: Eye wash is recommended for conditions where dust generation is likely.

Special protective clothing: Not normally required.

Gloves: Not normally required. Use ordinary work gloves if dust dries skin.

Respirator: NIOSH approved N-95 dust respirator if working in situations that could generate large amounts of airborne dust.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:  
See section 5.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

- Physical form	Powder
- Color	White to off-white
- Odor	Essentially odorless to very slight sugar odor
- pH (concentration)	NA
- Boiling point	NA
- Flash point	273°C (397°F)
- Melting/freezing point	NA
- Decomposition temperature	NA
- Auto-ignition temperature	NA
- Explosion properties	NA
- Oxidising properties	NA
- Vapour pressure	NA
- Vapor density	NA
- Relative density	NA
- Bulk density	NA
- Specific gravity	1.609
- Viscosity	NA

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	6 / *

## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR

- Water solubility	56% (20°C)
- Solubility (non aqueous)	Methyl alcohol: completely miscible
- Partition coefficient	NA
- Dissociation constant	NA
- Evaporation rate	NA.

### 9.2 OTHER INFORMATION

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 REACTIVITY

Stable

### 10.2 CHEMICAL STABILITY

Stable under normal conditions.  
Polymerization will not occur.

### 10.3 POSSIBILITY OF HAZARDOUS REACTIONS

Not applicable

### 10.4 CONDITIONS TO AVOID

Practices which produce dust or disperse finely divided dust in air.  
See NFPA 61. Standard for the Prevention of Fire and Dust Explosions in Agricultural and Food Processing Facilities, 2008 Edition, and other related standards.

### 10.5 INCOMPATIBLE MATERIALS

Oxidizing agents, strong acids

### 10.6 Hazardous decomposition products:

Nothing unusual

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

- Inhalation	ORAL : DL50 : 1600-3200 mg/kg bw (mouse)
- Ingestion	No effects known or anticipated.
- Skin irritation / corrosion	Sustained exposure in a dusty manufacturing environment may result in mechanical irritation in the creases of the skin, particularly at the fingers, or other drying effects. no health effects known or anticipated.

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	7 / *

## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR

- Eye irritation	Irritating to eyes.
- Skin sensitisation	Not sensitizing
- Chronic toxicity	Not known or anticipated
- Genetic toxicity	Not known or anticipated
- Carcinogenicity	Not classifiable as Carcinogen.
- Reprotoxicity	Not known or anticipated
- Specific effects	Not applicable

## SECTION 12: ECOLOGICAL INFORMATION

12.1 TOXICITY  
FISH LC=295 mg/l

12.2 PERSISTENCE/DEGRADABILITY  
Ready biodegradable

12.3 BIOACCUMULATIVE POTENTIAL  
Log Kow <3, not bioaccumulative

12.4 MOBILITY IN SOIL  
Not applicable

12.5 BPT, vPvB  
The substance does not meet the criteria for PBT or vPvB.

12.6 OTHER ADVERSE EFFECTS  
None known

## SECTION 13: DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS  
Follow local, state and federal regulations for product disposal. Not a hazardous waste unless contaminated with hazardous products.

## SECTION 14: TRANSPORTATION INFORMATION

International regulations (RID/ADR; RTMDR; IMDG; IATA/OACI): Not classified as dangerous for transport.  
DOT shipping label: Non-hazardous

## SECTION 15: REGULATORY INFORMATION

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	8 / *



## Safety Data Sheet

# MALIC ACID, FCC-GRANULAR

### 15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS

According with the version of the Globally Harmonized System of Classification and labeling adopted in the United States and Regulation 1272/2008/EC(CLP): Classified

### 15.2 CHEMICAL SAFETY ASSESSMENT

#### US FEDERAL REGULATIONS:

Clean Air Act:

ODS: Not applicable.

SARA (EPCRA) Section 313 (40 C.F.R. § 372.65): Not applicable.

TSCA Status: On TSCA inventory.

#### STATE REPORTING REQUIREMENTS:

California Proposition 65: Not applicable.

## SECTION 16: OTHER INFORMATION

See Hazard Communication Guidance for Combustible Dusts, OSHA 3371-08 2009, U.S. Occupational Safety and Health Administration, <https://www.osha.gov/Publications/3371combustible-dust.html> (accessed 10/8/14)

And

NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for general safe handling and design guidance.

Other classifications of the substance:

TSCA STATUS: On TSCA Inventory.

FDA STATUS: Citrus acid, Anhydrous complies with FDA Regulation 21 C.F.R. § 184.1033;

CALIFORNIA PROPOSITION 65: Not applicable.

HMIS rating:

Health: 1

Flammable: 0

Reactivity: 0

(0 = minimal ; 1 = slight ; 2 = moderate ; 3 = serious ; 4 = severe)

Safety Data Sheet according to Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	9 / *

*Safety Data Sheet*

## **MALIC ACID, FCC-GRANULAR**

### DISCLAIMER OF LIABILITY

The information in this SDS is collected from reliable sources. However, the information is provided without any warranty, expressed or implied. The conditions or methods of handling, storage, use or disposal of the product might be beyond our control and knowledge. For the avoidance of doubt, we shall in no such circumstances be under any liability in respect of loss, damage or expenses arising from handling, storage, use or disposal of the product by your company and/or your subcontractors. This SDS is only applicable for the product mentioned in the identification chapter and title. If the product is used as a component in another product, this SDS may not be applicable on the composite material.

Code :	28000007	Effectivity date :	03/30/2015	Revision :	01
		Supersedes :	01/20/2014	Latest Revision :	01
		Printed on :	05/14/2015	Page :	10 / 10