

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

- 1.1 - Product identifier: LALSTIM OSMO®
- 1.2 - Identified and recommended use: (BIO) FERTILIZER
- 1.3 - Supplier details: Danstar Ferment AG/LALLEMAND PLANT CARE
Poststrasse 30
CH-6300 Zug, Switzerland
Phone: +41 41 727 20 30
www.lallemandplantcare.com
- 1.4 - Emergency telephone number: Contact your local doctor or hospital.
 - In EU: Call 112.
 - In USA and Canada: Call +1-800-424-9300/+1-703-527-3887.
 - In Brazil: Call + 55 34 3826-0400 / 0800-940-4377.
 - In Uruguay: Call 1722.

SECTION 2 - HAZARD IDENTIFICATION

2.1 - Classification of the mixture

Product is not classified as hazardous and does not contain any substances that are classified or labelled according to Regulations (EC) 1272/2008, (EU) 453/2010, (EC) 1907/2006 (REACH), Directive 1999/45/EC, to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS section 1.5.2), the Canadian Hazardous Product Act, US Occupational Safety and Health Administration (OSHA) and Controlled Product Regulation (CPR).

SECTION 3 – COMPOSITION

| Substance name | CAS-, EC or index number | REACH Registration No. | Concentration | Classification - pictograms - H-statements - category |
|-----------------|--------------------------------|---------------------------|---------------|--|
| Glycine Betaine | CAS# 107-43-7 EC# 203-490-6 | 01211952050 842 | > 96 % | None |

Synonyms: 2-Trimethylammonioacetate, Betaine, 1-Carboxy-N,N,N-trimethylmethaminium, Trimethylglycine.

SECTION 4 – FIRST AID MEASURES**4.1 - Description of First Aid Measures:**

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|------------------------|--|
| General protection: | Protection of rescue workers: Wear appropriate individual protective equipment (see Section 8). Transport the affected person into the open air. Remove contaminated shoes and clothing. |
| Inhalation: | In the event of inhalation, take into the open air. Do not allow the person to get cold. Keep the victim resting in a semi-seated position. In the absence of breathing, use artificial respiration. Consult a doctor. |
| Ingestion: | In the event of ingestion, rinse the mouth with water (only if the person is conscious). Consult a doctor if symptoms develop. |
| Contact with the skin: | Rinse thoroughly in running water and soap. Remove contaminated shoes and clothing. Consult a doctor if symptoms develop. |
| Contact with the eyes: | Rinse thoroughly in running water, with the eyelids opened for a sufficient length of time (protect uninjured eye). Consult a doctor if symptoms develop. |
| First aid facilities: | Ensure that automatic eye baths and safety showers are located close to the workstations. |

4.2 - Most important symptoms and effects, both acute and delayed:

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|---------------|---|
| Eye contact: | May cause irritation of the eyes (redness). |
| Skin contact: | Prolonged or repeated contact with the skin may cause irritation. |
| Inhalation: | May cause coughing (irritation) or irritate asthma. May cause sensitization. |
| Ingestion: | Ingestion of the product may elicit gastrointestinal problems. May induce vomiting, headache, listlessness. |

SECTION 5 – FIRE FIGHTING MEASURES**5.1 - Extinguishing media:**

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| Suitable: | Water, foam, carbon dioxide, dry powder. |
| Unsuitable: | None. |

5.2 - Special hazard arising from the material:

Do not inhale explosion and combustion gases. Burning may produce heavy smoke.

5.3 - Advice to firefighters:

Wear a self-contained breathing apparatus (SCBA) when exposed to confined or enclosed fires as product powder could be in the air. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6 – ACCIDENTAL RELEASE MEASURES**6.1 - Personal precautions, protective equipment and emergency procedures:**

Avoid contact with the eyes, skin and clothing. Use appropriate protective equipment (see Section 8).

6.2 - Environmental precautions:

Do not allow to enter into surface water or drains. Retain contaminated washing water and dispose it. This material is not a physical, health or environmental hazard.

6.3 - Method and materials for clean up:

Small accidental spillage or leak: Avoid the formation of dust or spray. Mop up with appropriate material. Place in an appropriate container. Clean the area affected with plenty of water.

Large accidental spillage or leak: Prevent spillage into the drains, subsoil or confined areas. Contain if necessary. Mop up the product spilled with inert material (e.g. dry sand or dry earth) and place in a chemical waste container. Recycle if possible.

6.4 - References to other sections:

See Section 8 for personal protective equipment and section 13 for waste disposal.

SECTION 7 – HANDLING AND STORAGE**7.1 - Precautions for safe handling:**

Handling: Avoid contact with eyes. Use localized ventilation system. Don't use empty container before it has been cleaned. Before making transfer operations, assure that there are not any incompatible residues in the containers.

Occupational hygiene: Wash hands thoroughly after handling. Do not eat, drink or smoke while working. Store work clothing separately. See also section 4 for recommended equipment.

7.2 - Conditions for safe storage, including any incompatibilities:

Place of storage: Store in dry and well-ventilated place in its tightly closed original packaging, heat stable up to 200°C.

Incompatibilities: Do not store together with strong oxidizing agents or strong acids.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 - Protection of lungs: Wear a NIOSH-approved N95 particulate mask (P2 or FFP2) if local ventilation is not adequate.

