

Safety data sheet

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

1.1. Product identifier

Code: ZARAM034
Product name: CAL FREE

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

Intended use: DESCALING DETERGENT.

1.3. Details of the supplier of the safety data sheet

Name: ALI S.p.A.
Full address: VIA SCHIAPARELLI, 15
District and country: 31029 VITTORIO VENETO (TV)
ITALY
tel. +39 0438 9110

e-mail address of the competent person responsible for the material safety data sheet: lainox@lainox.it

Product distributed by: ALI S.p.A

1.4. Emergency telephone number

For urgent inquiries refer to

SECTION 2. Hazards identification.

2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

2.1.1. Regulation 1272/2008 (CLP) and following amendments and adjustments.

Hazard classification and indication:

Eye Dam. 1 H318
Skin Irrit. 2 H315

2.1.2. 67/548/EEC and 1999/45/EC Directives and following amendments and adjustments.

Danger Symbols:

Xi

R phrases:

41

The full wording of the Risk (R) and hazard (H) phrases is given in section 16 of the sheet.

2.2. Label elements.

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words: Danger

Hazard statements:

H318 Causes serious eye damage.
H315 Causes skin irritation.

Precautionary statements:

P264 Wash hands thoroughly after handling.
P280 Wear protective gloves / protective clothing / eye protection / face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor / physician.

Contains: CITRIC ACID

2.3. Other hazards.

The product does not contain substances PBT or vPvB according to Regulation (EC) N. 1907/2006, Annex XIII.

SECTION 3. Composition/information on ingredients.**3.1. Substances.**

Information not relevant.

3.2. Mixtures.

Contains:

Identification.	Conc. %.	Classification 67/548/EEC.	Classification 1272/2008 (CLP).
CITRIC ACID			
CAS. 77-92-9	15 - 20	Xi R37/38, Xi R41	Eye Dam. 1 H318, Skin Irrit. 2 H315, STOT SE 3 H335
EC. 201-069-1			
INDEX. -			
Reg. no. 01-2119457026-42			

The full wording of the Risk (R) and hazard (H) phrases is given in section 16 of the sheet.

T+ = Very Toxic(T+), T = Toxic(T), Xn = Harmful(Xn), C = Corrosive(C), Xi = Irritant(Xi), O = Oxidizing(O), E = Explosive(E), F+ = Extremely Flammable(F+), F = Highly Flammable(F), N = Dangerous for the Environment(N)

SECTION 4. First aid measures.

4.1. Description of first aid measures.

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

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

For symptoms and effects caused by the contained substances, see chap. 11.

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

In case of health disorder seek medical advice and follow his directions. Do not give anything by mouth to an unconscious person. Always seek medical advice in case of doubt or when symptoms may arise even where not provided. Speaking with a doctor keep available the material safety data sheet or failing this, the label. In case of inhalation of decomposition products in a fire symptoms may be delayed. Keep the exposed person under medical surveillance for 48 hours.

SECTION 5. Firefighting measures.

5.1. Extinguishing media.

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

5.3. Advice for firefighters.

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures.

6.1. Personal precautions, protective equipment and emergency procedures.

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions.

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up.

Collect the leaked product into a suitable container. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Check incompatibility for container material in section 7. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections.

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage.

7.1. Precautions for safe handling.

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities.

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

Compatible materials:

Plastics: polyethylene, polypropylene, polyvinylchloride (PVC), teflon.

Metals: stainless steel AISI304, AISI316, AISI440, lined steel, titanium, hastelloy C.

Incompatible materials:

Plastics: acetalic resins, polyamides, polycarbonate

Metals: galvanized surfaces, carbon steel, bronze, brass, aluminum and alloys.

7.3. Specific end use(s).

Information not available.

SECTION 8. Exposure controls/personal protection.

8.1. Control parameters.

Regulatory References:

United Kingdom EH40/2005 Workplace exposure limits. Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations (as amended).

Éire Code of Practice Chemical Agent Regulations 2011.

OEL EU Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.

TLV-ACGIH ACGIH 2012

CITRIC ACID

Predicted no-effect concentration - PNEC.

Normal value for the terrestrial compartment	33,1	mg/kg
Normal value in fresh water	440	mg/l
Normal value for fresh water sediment	34,6	mg/kg/d
Normal value for marine water sediment	3,46	mg/kg/d

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

Suitable gloves for protection:

Material: PVC, neoprene, nitrile

Penetration time: > 480 minutes

Protection level: > 6

SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear a hood visor or protective visor combined with airtight goggles (see standard EN 166).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS.

