

Section 1: Identification of the substance / mixture and of the Company

1.1 Identification of the product, substance or mixture

Product identifier	322905 (TC41595)
Product name	o-PHOSPHORIC ACID 9.5%
INDEX number	015-011-00-6
EC number	231-633-2
CAS number	7664-38-2
Registration number	01-2119485924-24-XXXX

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

Description/Use: Laboratory reagent

1.3 Details of the supplier of the safety data sheet

Supplier	TELWIN SPA
Street address	Via della Tecnica, 3
Country	36030 VILLAVERLA (VI)
Telephone number	+39 0445 858811
Fax	+39 0445 858800
* e-mail address	telwin@telwin.com

1.4 Emergency telephone number

+39 0445 858811 (working hours)

Section 2: Hazards identification

2.1 Classification of the substance or mixture

The product is not classified as hazardous pursuant to the provisions of Regulation (EC) 1272/2008 (CLP). The product, however, contains hazardous substances in such concentration to be declared in section no. 3, requiring a safety data sheet with adequate information, in compliance with Regulation (EC) 1907/2006 and subsequent amendments. Classification and hazard statement: --

2.2 Label elements

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

Hazard pictograms: --

Warnings: --

Hazard statements: **EUH210** Safety Data Sheet available on request.

Safety advice: --

2.3 Other hazards

Based on data available, the product does not contain PBT or vPvB substances at levels in excess of 0.1%.

Section 3: Composition/information on ingredients

3.1 Substances

Information not relevant.

3.2 Mixtures

Contains:

The complete text of the hazard statements (H) is outlined in section 16 of the data sheet.

Identification.	Conc. %	Classification 1272/2008 (CLP).
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Phosphoric Acid, ... %

CAS. 7664-38-2

9 - 10

Met. Corr. 1 H290, Skin Corr. 1B H314, Nota B

CE. 231-633-2

INDEX. 015-011-00-6

Nr. Reg. 01-2119485924-24-XXXX

NB: Value over range excluded.

Section 4: First aid measures

4.1 Description of first aid measures

No episodes of damage to staff responsible for product use have been reported. If necessary, implement the following measures:

INHALATION: Remove casualty to fresh air. If breathing stops, practice artificial respiration. Immediately contact a doctor.

INGESTION: Immediately contact a doctor. Induce vomiting only on doctor's orders. Never give anything by mouth to an unconscious person.

EYES and SKIN: Rinse with plenty of water. If irritation persists, consult a doctor.

4.2 Most important symptoms and effects, both acute and delayed

No episodes of damage to health ascribable to the product have been reported.

4.3 Indication of any immediate medical attention and special treatment needed

Information not available.

Section 5: Firefighting measures

5.1 Extinguishing media

SUITABLE EXTINGUISHING MEDIA

Suitable extinguishing media are: carbon dioxide and chemical powder. For product leaks and spillages which have not caught fire, misted

water can be used to disperse the flammable vapours and protect the people involved to stop the leak.

UNSUITABLE EXTINGUISHING MEDIA

Do not use water jets.

Water is not efficient to extinguish fire, however it can be used to cool closed containers exposed to flames, preventing bursting and explosions.

5.2 Special hazards arising from the substance or mixture

HAZARDS DUE TO EXPOSURE IN THE EVENT OF FIRE

Avoid breathing in inflamed products.

PHOSPHORIC ACID ... %

If possible, distance the containers of the substances from the location of the fire or cool, since if exposed to radiant heat or if directly involved, toxic fumes can generate.

If possible, distance the containers of the substance from the location of the fire or cool, since if in contact with metals and exposed to radiant heat the substance releases flammable gases.

5.3 Advice for firefighters

GENERAL INFORMATION

Cool the containers with water jets to avoid decomposition of the product and development of potentially hazardous substances for health. Always wear complete fire fighting equipment. Collect water used for extinguishing which must not be drained into the sewers. Dispose of contaminated water used for extinguishing and fire residue according to standards in force.