8.2 - Protection of skin: Wear suitable protective clothing.

8.3 - Protection of hands: Wear protective gloves.

8.4 - Protection of eyes: Safety glasses with side-shields.

8.5 - Exposition limits: No exposure limits.

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES

9.1 - Information on basic physical and chemical properties:

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|----------------------|------------------------|
| Appearance: | Crystals. |
| Odour: | No. |
| Solubility in water: | Dissolved in water. |
| pH: | 6-10 (solution at 5%). |

SECTION 10 – STABILITY AND REACTIVITY

Stable under recommended conditions of storage, use and transportation.

10.1 - Possibility of hazardous reactions:

None under normal processing.

10.2 - Conditions to avoid:

Hygroscopic nature for this product, avoid wet conditions.

10.3 - Incompatible materials:

Trimethylamine risk of forming in strong alkaline solutions.

10.4 - Hazardous decomposition products:

Under recommended storage and use conditions, no hazardous decomposition products should appear. In case of fire, see section 5.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 - Information on toxicological effects:

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|----------------------------------|---|
| Acute toxicity: | Product generally regarded as safe by ingestion. Substance (betaine anhydrous): LD50 (oral/rat) > 11179 mg/kg. |
| Skin corrosion/irritation: | Irritation to the skin may occur. |
| Serious eye damage/irritation: | Irritation to the eyes may occur. |
| Respiratory /Skin sensitization: | Irritation to the nose or throat may occur. |
| Germ cell mutagenicity: | Negative in Ames assay with and without metabolic activation up to 5000µg/plate. Negative in chromosomal aberration using human lymphocytes. No increases in micronuclei were noted in the bone marrow of mice dosed up to 2gm/Kg by the oral route. |
| Carcinogenicity: | No known information is available. |
| Reproductive toxicity: | No known information is available. |
| STOT-single exposure: | No known information is available. |
| STOT-repeated exposure: | No known information is available. |

Aspiration hazard: No known information is available.
Other information: No further information.
According to the Regulation (EC) No. 1272/2008, LALSTIM OSMO[®] is not classified.

SECTION 12 – ECOLOGICAL INFORMATION

12.1 – Toxicity:

Contains no substances known to be hazardous to the environment or that are not degradable in waste water-treatment plants.

12.2 – Persistence and degradability:

Readily biodegradable, according to appropriate OECD test. Biological degradability (28d): 88% (Betaine).

12.3 – Bioaccumulative potential:

No known information is available.

12.4 – Mobility in soil:

The product is water soluble, and may spread in water system.

12.5 – Results of PBT and vPvB assessment:

Not considered to be a PBT and vPvB substance.

12.6 – Other adverse effects:

No known adverse effects.

Component information below is as complete as possible. Data related to substance Betaine Anhydrous:

| | |
|----------------------------------|--|
| Toxicity to algae: | EC ₅₀ /72h/algae = 1199 mg/l (Desmodium subspicatus). |
| Toxicity to Daphnia: | EC ₅₀ /48hr/daphnia = 4335 mg/l. |
| Biodegradation: | Readily biodegradable (88% after 28 days). |
| Log Pow: | -3.1 (at 20°C). |
| Chemical Oxygen Demand (COD): | 14 mg/g (Cr). |
| Biochemical Oxygen Demand (BOD): | 720 mg/g (BOD5 ATU) |
| Dissolved Organic Carbon (DOC): | 300 mg/g. |

SECTION 13 – DISPOSAL CONSIDERATIONS

13.1- Waste treatment methods:

Product and packaging can be disposed of in regular trash or waste. No special disposal method required. Follow all applicable local laws for recycling, bagging, and disposal of trash.

SECTION 14 – TRANSPORT INFORMATION

Product is not classified as dangerous goods according to international transportation regulations in force ADR, RID, ADN, OACI/IATA and OMI/IMDG.

SECTION 15 – REGULATORY INFORMATION**15.1- EU:**

This product is not classified as dangerous according to the CLP Regulation (EC) No 1272/2008. The Safety Data Sheet of this non dangerous product and related Classification are in accordance with EU Regulations:

CLP Regulation (EC) 1272/2008 on classification, labelling, and packaging of substances and mixtures, amending and repealing Directives 67/548/EC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Regulation (EU) 453/2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

Regulation (EU) 453/2010 ANNEX II: Requirements for the compilation of safety data sheets.

Regulation (EC) 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

Directive 1999/45/EC concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations.

15.2 – Canada:

WHMIS Statement: This product has been classified in accordance with the hazard criteria of the Controlled Product Regulation (CPR) and the SOS Contains all the information required by the CPR.

15.3 – USA:

California Proposition 65: This product does not contain any proposition 65 chemicals.

SARA 313, section 313 of the Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and 40 CFR Part 372.

15.4 – Brasil:

- Federal Decree 2.657/1998
- ABNT-NBR 14725 Standard
- Ordinance nº 229 of 2011 - Amending the Regulatory Standard nº 26
- Normative Instruction MAPA No. 53 of 2013
- Normative Instruction SDA No. 13 of 2011

15.5 – Uruguay:

- Resolution DGSA 04/04/13 (DGSA= General Directorate of Agricultural Services)

SECTION 16 – OTHER INFORMATION

None.

DISCLAIMER

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