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. Physical and chemical properties.**9.1. Information on basic physical and chemical properties.**

Appearance	liquid
Colour	green
Odour	characteristic
Odour threshold.	Not available.

pH.	3
Melting point / freezing point.	Not available.
Initial boiling point.	Not available.
Boiling range.	Not available.
Flash point.	> 60 °C.
Evaporation Rate	Not available.
Flammability of solids and gases	Not flammable.
Lower inflammability limit.	Not flammable.
Upper inflammability limit.	Not flammable.
Lower explosive limit.	Not explosive.
Upper explosive limit.	Not explosive.
Vapour pressure.	Not available.
Vapour density	Not available.
Relative density.	1,05 – 1,25 Kg/l.
Solubility	Water soluble.
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature.	Not available.
Decomposition temperature.	>200°C.
Viscosity	1 – 10 mPa.s
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2. Other information.

VOC (Directive 1999/13/EC) :	0
VOC (volatile carbon) :	0

SECTION 10. Stability and reactivity.

10.1. Reactivity.

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability.

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions.

No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid.

The usual precautions used for chemical products should be respected.

10.5. Incompatible materials.

Chlorine, hypochlorite, substances containing active chlorine, sulfides.

10.6. Hazardous decomposition products.

In case of fire can release vapors potentially dangerous to health (carbon oxides, pyrolysis products).

SECTION 11. Toxicological information.

11.1. Information on toxicological effects.

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification. It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

This product may cause serious ocular lesions, cornea opacity, iris lesions, irreversible eye coloration.

Acute effects: contact with skin may cause: irritation, erythema, edema, dryness and chapped skin. Vapour inhalation may slightly irritate the upper respiratory tract. Ingestion may cause health disorders, including stomach pain and sting, nausea and sickness.

CITRIC ACID

LD50 (Oral). 5400 mg/kg Rat

LD50 (Dermal). >2000 mg/kg Rat

LD50 (Inhalation). No data available

SECTION 12. Ecological information.

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or sewers or contaminate soil or vegetation.

12.1. Toxicity.

CITRIC ACID

LC50 - for Fish.

440 mg/l/96h *Leuciscus idus*

EC50 - for Crustacea.

1535 mg/l/48h *Daphnia magna*

12.2. Persistence and degradability.

CITRIC ACID

Rapidly biodegradable.

Comply with the limits for discharges imposed by local regulations.

12.3. Bioaccumulative potential.

The ingredients in this product have a low bio-concentration factor.

12.4. Mobility in soil.

Information not available.

12.5. Results of PBT and vPvB assessment.

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects.

Information not available.

SECTION 13. Disposal considerations.**13.1. Waste treatment methods.**

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Avoid littering. Do not contaminate soil, sewers and waterways.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information.

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for users

Not applicable.

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.**

Seveso category. None.

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006.

Product

Point. 3

Substances in Candidate List (Art. 59 REACH).

None.

Substances subject to authorisation (Annex XIV REACH).

None.

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None.

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Healthcare controls.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

Ingredients according to Regulation (EC) No 648/2004

Contains preservatives (methylisothiazolinone, benzisothiazolinone)

German regulation on the classification of substances hazardous to water (VwVwS 2005).

WGK 1: Low hazard to waters

15.2. Chemical safety assessment.

A chemical safety assessment has been performed for the following contained substances.

CITRIC ACID

SECTION 16. Other information.

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Eye Dam. 1	Serious eye damage, category 1
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
H318	Causes serious eye damage.
H315	Causes skin irritation.
H335	May cause respiratory irritation.

Text of risk (R) phrases mentioned in section 2-3 of the sheet:

R37/38	IRRITATING TO RESPIRATORY SYSTEM AND SKIN.
R41	RISK OF SERIOUS DAMAGE TO EYES.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation

- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Directive 1999/45/EC and following amendments
2. Directive 67/548/EEC and following amendments and adjustments
3. Regulation (EC) 1907/2006 (REACH) of the European Parliament
4. Regulation (EC) 1272/2008 (CLP) of the European Parliament
5. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
6. Regulation (EC) 453/2010 of the European Parliament
7. Regulation (EC) 286/2011 (II Atp. CLP) of the European Parliament
8. Regulation (EC) 618/2012 (III Atp. CLP) of the European Parliament
9. The Merck Index. - 10th Edition
10. Handling Chemical Safety
11. Niosh - Registry of Toxic Effects of Chemical Substances
12. INRS - Fiche Toxicologique (toxicological sheet)
13. Patty - Industrial Hygiene and Toxicology
14. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
15. ECHA website

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

Changes to previous review:

The following sections were modified:

02 / 03 / 04 / 05 / 06 / 07 / 08 / 09 / 10 / 11 / 12 / 13 / 14 / 15 / 16.

