

LACTIC ACID

Safety Data Sheet

according to Regulation (EC) No. 453/2010

Date of issue: 30/04/2015

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Name	: LACTIC ACID
EC no	: 209-954-4
CAS No	: 50-21-5
Formula	: C3H6O3
Synonyms	: (+/-)-lactic acid / (RS)-lactic acid / 2-hydroxypropanoic acid, DL- / alpha-hydroxypropanoic acid, DL- / Corrosive solid, acidic, organic, n.o.s. / DL-2-hydroxypropanoic acid / DL-alpha-hydroxypropanoic acid / DL-lactic acid / lactic acid, (+/-)- / lactic acid, DL- / ordinary lactic acid / propanoic acid, 2-hydroxy-, (+/-)- / racemic lactic acid
Product group	: Raw material

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

1.2.1. Relevant identified uses

Main use category	: Industrial use
Industrial/Professional use spec	: Industrial For professional use only
Use of the substance/mixture	: Industrial uses: Uses of substances as such or in preparations* at industrial sites
Use of the substance/mixture	: Food industry: additive

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Saffire Blue inc.
1444 Bell Mill Side Road
Tillsonburg, ON N4G4G9 Canada
www.SaffireBlue.ca

1.4. Emergency telephone number

Emergency number : 1-800-424-9300 24 Hours Emergency Chemtrec.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Met. Corr. 1	H290
Skin Irrit. 2	H315
Eye Dam. 1	H318

Full text of H-phrases: see section 16

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

Signal word (CLP)	: Danger
Hazard statements (CLP)	: H290 - May be corrosive to metals H315 - Causes skin irritation H318 - Causes serious eye damage
Precautionary statements (CLP)	: P234 - Keep only in original container P264 - Wash hands thoroughly after handling P280 - Wear protective gloves/protective clothing/eye protection P302+P352 - IF ON SKIN: Wash with plenty of soap and water P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

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contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Name : LACTIC ACID
CAS No : 50-21-5
EC no : 209-954-4

Name	Product identifier	%
LACTIC ACID	(CAS No) 50-21-5 (EC no) 209-954-4	100

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water. Take victim to a doctor if irritation persists. In case of burns: Wash immediately with lots of water (15 minutes)/shower. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give chemical antidote. Consult a doctor/medical service if you feel unwell. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : AFTER INHALATION OF DUST: Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

Symptoms/injuries after skin contact : Tingling/irritation of the skin. AFTER CONTACT WITH WATER: Caustic burns/corrosion of the skin.

Symptoms/injuries after eye contact : Corrosion of the eye tissue.

Symptoms/injuries after ingestion : Nausea. Vomiting. AFTER ABSORPTION OF HIGH QUANTITIES: Burns to the gastric/intestinal mucosa.

Chronic symptoms : No effects known.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Alcohol-resistant foam. Polymer foam. ABC powder. Carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD. Insufficient data available on direct fire hazard (flashpoint > 100°C).

Explosion hazard : DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.

5.3. Advice for firefighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.

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Firefighting instructions	: Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	: Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. See "Material-Handling" to select protective clothing.
Emergency procedures	: Mark the danger area. No naked flames. Wash contaminated clothes. In case of reactivity hazard: consider evacuation.

6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection.
Emergency procedures	: Ventilate area.

6.2. Environmental precautions

Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment	: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill.
Methods for cleaning up	: Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: May be corrosive to metals.
Precautions for safe handling	: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep away from naked flames/heat. Observe strict hygiene. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
Hygiene measures	: Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products	: Strong bases. Strong acids.
Incompatible materials	: Sources of ignition. Direct sunlight.
Heat and ignition sources	: KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage	: KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents. (strong) acids. (strong) bases. metals. water/moisture.
Storage area	: Store in a dry area. Keep container in a well-ventilated place. Meet the legal requirements.
Special rules on packaging	: SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	: SUITABLE MATERIAL: stainless steel. synthetic material. glass. MATERIAL TO AVOID: steel. lead. iron. nickel. bronze. aluminium. copper.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
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Materials for protective clothing	: GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: natural rubber. neoprene. nitrile rubber. polyurethane. viton. PVC. GIVE LESS RESISTANCE: chloroprene rubber. PVA. GIVE POOR RESISTANCE: No data available
Hand protection	: Gloves
Eye protection	: Face shield. In case of dust production: protective goggles
Skin and body protection	: Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing
Respiratory protection	: Dust production: dust mask with filter type P2
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid.
Molecular mass	: 90.08 g/mol
Colour	: White.
Odour	: Almost odourless.
Odour threshold	: 2.5 ppm 9 mg/m ³
pH	: 2.3 (1 %)
pH solution	: 1 %
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 53 °C
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 200 °F
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: 3.1
Relative density	: 1.2
Solubility	: Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in glycerol. Water: Complete Ethanol: Complete Ether: Complete Acetone: Complete
Log Pow	: -0.6 (Experimental value; OECD 117: Partition Coefficient (n-octanol/water), HPLC method; 20 °C)
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content	: 0 %
Other properties	: Hygroscopic. Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Upon combustion: CO and CO₂ are formed. May polymerize. Reacts violently with (some) acids/bases, (strong) oxidizers and (strong) reducers.

