

SAFETY DATA SHEET**Product: FUMARIC ACID**

Revision: 01

Date: 01.18.2011

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1- IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND COMPANY/ UNDERTAKING

Product name:	FUMARIC ACID
Company:	ELEKEIROZ S.A.
Address:	Rua Dr. Edgardo de Azevedo Soares, 392 Várzea Paulista - SP CEP 13224-030
Company phone number:	(0xx11) 4596-8800
Fax:	(0xx11) 4596-8881
Emergency telephone number:	(0xx11) 4596-8800 (24 h)
Company:	ELEKEIROZ S.A.
Address:	Rua João Úrsulo, 1261, Pólo Petroquímico do Nordeste Camaçari - BA CEP 42810-000
Company phone number:	(0xx71) 3632-7711
Fax:	(0xx71) 3632-2110
Emergency telephone number:	(0xx71) 3632-7711 (24 h)
Email:	elisabete.moskalenko@elekeiroz.com.br carlos.villani@elekeiroz.com.br

2- HAZARDS IDENTIFICATION

Most important hazards:	Causes serious eye irritation
Product effects	
Adverse effects to the human health:	Causes serious eye irritation. May cause irritation to the skin. May cause respiratory tract irritation. May cause gastrointestinal disturbances.
Environmental effects:	Product doesn't present environmental hazard.
Physical and chemical hazards:	Combustible product, although it is difficult to ignite.

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According to Regulation 1272:2008 (GHS):

Classification of the substance or mixture: Serious eye damage/ eye irritation – Category 2A

Label elements according to Regulation 1272:2008 (GHS)

Symbol:



Signal word: WARNING

Hazard Statement: H319 - causes serious eye irritation

Precaution Statement: P264 – wash hands with water thoroughly after handling
P280 - wear protective gloves/protective clothing/eye protection/face protection

Label elements according to Directive 67/548/EEC

Symbol Xi

Risk Phrases R36 – Irritating to eyes.

Safety Phrases: S16 - Keep away from sources of ignition - No smoking.
S3 - Keep in a cool place.
S9 - Keep container in a well-ventilated place.
S13 - Keep away from food, drink and animal feedingstuffs
S24 - Avoid contact with skin.
S25 - Avoid contact with eyes.
S36 - Wear suitable protective clothing.
S37 - Wear suitable gloves
S29 - Do not empty into drains.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S56 - Dispose of this material and its container to hazardous or special waste collection point.

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3- COMPOSITION/INFORMATION ON INGREDIENTS**Substance:**

Chemical name:	Fumaric acid
Synonyms:	Boletic acid, donitic acid
CAS number:	110-17-8
Ingredients or impurities that contribute to the hazard (%m):	Doesn't have ingredients or impurities that contribute to the hazard classification.

4- FIRST-AID MEASURES

Inhalation:	Remove victim to fresh air and keep at rest. Monitor respiratory function. If victim is breathing with difficulty, give artificial respiration. Seek medical attention. Take this SDS.
Ingestion:	Rinse the victim's mouth with water or milk. Provide plenty of water for the victim to drink if it is conscious. Seek medical attention. Take this SDS.
Skin contact:	Remove contaminated clothing and shoes. Wash affected area with water and soap. Wash contaminated clothing and shoes before reuse. Seek medical attention. Take this SDS.
Eye contact:	Wash eyes immediately with running water, keeping the eyelids open. Remove contact lenses if present and easily removable. Seek medical attention. Take this SDS.
Most important symptoms and effects, both acute and delayed:	Redness, swelling and pain in his eyes. Coughing, wheezing and difficulty breathing. Nausea, vomiting, abdominal cramps and diarrhea.
Indication of any immediate medical attention and special treatment needed:	Avoid contact with this product while helping the victim; keep the victim warm. Symptomatic treatment should include, above all, measured of support as correction of hydro electrolytic and metabolic disturbances and respiratory failure.

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5- FIREFIGHTING MEASURES

Fire Extinguishing Media:	Combustible product, although it is difficult to ignite. Compatible with any means of extinction as a dry chemical, alcohol resistant foam and water mist.
Special hazards arising from the substance or mixture:	When in a fire, may produce irritating and toxic gases like carbon monoxide and dioxide.
Advice for firefighters:	Self-contained breathing apparatus (SCBA) operated in positive pressure mode and complete protective clothing.
Special hazards from the combustion of the chemical:	In combustion, can form toxic and irritants gases such as carbon monoxide and carbon dioxide. Releases gases and /or fumes when heated and they might be respiratory sensitizers.

6- ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	
Control of dust:	Apply ventilation or exhaust system. Moisten area to prevent dusting.
Removal of ignition sources:	Eliminate preventively all the ignition sources around the area. Do not smoke in the area.
Provision of enough ventilation:	Use in a well ventilated area or with exhaustion system adequate to eliminate mists and vapors.
Prevention of inhalation and skin, mucous membranes and eyes contact:	Do not touch damage containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation, eye and skin contact. Use appropriate personal protective equipment as indicated in Section 8.
Environmental precautions:	Do not let this chemical enter the environment (soil, waterways and groundwater).
Methods and material for containment and cleaning up:	Use a vacuum cleaner to collect residue or another method that does not generate dust. Place the material into appropriate containers and remove to a safe place. Clean the area. Dispose according to local residue regulation.

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7- HANDLING AND STORAGE

Precautions for safe handling:	Avoid contact with skin, eyes and clothing. Avoid breathing the product. Remove ignition sources and heat. Use proper personal protective equipment as indicated in Section 8.
Hygiene advice:	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.
Conditions for safe storage, including any incompatibilities:	Storage should be in a cool, dry, well ventilated area away from heat and ignition. The containers must be properly identified and must remain closed. Avoid stacking. Inspect them regularly for damage.
Packaging materials:	Plastic containers.