EQUIPMENT

Wear normal fire fighting gear, such as an open circuit compressed air breathing apparatus (EN 137), fire retardant clothing (EN 469), fire retardant gloves (EN 659) and fire-fighter boots (HO A29 or A30).

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Stop the leak if not in danger.

Wear adequate personal protective equipment (including personal protective equipment pursuant to section 8 of the safety data sheet) to prevent contaminating the skin, eyes and personal clothing. These indications apply both to workers and emergency intervention operators.

6.2 Environmental precautions

Prevent the product penetrating sewers, surface water and groundwater.

6.3 Methods and material for containment and cleaning up

Soak up spills in a suitable container. Assess compatibility of the container to use with the product, checking section 10.

Absorb the remainder with absorbent inert material.

Ensure sufficient ventilation of the location of the spill. Disposal of contaminated material must be carried out in compliance with provisions in point 13.

6.4 Reference to other sections

Possible information on individual protection and disposal are outlined in sections 8 and 13.

Section 7: Handling and storage

7.1 Precautions for safe handling

Handle the product having firstly consulted all the sections of this safety data sheet. Avoid dispersion of the product in the environment.

Do not eat, drink or smoke during use. Separate work clothing from normal clothing.

7.2 Conditions for safe storage, including any incompatibilities

Only store in the original container. Keep the containers closed, in a well-ventilated area, away from direct sunlight. Keep the containers far from any incompatible materials, checking section 10.

7.3 Specific end use(s).

Information not available.

Section 8: Exposure controls/personal protection

8.1 Control parameters

Reference Standards:

EU OEL EU

TLV

Directive 2009/161 / EU; Directive 2006/15 / EC; Directive 2004/37 / EC; Directive 2000/39 / EC.
ACGIH 2016

PHOSPHORIC ACID, ... %					
Threshold limit values.					
Type	Status	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
OEL	EU	1		2	
TLV-ACGIH		1		3	

Legend:

C) = CEILING; INHALAB = Inhalable Fraction; BREATH = Breathable Fraction; TORAC = Thoracic Fraction.

8.2 Exposure controls

Considering use of adequate technical measures should always have priority over personal protective equipment, ensure good ventilation of the workplace using efficient local extraction system. Personal protective equipment must be CE marked to certify its compliance with standards in force.

- Hand protection: In the event of prolonged contact with the product, you are advised to protect hands with work gloves that resist penetration (ref. standard EN 374).
For the definitive choice of material in the work gloves, you must also access the use process of the product and any further derivative products. Remember that latex gloves can cause irritation.
- Skin protection: Wear work gear with long sleeves and safety footwear for professional use, category I (ref. Directive 89/686/EEC and

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o-PHOSPHORIC ACID 9.5%

standard EN ISO 20344). Wash with soap and water having removed protective clothing.

- Eye protection: You are advised to wear sealed protective goggles (ref. standard EN 166).
- Respiratory protection: In the event a threshold value is exceeded (e.g. TLV-TWA) of the substance or one or more of the substances in the product, you are advised to wear a mask with filter type B whose class (1, 2 or 3) should be chosen in relation to the use limit concentration. (ref. standard EN 14387). If gas or vapours are present of a different nature and/or gas or vapours with particles (aerosols, fumes, mist, etc.), you need to use combined filters.
Use of protective equipment for the airways is necessary in the event the technical measures implemented are not sufficient to limit workers' exposure to the threshold values taken into consideration. The protection offered by the masks is however limited. If the substance considered is odourless or its odour threshold is higher than the relevant TLV-TWA and in the event of an emergency, wear an open circuit, compressed air breathing apparatus (ref. standard EN 137) or an external air supply breathing apparatus (ref. standard EN 138). To correctly choose the airways protection equipment, refer to standard EN 529.
- Environmental exposure controls.
Production process emissions, including those from ventilation devices should be checked to ensure compliance with environmental protection legislation.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

