

## Safety Data Sheet

# FUMARIC ACID FINE

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

#### 1.1 PRODUCT IDENTIFIER

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

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

Fumaric acid is used in food as food additive and can be used in technical application for production of vinyl acetate copolymers & vinylidene chloride copolymers for paper and & paperboard food packaging and for production of styrene butadiene latex in paints, paper coatings, adhesives, carpet backing and linoleum.

#### 1.3 DETAILS OF THE SUPPLIER

- Company identification

Americas:  
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

Asia-Pacific:  
Tate & Lyle  
3 Biopolis Drive, #05-11 Synapse  
Singapore 138623

#### 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

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adopted in the United States and Regulation 1272/2008/EC [CLP]: Eyes irritant category 2(H319)

### 2.2 LABEL ELEMENTS



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

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- Chemical name	Fumaric acid
- CAS number	110-17-8
- EINECS number	203-743-0
- Index n° «CLP»:	607-146-00-X
- Synonyms	but-2-enedioic acid Acidulant - Fumaric acid - food additive E 297.

## SECTION 4: FIRST AID MEASURES

### 4.1 DESCRIPTION OF FIRST AID MEASURES

- General advice	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

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### 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

**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

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## SECTION 7: HANDLING AND STORAGE

### 7.1 PRECAUTIONS FOR SAFE HANDLING

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/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

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### 8.2 EXPOSURE CONTROLS

#### APPROPRIATE ENGINEERING CONTROLS:

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	NA
- Melting/freezing point	287°C
- Decomposition temperature	NA
- Auto-ignition temperature	NA
- Explosion properties	NA
- Oxidising properties	NA
- Vapour pressure	NA
- Vapor density	0.62 (Air = 1)
- Relative density	NA

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- Bulk density	Not Established
- Specific gravity	1.635
- Viscosity	NA
- Water solubility	0.5% at 20°C
- Solubility (non aqueous)	Methyl alcohol: completely miscible
- Partition coefficient	In OCTANOL/ WATER (log value): Log Kow: -0.2 to -1.8
- Dissociation constant	pKa: 3.13, 4.76 and 6.4 at 25°
- 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: LD 50 9300 mg/kg bw (rat)
- Ingestion	No effects known or anticipated.
- Skin irritation / corrosion	Sustained exposure in a dusty manufacturing environment may

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- Eye irritation
  - Skin sensitisation
  - Chronic toxicity
  - Genetic toxicity
  - Carcinogenicity
  - Reprotoxicity
  - Specific effects
- result in mechanical irritation in the creases of the skin, particularly at the fingers, or other drying effects. no health effects known or anticipated.
- Irritating to eyes.  
Not sensitizing  
Not known or anticipated  
Not known or anticipated  
Not classifiable as Carcinogen.  
Not known or anticipated  
Not applicable

#### SECTION 12: ECOLOGICAL INFORMATION

##### 12.1 TOXICITY

FISH LC=295 mg/l

##### 12.2 PERSISTENCE/DEGRADABILITY

Readily 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.

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DOT shipping label: Non-hazardous

## SECTION 15: REGULATORY INFORMATION

### 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)

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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)

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