10.2. Chemical stability

Hygroscopic. Unstable on exposure to air.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

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10.5. Incompatible materials

Strong acids. Strong bases. metals. May be corrosive to metals.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

LACTIC ACID (50-21-5)	
LD50 oral rat	3543 mg/kg (Rat)
LD50 oral	3750 mg/kg bodyweight
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)

Skin corrosion/irritation	: Causes skin irritation. pH: 2.3 (1 %)
Serious eye damage/irritation	: Causes serious eye damage. pH: 2.3 (1 %)
Respiratory or skin sensitisation	: Not classified Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified Based on available data, the classification criteria are not met
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (repeated exposure)	: Not classified Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified Based on available data, the classification criteria are not met
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Classification concerning the environment: not applicable.
Ecology - air	: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	: Slightly harmful to fishes (LC50(96h) 100-1000 mg/l). Slightly harmful to invertebrates (Daphnia) (EC50 (48h): 100 - 1000 mg/l). Not harmful to algae (EC50 >1000 mg/l). pH shift. Not harmful to activated sludge.

LACTIC ACID (50-21-5)	
LC50 fish 1	320 mg/l (96 h; Brachydanio rerio; Other isomer)
EC50 Daphnia 1	250 mg/l (48 h; Daphnia magna; Other isomer)
EC50 other aquatic organisms 1	200 mg/l (Protozoa)
Threshold limit algae 1	1.9 g/l (70 h; Selenastrum capricornutum; Other isomer)
Threshold limit algae 2	3.5 g/l (70 h; Selenastrum capricornutum; Other isomer)

12.2. Persistence and degradability

LACTIC ACID (50-21-5)	
Persistence and degradability	Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.45 g O ₂ /g substance
Chemical oxygen demand (COD)	0.9 g O ₂ /g substance
ThOD	1.066 g O ₂ /g substance
BOD (% of ThOD)	0.22 - 0.59 % ThOD

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12.3. Bioaccumulative potential

LACTIC ACID (50-21-5)

Log Pow	-0.6 (Experimental value; OECD 117: Partition Coefficient (n-octanol/water), HPLC method; 20 °C)
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove for physico-chemical/biological treatment. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery.

Additional information : LWCA (the Netherlands): KGA category 06. Hazardous waste according to Directive 2008/98/EC.

Ecology - waste materials : Avoid release to the environment.

European List of Waste (LoW) code : 16 03 05* - organic wastes containing dangerous substances

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : Not applicable

UN-No. (IMDG) : Not applicable

UN-No.(IATA) : Not applicable

14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not applicable

Proper Shipping Name (IMDG) : Not applicable

Proper Shipping Name (IATA) : Not applicable

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : Not applicable

IMDG

Transport hazard class(es) (IMDG) : Not applicable

IATA

Transport hazard class(es) (IATA) : Not applicable

14.4. Packing group

Packing group (ADR) : Not applicable

Packing group (IMDG) : Not applicable

Packing group (IATA) : Not applicable

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

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14.6. Special precautions for user

- Overland transport

Hazard identification number (Kemler No.) : 80

- Transport by sea

Transport regulations (IMDG) : Subject

- Air transport

Transport regulations (IATA) : Subject to the provisions

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

LACTIC ACID is not on the REACH Candidate List

LACTIC ACID is not on the REACH Annex XIV List

VOC content : 0 %

15.1.2. National regulations

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Germany

WGK remark : Internal classification water polluting based on the R-phrases according to method VwVwS (Anhang 3)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H- and EUH-phrases:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Met. Corr. 1	Corrosive to metals, Category 1
Skin Irrit. 2	Skin corrosion/irritation, Category 2
H290	May be corrosive to metals
H315	Causes skin irritation
H318	Causes serious eye damage

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SDS EU

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