PROPERTIES	VALUE
Physical state	Liquid
Colour	Colourless
Odour	Odourless
Odour threshold	Not available
pH	<0,5 (solut.100 g/l)
Melting point/freezing point	Not available
Initial boiling point and boiling range	Not available
Flash point	Not applicable
Evaporation rate	Not available
Flammability (solid, gas)	Not applicable
lower flammability limit	Not applicable
Upper flammability limit	Not applicable
Lower explosive limit	Not applicable
Upper explosive limit	Not applicable
Vapour pressure	Not available
Vapour density	Not available
Relative density	Not available
Solubility	In water
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not applicable
Oxidising properties	Not applicable

9.2 Other information

VOC (Directive 2010/75/EC): 0

VOC (volatile carbon): 0

Section 10: Stability and reactivity

10.1 Reactivity

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

PHOSPHORIC ACID: decomposes at temperatures over 200°C

The substance decomposes on contact with alcohol, aldehydes, cyanides, ketones, phenols, esters, sulphides and halogenated organic compounds, producing toxic fumes.

10.2 Chemical stability

The product is stable in normal use and storage conditions.

PHOSPHORIC ACID: The product is stable in normal use and storage conditions.

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The substance violently polymerises under the influence of azo compounds and epoxides.

10.3 Possibility of hazardous reactions

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

PHOSPHORIC ACID: risk of explosion due to contact with nitromethane. It can react dangerously with alkali and Sodium borohydride.

10.4 Conditions to avoid

None in particular. However, comply with the usual precautions for chemical products.

PHOSPHORIC ACID: Ignition sources. However, comply with the usual precautions for chemical products.

10.5 Incompatible materials

PHOSPHORIC ACID: Metals, strong alkalis, aldehydes, sulphides and peroxides.

10.6 Hazardous decomposition products

PHOSPHORIC ACID: phosphorous oxide.

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o-PHOSPHORIC ACID 9.5%**Section 11: Toxicological information**

In the absence of test toxicology data on the product itself, the possible hazards to health of the product were evaluated based on the chemical properties contained, according to the reference legislation outlined for the classification. Therefore consider the concentration of individual hazardous substances possibly mentioned in sect. 3 to evaluate the toxicological effects deriving from exposure to the product.

11.1 Information on toxicological effects

Data referring to mixtures:

ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture: Not classified (no relevant component).

LC50 (Inhalation - mist/dust) of the mixture: Not classified (no relevant component).

LD50 (Oral) of the mixture: Not classified (no relevant component).

LD50 (Skin) of the mixture: Not classified (no relevant component).

SKIN CORROSION / SKIN IRRITATION.

Does not meet the classification criteria for this hazard class.

SERIOUS EYE DAMAGE / EYE IRRITATION.

Does not meet the classification criteria for this hazard class.

RESPIRATORY OR SKIN SENSITISATION.

Does not meet the classification criteria for this hazard class.

GERM CELL MUTAGENICITY.

Does not meet the classification criteria for this hazard class.

CARCINOGENICITY.

Does not meet the classification criteria for this hazard class.

REPRODUCTIVE TOXICITY.

Does not meet the classification criteria for this hazard class.

REPRODUCTIVE TOXICITY.

Does not meet the classification criteria for this hazard class.

SPECIFIC TARGET ORGAN TOXICITY (STOT) - SINGLE EXPOSURE.

Does not meet the classification criteria for this hazard class.

SPECIFIC TARGET ORGAN TOXICITY (STOT) - REPEATED EXPOSURE.

Does not meet the classification criteria for this hazard class.

ASPIRATION HAZARD.

Does not meet the classification criteria for this hazard class.

