

## Safety data sheet

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

#### 1.1. Product identifier

Code: ZARAM032  
Product name: COMBIBOILER

#### 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:

Skin Corr. 1B	H314
Eye Dam. 1	H318
Skin Sens. 1	H317

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

Danger Symbols:

C

R phrases:

34-43

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:

**H314** Causes severe skin burns and eye damage.  
**H317** May cause an allergic skin reaction.

Precautionary statements:

**P264** Wash hands thoroughly after handling.  
**P280** Wear protective gloves / protective clothing / eye protection / face protection.  
**P301+P330+P331** IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
**P303+P361+P353** IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower.  
**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:**

PHOSPHORIC ACID  
 MIXTURE OF PHOSPHONOETHAN-1,2-TETRASODIUM DICARBOXYLATE; PHOSPHONOBUTANE-1,2,3,4-  
 HEXASODIUM TETRACARBOXYLATE

**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).
<b>PHOSPHORIC ACID</b>			
CAS. 7664-38-2	30 - 70	C R34, Note B	Skin Corr. 1B H314, Note B
EC. 231-633-2			
INDEX. 015-011-00-6			
Reg. no. 01-2119485924-24			
<b>SULPHAMIC ACID</b>			
CAS. 5329-14-6	1 - 2	R52/53, Xi R36/38	Eye Irrit. 2 H319, Skin Irrit. 2 H315, Aquatic Chronic 3 H412
EC. 226-218-8			
INDEX. 016-026-00-0			
Reg. no. 01-2119488633-28			

**MIXTURE OF: PHOSPHONOETHAN-1,2-  
TETRASODIUM DICARBOXYLATE;  
PHOSPHONOBUTANE-1,2,3,4-HEXASODIUM  
TETRACARBOXYLATE**

CAS. 143239-08-1

1 - 2

Xi R43, N R51/53

Skin Sens, 1 H317, Aquatic Chronic 2 H411

EC. 410-800-5

INDEX. -

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).

## ZARAM032 - COMBIBOILER

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

**PHOSPHORIC ACID****Threshold Limit Value.**

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV-ACGIH		1		3	
OEL	EU	1		2	
OEL	IRL	1		2	
WEL	UK	1		2	

**Health - Derived no-effect level - DNEL / DMEL**

Route of exposure	Effects on consumers.		Effects on workers		Acute systemic	Chronic local	Chronic systemic		
	Acute local	Acute systemic	Acute local	Chronic local					
Inhalation.			VND		0,73 mg/m3	VND	2 mg/m3	VND	1 mg/m3

**SULPHAMIC ACID**

Predicted no-effect concentration - PNEC.

Normal value for the terrestrial compartment	3	mg/kg
Normal value in fresh water	0,3	mg/l
Normal value in marine water	0,03	mg/l
Normal value for fresh water sediment	0,3	mg/kg
Normal value for marine water sediment	0,03	mg/kg
Normal value of STP microorganisms	200	mg/l

**Health - Derived no-effect level - DNEL / DMEL**

Route of exposure	Effects on consumers.		Effects on workers		Acute systemic	Chronic local	Chronic systemic
	Acute local	Acute systemic	Acute local	Chronic local			
Oral.			VND		1,06 mg/kg		
Inhalation.			VND		1,85 mg/m3	VND	7,5 mg/m3

## 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, butyl rubber, fluorelastomer

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 airtight protective 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	red
Odour	typical
Odour threshold	Not available.
pH.	1
Melting or freezing point	<0°C
Initial boiling point	105 °C
Boiling range	105°C – 110 °C
Flash point	> 60 °C.
Evaporation rate	Not available.
Flammability of solids and gasses	Not flammable.
Lower flammability limit	Not flammable.
Upper flammability limit	Not flammable.
Lower explosive limit	Not explosive.
Upper explosivity limit	Not explosive.
Vapour pressure	Not available.
Vapours density	1.
Specific gravity	1,05 – 1,25 Kg/l.
Solubility	Water soluble.
Partition coefficient: n-octanol/water	Not available
Ignition temperature	Not available.
Decomposition temperature	>200°C.
Viscosity	1 – 50 mPa.s
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

**9.2. Other information.**

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

**SECTION 10. Stability and reactivity.****10.1. Reactivity.**

The product is acidic and can react exothermically with alkali.

**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. It reacts exothermically in contact with alkali.

**10.4. Conditions to avoid.**

The usual precautions used for chemical products should be respected.

**10.5. Incompatible materials.**

Metals, strong alkalis, aldehydes, sulphides and peroxides, chlorine, hypochlorites and substances containing active chlorine, nitric acid, sodium nitrites and nitrates, potassium.

