

Material Safety Data Sheet
according to Regulation (EC) No. 1907/2006

FUMARIC ACID

Revision date 03.03.2025
Version 1
Replaces version from -

1. Identification of the substance/Mixture and of the company/undertaking

1.1 Product identifier

Product name Fumaric acid
CAS-No. 110-17-8
EC-No. 203-743-0
Index-No. 607-146-00-X
REACH No. 01-2119485492-31-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses Pharmaceutical production and analysis, Chemical for synthesis.

1.3 Details of the supplier of the safety data sheet

Name Valsynthese SA
Factory address Valsynthese SA
Fabrikstrasse 48
PO Box 636
3900 Brig / Switzerland
Office address Valsynthese SA
Societe Suisse des Explosifs Group
PO Box 636
3900 Brig / Switzerland
Information Departement This number is available only during office hours.
Phone +41 27 922 71 11
E-Mail (Responsible person):
msds@sse-group.com

1.4 Emergency Phone Number +41 27 922 71 11 (only during office hours) or
Toxicological Information Centre in Switzerland: Tel. 145
or +41 (0) 44 251 51 51

2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Eye irritation (Category 2), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Hazard pictogram(s)



Signal word	Warning
Hazard statement(s)	
H319	Causes serious eye irritation.
Precautionary statement(s)	
P264	Wash skin thoroughly after handling.
P280	Wear eye protection/ face protection.
P305+P3351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/ attention.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.



3. Composition / Information on ingredients

3.1 Substance

Product name	Fumaric acid
Molecular formula	C ₄ H ₄ O ₄
Molecular weight	116.07 g/mol
CAS-No.	110-17-8
EC-No.	203-743-0
Index-No.	607-146-00-X

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Fumaric acid		
CAS-No. 110-17-8 EC-No. 203-743-0 Index-No. 607-146-00-X	Eye Irrit. 2; H319	<=100%

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16.

4. First-aid measures

4.1 Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
If swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
If inhaled	After inhalation: fresh air.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
In case of eye contact	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available



5. Fire fighting measures

5.1 Extinguishing media

Suitable extinguishing media Water, Foam, Carbon dioxide (CO₂), Dry powder.

Unsuitable extinguishing media For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for fire fighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Additional information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and material for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For further and detailed information see section 8 and 13.

7. Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.



7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry.

Recommended storage temperature see product label.

Storage class

Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure controls / Personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Workers	Inhalation	Long-term systemic effects	175 mg/m ³
Workers	Inhalation	Acute systemic effects	175 mg/m ³
Consumers	Inhalation	Long-term systemic effects	53 mg/m ³
Consumers	Inhalation	Acute systemic effects	53 mg/m ³

Predicted No Effect Concentration (PNEC)

Compartment	Value
Sea water	0.01 mg/l
Fresh water	0.1 mg/l
Sewage treatment plant	3 mg/l
Aquatic intermittent release	1 mg/l

8.2 Exposure controls

Personal protective equipment

Eye/face protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses.
Skin protection	<p>This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).</p> <p>Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: KCL 741 Dermatril® L</p>



This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

Body Protection

protective clothing.

Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P2.

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid
Color	white
Odor	No data available
pH value	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	290 °C at 1,013 hPa - (sublimed)
Flash point	273 °C - DIN 51758
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Density	1.64 g/cm ³ at 20 °C
Relative density	No data available
Water solubility	No data available
Partition coefficient: n-	No data available

octanol/water

Auto-ignition temperature No data available

Decomposition temperature No data available

Viscosity
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available

Particle characteristics No data available

Explosive properties No data available

Oxidizing properties No data available

9.2 Other information

No data available

10. Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

Violent reactions possible with:

Oxidizing agents

Bases

Reducing agents

Amines

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5



11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity	LD50 Oral - Rat - male and female - 9,300 mg/kg (OECD Test Guideline 401) Symptoms: After uptake of large quantities:, Irritation of mucous membranes, Nausea LC50 Inhalation - Rat - male and female - 4 h - > 1.306 mg/l - dust/mist (OECD Test Guideline 403) Remarks: (highest concentration to be prepared) Symptoms: Possible damages:, Irritation symptoms in the respiratory tract. LD50 Dermal - Rabbit - female - 20,000 mg/kg (OECD Test Guideline 402)
Skin corrosion/irritation	Skin - Rabbit Result: No skin irritation - 4 h (OECD Test Guideline 404)
Serious eye damage/eye irritation	Eyes - Rabbit Result: Eye irritation (OECD Test Guideline 405)
Respiratory or skin sensitisation	Maximization Test - Guinea pig Result: negative (OECD Test Guideline 406)
Germ cell mutagenicity	Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster lung cells Metabolic activation: without metabolic activation Method: OECD Test Guideline 473 Result: negative Test Type: Ames test Test system: Salmonella typhimurium Result: negative Remarks: (National Toxicology Program)
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	No data available

Additional information

Endocrine disrupting properties

Product (Assessment):

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male - Oral - 2 yr - NOAEL (No observed adverse effect level) - 600 mg/kg

Gastrointestinal disturbance

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

12. Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata - - > 100 mg/l - 72h (OECD Test Guideline 201) static test NOEC - Pseudokirchneriella subcapitata (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - > 300 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: ca.67.5 % - Readily biodegradable. (OECD Test Guideline 301B)
Theoretical oxygen Demand	827 mg/g Remarks: (Lit.)
Ratio BOD/ThBOD	34 % Remarks: (Lit.)

12.3 Bioaccumulation potential

No data available



12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product (Assessment):

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Discharge into the environment must be avoided.

13. Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions. Notice Directive on waste 2008/98/EC.

14. Transport information

14.1 UN Number

ADR/RID: -

IMDG: -

IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

14.4 Packing group

ADR/RID: -

IMDG: -

IATA: -

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no



14.6 Special precautions for user

No data available

Further information

Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Other regulations

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

16. Other information

16.1 Information regarding the revision of the safety data sheet

Data compared to the previous version altered.

16.2 Full text of H-Statements referred to under sections 2 and 3

H319 Causes serious eye irritation

16.3 Additional information

The information contained herein is in conformity with EU Directive EC 1907/2006 and EC 1272/2008, and is believed to be accurate and represents the best information currently available to us on the date of publication. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Valsynthese SA be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Valsynthese SA has been advised of the possibility of such damages.