PHOSPHORIC ACID: The product is corrosive and causes serious burns and blisters on the skin, which can also appear after exposure. The burns cause strong scalding and pain. In contact with the eyes, it causes serious injuries and can cause opacity of the cornea, damage to the iris and irreversible eye colouration. Possible vapours are caustic for the respiratory tract and can cause pulmonary oedema, whose symptoms manifest, at times, only after a few hours. The symptoms of exposure include: sensitivity to burns, cough, asthmatic breathing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion can burn the mouth, throat and oesophagus; vomit, diarrhoea, oedema, swelling of the larynx and resulting suffocation. The gastrointestinal tract may also be perforated. The product causes serious eye injuries and can cause opacity of the cornea, iris damage and irreversible colouration of the eye. Acute effects: contact with the eyes can cause irritation; the symptoms can include: reddening, oedema, pain and tearing. Inhalation of vapours can cause moderate irritation of the upper respiratory tract; contact with skin can cause moderate irritation. Ingestion can cause health problems, including abdominal pain with burning, nausea and vomiting.

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Metabolism, kinetics, action mechanism and other information

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Phosphoric acid can penetrate the body through inhalation of its aerosols and through ingestion. Free phosphate ions which are eliminated with urine. The phosphoric acid particles are hygroscopic and tend to increase in volume when passing through the airways. They contain 90% humidity in the trachea and 99% in the lungs. Phosphoric acid in contact with humidity in the gastrointestinal tract is transformed into phosphate ions. Absorption and, in limited quantity, re-absorption in the gastrointestinal tract are influenced by various factors. Transport to the blood is an active phenomena which is stimulated by vitamin D. In an adult male, 2/3 of the quantity ingested is absorbed and eliminated in urine. In children, the quantity absorbed is not completely eliminated. As a result, the plasma rate remains higher than that of an adult.

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Acute toxicity

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Rat DL50 (oral): 1530 mg/kg

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Rabbit DL50 (skin): 2740 mg/kg

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Rat CL50-4 ore (inhalation): > 213 mg/m3

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Skin corrosion/irritation

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The substance has a corrosive action. The severity relates to the concentration of the solution, the quantity and the duration of contact. It can cause yellowish colouration of the skin. Based on the damage, hot and painful erythema, blisters or necrosis are observed. Evolution can complicate with suprainfection, aesthetic or functional sequellae.

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Corrosion of the airways

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The vapours and aerosol are corrosive. The severity of the injuries relates to the concentration of the solution, the quantity and the duration of contact.

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Serious eye injuries /serious eye irritation

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o-PHOSPHORIC ACID 9.5%

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The substance has a corrosive action. The severity relates to the concentration of the solution, the quantity and the duration of contact. The symptoms are: immediate pain, tearing, conjunctival hyperemia and often blepharospasms. Possible sequelae are: conjunctival adhesions, corneal opacity, cataract, glaucoma and also blindness. A drop of phosphoric acid solution buffered with pH 2.5 will cause slight itchiness without injury. A drop of the same solution buffered with pH 3.4 is perfectly tolerated.

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Respiratory sensitisation

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Inhalation of the substance can cause Brooks syndrome (asthma induced by irritants).

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Skin sensitisation

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The substance has not demonstrated sensitising powers on guinea pigs.

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Germ cell mutagenicity.

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In vitro, it provided negative results in the Ames assay, with or without metabolic activation. In vivo, a genetic recombination assay on *Drosophila* provided a negative result. A dominant lethal assay, on rats, showed an increase in females the presented re-absorption after mating with males exposed to a very low concentration.

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Carcinogenicity

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In a recent assessment, the data demonstrated an association between exposure to strong inorganic acid mists and laryngeal cancer in humans while the results are limited to confirm causal association with bronchial cancer. In humans, a positive association was also observed between exposure to strong inorganic acid mists and lung cancer (IARC, 2012; INRS, 2011). - The International Agency for Research on Cancer (IARC) allocates strong inorganic acid mists in group 1 (confirmed carcinogen for humans) based on evidence of sufficient carcinogenicity in humans (larynx cancer and positive association between inorganic strong acids and lung cancer) (IARC, 2012).

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Reproductive toxicity:

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- Adverse effects on sexual function and fertility: Data not available.

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- Adverse effects on development: No data are available for humans. In rats, it has fetal toxic effects in the event of exposure to high quantities of substances via inhalation.