**10.6. Hazardous decomposition products.**

In case of fire can release vapors potentially dangerous to health (phosphorus oxide, sulphur oxides and nitric oxides, 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 is corrosive and causes serious burns and vesicles on the skin, which can arise even after exposure. Burns are very stinging and painful. Upon contact with eyes, it may cause serious harm, such as cornea opacity, iris lesions, irreversible eye coloration. Possible vapours are caustic for the respiratory system and may cause pulmonary edema, whose symptoms sometimes arise only after some hours.

Exposure symptoms may include: sting, cough, asthma, laryngitis, respiratory disorders, headache, nausea and sickness.

If swallowed, it may cause mouth, throat and oesophagus burns, sickness, diarrhoea, edema, larynx swelling and, consequently, asphyxia. Perforation of the gastro-intestinal tract is also possible.

Upon contact with skin, this product causes sensitization (dermatitis). Dermatitis derives from skin irritation on the areas which repeatedly come into contact with the sensitizing agent. Cutaneous lesions may include: erythemas, edemas, papules, vesicles, pustules, scurries, ulcerations and exudative phenomena, whose intensity varies according to illness seriousness and affected areas. Erythemas, edemas and exudative phenomena prevail during the acute phase. Scurfy skin, dryness, ulcerations and skin thickening prevail during the chronic phase.

**PHOSPHORIC ACID**

LD50 (Oral). 2600 mg/kg Rat

LD50 (Dermal). 2740 mg/kg Rabbit

LC50 (Inhalation). > 850 mg/l/2h Rat

**SULPHAMIC ACID**

LD50 (Oral). >2000 mg/kg Rat

**MIXTURE OF: PHOSPHONOETHAN-1,2-TETRASODIUM DICARBOXYLATE; PHOSPHONOBUTANE-1,2,3,4-HEXASODIUM TETRACARBOXYLATE**

LD50 (oral): > 2000 mg/kg, rat

LD50 (dermal): >2000 mg/kg, rabbit

LC50 (inhalation): no data available

**SECTION 12. Ecological information.**

No specific data are available for this product. Handle it according to good working practices. Avoid littering. Do not contaminate soil, sewers and waterways. Inform the competent authorities, should the product reach waterways or sewers or contaminate soil or vegetation. Please take all the proper measures to reduce harmful effects on aquifers.

**12.1. Toxicity.**

## PHOSPHORIC ACID

LC50 - for Fish.

138 mg/l/96h Pesce

EC50 - for Algae / Aquatic Plants.

590 mg/l/72h Alga

## SULPHAMIC ACID

LC50 - for Fish.

70,3 mg/l/96h Pimephales promelas

MIXTURE OF: PHOSPHONOETHAN-1,2-TETRASODIUM DICARBOXYLATE; PHOSPHONOBUTANE-1,2,3,4-HEXASODIUM TETRACARBOXYLATE

LC50 - for Fish.

100 mg/l/96h Lepomis macrochirus

EC50 - for Crustacea.

1000 mg/l/48h Dafnia magna

**12.2. Persistence and degradability.**

## PHOSPHORIC ACID

Not applicable.

## SULPHAMIC ACID

Not rapidly biodegradable.

MIXTURE OF: PHOSPHONOETHAN-1,2-TETRASODIUM DICARBOXYLATE; PHOSPHONOBUTANE-1,2,3,4-HEXASODIUM TETRACARBOXYLATE

Not readily biodegradable (method OECD 301C).

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.**

Given the complete solubility in water of the product the mobility in soil is very high.

**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.

Waste transportation may be subject to ADR restrictions.

**CONTAMINATED PACKAGING**

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



**SECTION 14. Transport information.****14.1. UN number**

ADR-RID-ADN-IMDG-IATA: UN 1805

**14.2. UN proper shipping name**

ADR-RID-AND IMDG-IATA/IACAO: PHOSPHORIC ACID SOLUTION

**14.3. Transport hazard class(es)**

ADR-RID-AND IMDG-IATA/IACAO: 8

**14.4. Packing group**

ADR-RID-AND IMDG-IATA/IACAO: III

**14.5. Environmental hazards**

ADR-RID-AND-IATA/IACAO: NO

IMDG: NO

**14.6. Special precautions for users**

These goods must be transported by vehicles authorized to the carriage of dangerous goods according to the requirements in the current edition of the ADR And the applicable national regulations. The goods must be packed in their original, or in packagings in packagings made of materials resistant to their content and not likely to generate dangerous reactions. People loading and unloading dangerous goods must have received appropriate training about the risks deriving from these substances and the actions that must be taken in case of emergency situations. Please note that the securing of the load must be carried out according to the instructions in Section 7.5.7.1 of the ADR code.

ADR (tunnel code of restrictions): (E)

EMS number: F-A, S-B

**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

less than 5 %                      phosphonates

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.