8- EXPOSURE CONTROLS/PERSONAL PROTECTION**Specific control parameters**

Appropriate engineering controls:	Provide mechanical ventilation or direct exhaust to the external media. It is recommended safety shower and eye bath available near working area. The engineering controls measures are the most effective to reduce exposure to the product.
Individual protection measures, such as personal protective equipment	
Eye/face protection:	Protection goggles against dust.
Skin and hand protection:	Natural rubber protective gloves. Suitable protective suit.
Respiratory protection:	Respiratory protective equipment with filter for dust, type P2.
Thermal hazard:	Complete air-ventilated suit, with air supply, or any thermo-resistant clothing available.
Environmental exposure controls:	Do not dump directly into the environment or into the sewer system. The dilution water from fire fighting can cause pollution.

9- PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White solid (powder)
Odor:	Odorless
Odor threshold:	Not available.
pH:	Not applicable.

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Melting point/freezing point:	Not available.
Initial boiling point and boiling range	290°C a 760mmHg
Flashpoint:	Not available.
Evaporation Rate	Not applicable.
Flammability:	Combustible product.
Upper/lower flammability or explosive limits:	Lower: 30g/m ³ . Upper: Not available.
Vapour density (Air=1):	Not available.
Vapour Pressure (mm Hg):	1,3 a 0°C
Relative density:	1,635 a 20°C
Solubility in water:	At 25 °C 0.63 wt%. At 100 °C 9.8 wt%.
Solubility in other solvents:	In 95% ethanol at 30°C 5.8 wt%. In diethyl ether at 25°C 0.72% wt%. In acetone at 30°C 1.7 wt%.
Partition coefficient: n-octanol/water:	Log kow = 0,07 a 0,56
Auto-ignition temperature:	740°C
Decomposition temperature:	Not available.
Viscosity:	Not available.
Explosive properties:	Not available.
Oxidizing properties:	Not available.
Other information:	Sublimation temperature: 200 ° C Melting point: 287 ° C

10- STABILITY AND REACTIVITY

Chemical stability:	Stable under normal conditions of handling and storage. Does not undergo polymerization.
Possibility of hazardous reactions:	There are no known agents that may promote dangerous reactions with this product.
Incompatible materials:	Strong acids, oxidizers and amines.

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Conditions to avoid: Sources of heat (direct sunlight, sparks, open flames, static loads), incompatible materials.

Hazardous decomposition products: Monoxide and carbon dioxide and other irritant chemical substances.

11- TOXICOLOGICAL INFORMATION

Acute toxicity: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause respiratory tract irritation.

Skin corrosion/irritation: Can cause skin irritation with redness and pain.

Serious eye damage/irritation: Can cause eye irritation with redness, swelling and pain.

Respiratory or skin sensitization: Not expected to cause respiratory or skin sensitization.

Germ cell mutagenicity: Germ cell mutagenicity is not expected .

Carcinogenicity: Carcinogenicity is not expected.

Reproductive toxicity: May impair fertility and / or fetus, with decreased sperm counts, testicular atrophy and abortion.

STOT – single exposure: There aren't known single exposure toxicity effects.

STOT – repeated exposure: Can cause kidney failure.

Aspiration hazard. Not expected to cause aspiration hazard.

12- ECOLOGICAL INFORMATION

Ecological toxicity: There aren't known ecological toxicity values.

Persistence and degradability: It's expected low persistence and high degradability.

Bioaccumulative potential: It is not expected to have bioaccumulation potential.

Mobility in soil: It is expected high mobility in soil.

Results of PBT and vPvB assessment: Not available.

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13- DISPOSAL CONSIDERATION

Product:	The treatment and disposal should be evaluated specifically for each product. Can be deposited in landfills, sent to an appropriate incineration or other means of disposal provided they meet the requirements of local law.
Product waste:	Keep the product remains in their original containers and properly sealed. Disposal should be performed as established for the product.
Contaminated packaging:	Do not reuse empty containers. They may contain remnants of the product and must be closed and sent for proper disposal. Recycling can be applied provided they obey the relevant laws.

14- TRANSPORT INFORMATION

National and international regulations	
Land (road/rail):	UN – “United Nations” Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations, 16th Edition, 2009.
Waterways (sea/inland):	IMO - “International Maritime Organization” International Maritime Dangerous Goods Code (IMDG Code) - Incorporating Amendment 34-08; 2008 Edition.
Air:	IATA - “International Air Transport Association” Dangerous Goods Regulation (DGR) - 51th Edition, 2010.
UN number:	Not classified as hazardous for transport.
Environmental hazards:	Not hazardous.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:	Not listed.

15- REGULATORY INFORMATION

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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Regulation 1272:2008: GHS, United Nations, 3th Revised Edition, 2009

ECB: Directives 67/548 e 1999/45

UN Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations, 16th Edition, 2009

Restrictions: No use restrictions were found.

16- OTHER INFORMATION

Elekeiroz warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is responsibility of the product user enterprise to promote the training of its employees and contractors about the possible risks arising from the product.

SDS elaborated by InterTox: January, 2011 – <http://www.intertox.com.br>**Abbreviations:****ACGIH** – American Conference of Industrial Hygienists**CAS** – Chemical Abstracts Service**IARC** – International Agency for Research on Cancer**LD₅₀** – Lethal Dose 50%**Bibliography:**

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