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- Effects on breastfeeding or through breastfeeding: Data not available.

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Specific target organ toxicity (STOT) - Single exposure

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Data not available.

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Specific target organ toxicity (STOT) - Repeated exposure

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Data not available. Aspiration hazard Data not available.

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Likely exposure routes

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The main, potential exposure routes foreseeable can be skin contact and inhalation by workers exposed to production and use of the substance.

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Immediate, delayed and chronic effects deriving from short and long term exposure.

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Exposure of the airways to vapours or aerosols causes immediate signs of irritation of the airways: runny nose, sneezing, sensation of nasal and pharyngeal burning, cough, dyspnea and chest pain. The prognosis can be poor in the event of developing laryngeal oedema or bronchospasm. At the end of exposure, you usually have remission of symptoms, but within 48 hours delayed pulmonary oedema may develop. Complications include bacterial suprainfections. Hypersecretion and flaking of the bronchial mucous, in the presence of extensive injuries, are responsible for bronchial obstruction and atelectasis. Other possible sequelae are: spinal stenosis, bronchiectasis and pulmonary fibrosis. Ingestion of a concentrated solution of substance causes mouth pain, epigastric or chest discomfort, associated with hypersalivation and vomiting often containing blood. You have metabolic acidosis, hyperleukocytosis and haemolysis. Complications in the short term are oesophageal or gastric perforation, digestive haemorrhages, fistulas (esotracheal or aortic-esophageal), breathing difficulties (due to laryngeal oedema, pulmonary disease due to inhalation or esotracheal fistula), state of shock and disseminated intravascular coagulation. In the long term, digestive stenosis can develop, in particular oesophageal. There is also a risk of cancerization of the digestive tract injuries. No data are available for chronic exposure to substances.

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Interactive effects

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Data not available.

Section 12: Ecological information

Use according to good working practices, avoiding release of the product in the environment. Notify the competent authorities if the product has reached waterways or it has contaminated the ground or vegetation.

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o-PHOSPHORIC ACID 9.5%**12.1 Toxicity**

PHOSPHORIC ACID:

LC50 - Fish.	3.25 mg/l/96h <i>Lepomis macrochirus</i>
EC50 - Shellfish.	> 100 mg/l/48h <i>Daphnia magna</i>
EC50 - Algae / Aquatic Plants.	> 100 mg/l/72h <i>Desmodesmus subspicatus</i>
NOEC Chronic Algae / Aquatic Plants.	100 mg/l <i>Desmodesmus subspicatus</i>

12.2 Persistence and degradability

PHOSPHORIC ACID:

At 200 °C it becomes pyrophosphoric acid.

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At 300 °C it becomes metaphosphoric acid.

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Degrades in anaerobic conditions.

12.3 Bioaccumulative potential

Information not available.

12.4 Mobility in soil

PHOSPHORIC ACID:

The substance chemically reacts to alkaline components on the ground forming more or less soluble compounds (based on final pH).

12.5 Results of PBT and vPvB assessment

Based on data available, the product does not contain PBT or vPvB substances at levels in excess of 0.1%.

12.6 Other adverse effects

PHOSPHORIC ACID:

Misting a solution at 15-20% causes destruction of the leaves of pea, bean, sugar beet, turnip and weed plants.

Section 13: Disposal considerations**13.1 Waste treatment methods**

Re-use, if possible. The product residue as such is considered non-hazardous special waste.

Disposal must be entrusted to a company authorised to manage waste, in compliance with national and, possible, local legislation.

CONTAMINATED PACKAGING

Contaminated packaging must be sent for recycling or disposal in compliance with national standards on waste management.

Section 14: Transport information

The product is not considered hazardous pursuant to provisions in force on transport of hazardous goods by road (A.D.R.) or rail (RID), by sea (IMDG Code) and by air (IATA).

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 user

Not applicable.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant.