PHOSPHORIC ACID

**SECTION 16. Other information.**

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

<b>Skin Corr. 1B</b>	Skin corrosion, category 1B
<b>Eye Irrit. 2</b>	Eye irritation, category 2
<b>Skin Irrit. 2</b>	Skin irritation, category 2
<b>Skin Sens. 1</b>	Skin sensitization, category 1
<b>Aquatic Chronic 2</b>	Hazardous to the aquatic environment, chronic toxicity, category 2
<b>Aquatic Chronic 3</b>	Hazardous to the aquatic environment, chronic toxicity, category 3
<b>H314</b>	Causes severe skin burns and eye damage.
<b>H319</b>	Causes serious eye irritation.
<b>H315</b>	Causes skin irritation.
<b>H317</b>	May cause an allergic skin reaction.
<b>H411</b>	Toxic to aquatic life with long lasting effects.
<b>H412</b>	Harmful to aquatic life with long lasting effects.

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

<b>R34</b>	CAUSES BURNS.
<b>R36/38</b>	IRRITATING TO EYES AND SKIN.
<b>R43</b>	MAY CAUSE SENSITISATION BY SKIN CONTACT.
<b>R51/53</b>	TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.
<b>R52/53</b>	HARMFUL TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.

## 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 PHOSPHORIC ACID****1. Breve titolo dello scenario d'esposizione: Uso professionale**

Sector of use (SU).	SU 22
Product category (PC).	PC35
Process category (PROC).	PROC19
Environmental release category (ERC).	ERC8a

**2. Contributing scenario to environmental exposure**

Product characteristics	It covers concentrations higher than 25%.
Frequency and use duration	Continuous exposure.
Amount used	The daily and annual amount emission per site is not considered to be the main determinant for the environmental exposure.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil.	<p><b>Air.</b> Acid release is negligible, due to its low vapour pressure.</p> <p><b>Water.</b> The emission may increase the concentration of phosphates and the decrease of pH in the aquatic environment. The pH of industrial effluents is normally measured frequently and can be easily neutralized. It is required that the flow of release to municipal wastewater or to surface water do not cause significant pH changes. Wastewater should be reused or discharged to the industrial wastewater and further neutralized if needed. Different rules apply to professional users regarding control of their effluents.</p> <p><b>Soil.</b> The product penetrates soil by infiltration. The following interaction processes with soil can be predicted: partial neutralization, dispersion and dilution. The pH of product would be neutralized by soil before reaching groundwaters. Adsorption by sediments is not expected.</p> <p>Adequate control measures must be adopted in order to avoid the dispersion of the product during manipulation. Due to its low vapor pressure and its high water solubility the product is expected to be found mainly in water and soil compartments. In these compartments the acid dissociates affecting the pH of the receiving compartment (pH lowering). Bioaccumulation is not expected.</p>
Conditions and measures related to external treatment of waste for disposal	<p><b>Waste treatment.</b> Acid dissociates and will be neutralized before reaching WWTP.</p> <p><b>Disposal methods.</b> The neutralized liquid can be spilled in accordance with regulation in force. The residue of the containers or the used container itself should be disposed in accordance with local regulations.</p>

**3. Contributing scenario controlling worker exposure**

Product characteristics	It covers concentrations higher than 25%.
Frequency and duration of use	8 hours per day, 200 days/year. The maximum duration considered for this exposure scenario is a working shift of above 4 hours per day (worst case assumption).
Technical conditions and measures at process level (source) to avoid release	<p>Replace manual procedures with automatic ones if possible.</p> <p>Use closed or covered open systems.</p> <p>Use sucking pumps.</p>
Organizational measures to prevent/limit releases, dispersion and exposure	Because the substance is corrosive, the risk management measures for human health should focus on the prevention of direct contact with the substance.
Conditions and measures related to personal protection, hygiene and health evaluation.	Use suitable eye protection and gloves. Wear suitable coveralls to prevent exposure to the skin.

**4. Exposure estimation and reference to its source**

Environment	
Qualitative approach used to conclude safe use	
Workers	

## ECETOC TRA

Contributing scenario	Specific conditions	Exposure routes	Level of exposure	RCR
Relevant for all PROCs	Liquid	Inhalation	0,375 mg/m <sup>3</sup>	0,375

Good industrial hygiene practice has to be followed if oral exposure is not expected for workers. As reported in the CLP Regulation N. 1272/2008 Annex VI Table 3.1, the substance is corrosive above 25% concentration limit. Repeated daily dermal exposure to the product is considered negligible.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Where other Risk Management Measures / Operational Conditions are adopted, then users should ensure that risk are managed to at least equivalent levels.

##### Health

Predicted exposures are not expected to exceed DN(M)EL when Risk Management Measures / Operational Conditions outlined in Section2 are implemented.

##### Environment

Estimated exposure are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2.

#### 6. Additional good practice beyond the REACH Chemical Safety Assessment.

Local exhaust ventilation is not required if good practice measures are adopted.

Since automated, closed systems and local exhaust ventilation may be less feasible to implement for professional settings, product related design measures should be taken (low concentration for example) as well as good practices that prevent direct eye/skin contact with the substance and prevent formation of aerosols and splashes are more important along with the personal protective equipment measures.