EXPOSURE SCENARIO CITRIC ACID

1. Short title of exposure scenario: Professional use				
Sector of use (SU).	SU 22			
Product category (PC).	PC35			
Process category (PROC).	PROC19			
Environmental release category (ERC).	ERC8a			
2. Contributing scenario controlling environmental exposure				
Readily biodegradable				
Amount used	EU tonnage	100000 tons/year		
	Regional use tonnage	10000 tons/year		
	Fraction of regional tonnage used locally	0,0005		
	Daily amount for wide dispersive use	14 kg/day		
Frequency and usage duration	Number of emission days per year: 365			
Environmental factors not influenced by risk management	Dilution factor (river)	10		
	Dilution factor (coastal areas):	100		
Other given operational conditions affecting environmental exposure	Emission or release factor: air	0%		
	Emission or release factor: water	100%		
Technical conditions and measures at process (source) to avoid release. Local technical conditions and measures for the reduction and limitation of release, emissions in air and soil releases. Organization measures to avoid/limit release from site	Water	Before discharge in the water treatment plant neutralization must be accomplished.		
	The substance is biodegradable, it has a low Kow and no bioaccumulation is expected.			
Conditions and measures related to municipal sewage treatment plant	Type of sewage treatment plant	Municipal sewage treatment plant		
	Flow rate of sewage treatment plant effluent	2000 m ³ /day		
	Sludge treatment	Recovery in agriculture or horticulture		
Conditions and measures related to external treatment of wastes for disposal.	Waste treatment	Solid waste must be disposed in a landfill or incinerated		
	Limit and dispose wastes in conformity with the environmental laws and according to local regulation.			
3. Contributing scenario controlling worker exposure				
Product characteristics.	Concentration up to 25%. Physical form: liquid.			
Frequency and duration of use.	Exposure time: 15-30 minutes; usage frequency: 1 time per day.			
Human factors not influenced by risk management	Dermal areas exposed	Palms of both hands (480 cm ²)		
	Respiratory volume	10 m ³ /day		
	Body weight	70 kg		
Technical conditions and measures controlling dispersion from the source to workers	Avoid electrostatic discharge formation. Avoid sprays. Provide adequate ventilation in sites where powder is produced.			
Organizational measures to prevent/limit releases, dispersion and exposure	Clean appliances and work area every day. Supply adequate formation to workers in order to avoid/reduce to minimum the exposure. Controls in place in order to control the risk management measures are used in the correct way and operative conditions are followed.			
Conditions and measurements related to personal protection, hygiene and health evaluation	Wear protective gloves and protective clothing. Use suitable eye protection.			
4. Exposure estimation and reference to its source				
Environment				
EUSES 2.1.1				
Contributing scenario	Specific conditions	Compartment	Exposure level	RCR

---	---	Fresh water	0,0248 mg/l	5,63·10 ⁻⁵
---	Annual average	Fresh water	0,0248 mg/l	---
---	---	Fresh water sediment	0,423 mg/kg wwt	0,0122
---	---	Sea water	0,00237 mg/l	0,0539
---	Annual average	Sea water	0,00237 mg/l	---
---	---	Sea sediment	0,0405 mg/kg wwt	0,0117
---	30 days	Soil agriculture	0,402 mg/kgwwt	0,0121
---	180 days	Soil agriculture	0,132 mg/kg wwt	---
---	180 days	Grassland	0,0527 mg/kg wwt	---
---	---	Interstitial water in agriculture soil	0,00199 mg/l	---
---	---	Interstitial water in grassland	0,000795 mg/l	---
---	---	Interstitial water in underground water under agriculture soil	0,00199 mg/l	---

Workers

ECETOC TRA

Contributing scenario	Specific conditions	Exposure routes	Exposure level	RCR
PROC19	Without local exhaust ventilation	Dermal	141 mg/kg/day	---

5. Guidance to downstream user to evaluate whether he works inside the boundaries set by exposure scenario

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use. If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels. The risk assessment tools given in section 3 may be used for scaling.

6. Additional good practice advice beyond the REACH CSA

Local ventilation is not required but is considered good practice.

Because automated systems, closed and ventilation are not easy to implement in a workplace measures must be taken to address to products (e.g. low concentration), good practices that avoid direct contact with skin and eyes and it is important to avoid the formation of aerosols and sprays, and these measures should be associated with a personal protective equipment.