Section 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specifically for the substance or mixture.**

Seveso category - Directive 2012/18/EC:

Restrictions relating to the product or contained substances pursuant to Annex XVII EC Regulation 1907/2006: None.

Substances in Candidate List (Art. 59 REACH): None.

Substances subject to authorisation (Annex XIV REACH): None.

List of substances subject to export notification procedure Reg. (EC) 649/2012: None.

Substances subject to Rotterdam Convention: None.

Substances subject to Stockholm Convention: None.

Health Checks: Information not available.

15.2 Chemical safety assessment.

A chemical safety assessment was carried out for the following substances contained:

Phosphoric Acid,%

Section 16: Other information

The text of the hazard statements (H) outlined in section 2-3 of the data sheet:

Met. Corr. 1 Substance or mixture corrosive to metals, category 1**Skin Corr. 1B** Skin corrosion, category 1B**Skin Corr. 1C** Skin corrosion, category 1C

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Eye Dam. 1	Serious eye damage/eye irritation, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
H290	Can be corrosive to metals.
H314	Causes serious skin burns and serious eye injuries.
H318	Causes serious eye injuries.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
EUH210	Safety Data Sheet available on request.

LEGEND:

- ADR: European Agreement concerning the Carriage of Dangerous Goods by Road
- CAS NUMBER: Chemical Abstract Service number
- CE50: Concentration that affects 50% of the population subject to testing
- EC NUMBER: Identification number in ESIS (European Standardised Information Sheet)
- CLP: Regulation EC 1272/2008
- DNEL: Derived No-Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonised System for the classification and labelling of chemical products
- IATA DGR: Regulation for the carriage of dangerous goods by the International Air Transport Association
- IC50: Immobilisation concentration of 50% of the population subject to testing
- IMDG: International Maritime Dangerous Goods Code
- IMO: International Maritime Organization
- INDEX NUMBER: Identification number of Annex VI of the CLP
- LC50: Lethal concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational exposure level
- PBT: Persistent, bioaccumulative and toxic according to REACH
- PEC: Predicted environmental concentration
- PEL: Predicted exposure level
- PNEC: Predicted no-effect concentration
- REACH: Regulation EC 1907/2006
- RID: Regulation concerning the international carriage of dangerous goods by rail
- TLV: Threshold limit value
- TLV CEILING: Concentration that must not be exceeded during any moment of work exposure.
- TWA STEL: Short term exposure limit
- TWA: Time weighted average exposure limit
- VOC: Volatile organic compound
- vPvB: Very persistent, very bioaccumulating according to REACH
- WGK: Water Endangerment Class (Germany).

GENERAL BIBLIOGRAPHY:

1. Regulation (EU) 1907/2006 of the European Parliament (REACH)
 2. Regulation (EU) 1272/2008 of the European Parliament (CLP)
 3. Regulation (EU) 790/2009 of the European Parliament (I Atp. CLP)
 4. Regulation (EU) 2015/830 of the European Parliament
 5. Regulation (EU) 286/2011 of the European Parliament (II Atp. CLP)
 6. Regulation (EU) 618/2012 of the European Parliament (III Atp. CLP)
 7. Regulation (EU) 487/2013 of the European Parliament (IV Atp. CLP)
 8. Regulation (EU) 944/2013 of the European Parliament (V Atp. CLP)
 9. Regulation (EU) 605/2014 of the European Parliament (VI Atp. CLP)
- The Merck Index. - 10th Edition
 - Handling Chemical Safety
 - INRS - Fiche Toxicologique (toxicological sheet)
 - Patty - Industrial Hygiene and Toxicology
 - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
 - ECHA Agency Web Site

Note for user:

The information contained in this data sheet is based on the knowledge available to us on the latest version date.

The user must ensure suitability and completeness of information relative to the specific product use.

This document must not be interpreted as a warranty of any specific property of the product.

Since use of the product is not directly under our control, the user is obliged to follow, under his responsibility, valid laws and regulations on hygiene and safety.

No liability can be taken for improper use.

Provide adequate information to staff responsible for use of chemical products.