

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product identifier:

Trade name: Phosphoric acid 25-93%, food grade
Synonyms: Orthophosphoric acid 25-93%
CAS No. 7664-38-2
EC No. 231-633-2
Index No.: 015-011-00-6
REACH Registration No.: 01-2119485924-24-XXXX

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

Relevant Identified Uses: Food additives, Intermediate, Laboratory chemicals, Descaling compound/ Scale solvent, Corrosion inhibitors, pH-corrective agent, Processing aid, Degreasing agent, Fertilizer and Metal surface treatment. No uses advised against.

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification according to Regulation (EC) No 1272/2008:



GHS05 corrosion
Skin Corr. 1B H314 Causes severe skin burns and eye damage.

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Label elements:

Labelling according to Regulation (EC) No 1272/2008: The substance is classified and labelled according to the CLP regulation.

Hazard pictograms:



GHS05

Signal Word:

Danger

Hazard Statements:

H314 – Causes severe skin burns and eye damage

Precautionary statements:

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

Other hazards:

Results of PBT and vPvB assessment:

PBT: Not applicable.

vPvB: Not applicable.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances:

CAS No.: 7664-38-2

Description: Orthophosphoric acid 25-93%

EC number: 231-633-2

Index number: 015-011-00-6

SVHC: None

REACH Registration No.: 01-2119485924-24-0005

4. FIRST AID MEASURES

Description of first aid measures:

General information:

Do not leave affected persons unattended. Personal protection for the First Aider. Involve doctor immediately. Immediately remove any clothing soiled by the product. In case of irregular breathing or respiratory arrest provide artificial respiration. Provide oxygen treatment if affected person has difficulty breathing.

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After Inhalation: Take affected persons into fresh air and keep quiet Supply fresh air Call a doctor immediately.

After Skin Contact: Immediately wash with water and soap and rinse thoroughly Call a doctor immediately.

After Eye Contact: Rinse opened eye for several minutes under running water Call a doctor immediately.

After Swallowing: Rinse out mouth and then drink plenty of water. Do not induce vomiting; call for medical help immediately. NOTE: Never give an unconscious person anything to drink.

Most important symptoms and effects, both acute and delayed: Causes severe skin burns and eye damage.
Gastric or intestinal disorders.

Indication of any immediate medical attention and special treatment needed: Medical supervision for at least 48 hours.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: The product is not flammable.
Use fire extinguishing methods suitable to surrounding conditions.
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

For safety reasons unsuitable extinguishing agents: Water with full jet.

Special hazards caused by the substance, its products of combustion or resulting gases: In case of fire, the following can be released: Phosphorus oxides (e.g. P2O5).

Protective equipment: Wear self-contained respiratory protection. Wear fully protective suit.

Additional information: Cool endangered receptacles with water spray. Collect contaminated fire-fighting water separately. It must not enter the sewage system.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Wear protective equipment.
Keep unprotected persons away.
Mount respiratory protective device.

Environmental precautions: Dilute with plenty of water.
Do not allow to enter sewers/surface or ground water.

Methods and material for containment and cleaning up: Absorb with liquid binding material.
Use neutralising agent.
Dispose contaminated materials as waste according to item 13.
Ensure adequate ventilation.

Reference to other sections: See Section 8 for information on personal protection equipment.

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7. HANDLING AND STORAGE

Precautions for safe handling: Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
When diluting always pour product into water and not vice versa.

Information about fire – and explosion protection: No special measures required.

Conditions for safe storage, including any incompatibilities:

Requirements to be met by storerooms and receptacles: Store only in the original receptacle.

Use polyolefin receptacles.

Provide acid-resistant floor.

Suitable material for receptacles and pipes: Stainless steel.

Information about storage in one common storage facility: Store away from reducing agents.

Store away from metals.

Do not store together with alkalis (caustic solutions).

Further information about storage conditions: Keep container tightly sealed.

Recommended storage temperature: Phosphoric acid, solution 93%: +35 - +42°C

85%: +28 - +42°C

80%: +15 - +42°C

<75%: no need in heating.

(For other acid concentrations please use interpolation)

Specific end use(s): No further relevant information available.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Additional information about design of technical facilities: No further data: see item 7.

Ingredients with limit values that require monitoring in the workplace:

7664-38-2 Orthophosphoric Acid:

IOELV (EU): Short-term value: 2 mg/m³

Long-term value: 1 mg/m³

PEL (USA): Short-term value: 3 mg/m³

REL (USA): Short-term value: 3mg/m³

Long-term value: 1 mg/m³

TLV (USA): Short-term value: 3 mg/m³

TLV (USA): Long-term value: 1 mg/m³

DNELs:

For workers: Long-term-local effects (inhalation) DNEL: 1 mg/m³ Acute local effects (inhalation) DNEL: 2 mg/m³.

For general population: Long-term-local effects (inhalation) DNEL: 0.73 mg/m³

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PNECs: Not applicable.
Phosphoric acid toxicity is related to its acidic nature. A generic PNEC (water) cannot be derived as the effects are highly depending on the pH of the receiving water and its buffer capacity highly variable.

Exposure controls:

General protective and hygienic measures: The usual precautionary measures are to be adhered to when handling chemicals.

Do not eat or drink while working.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Respiratory protection:

Use suitable respiratory protective device only when aerosol or mist is formed.
In case of brief exposure or low pollution use respiratory filter device.
In case of intensive or longer exposure use self-contained respiratory protective device.
Short term filter device: ABEK+P Filter A/P2 (EN 14387, EN 143).

Protection of hands:

Protective gloves.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Material of gloves:

Butyl rubber, BR (0.7 mm)
Nitrile rubber, NBR (0.4 mm)
Chloroprene rubber, CR (0.5 mm)
Fluorocarbon rubber (Viton)
Natural rubber, NR
Neoprene gloves

Penetration time of glove material: The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. (EN 374)

Not suitable are gloves made of the following materials: Leather gloves.

Eye protection: Tightly sealed goggles (EN 166).

Body protection: Acid resistant protective clothing. Boots.

Limitation and supervision of exposure into the environment: Avoid discharging of phosphoric acid solutions into municipal wastewater, surface water or soils, when such discharges are expected to cause significant pH changes.

Risk management measures: Regular control of the pH value previous to or during discharges into open waters is required. Discharges should be carried out as to minimize pH changes in receiving surface waters. In general most aquatic organisms can tolerate pH values in the range of 6-9.

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9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties:****General Information:****Appearance:** Form: Solution**Colour:** Colourless**Odour:** Odourless**pH-value (23 g/l) at 20°C:** <1**Change in condition:****Melting point/Melting range:** -18 + 27°C (75-93% EC A.1)**Boiling point/Boiling range:** 108 - 171°C (50-93%, 1013 hPa)**Flash point:** Not applicable.

This product is inorganic substance.

Flammability (solid, gaseous): Product is not flammable. (based on molecular structure)**Ignition temperature:** Not applicable**Decomposition temperature:** >200°C Thermal decomposition on losing water.**Self-igniting:** Product is not self-igniting. (based on molecular structure)**Danger of explosion:** Product does not present an explosion hazard. (based on molecular structure)**Explosion limits:** None**Oxidizing properties:** None. The substance does not contain any groups associated with oxidising properties.**Vapour pressure at 20°C:** 4 Pa**Relative density at 20°C:** 1.574-1,791 (75-93%, EC A.3)**Vapour density:** 3.4 (air=1)**Evaporation rate:** Not determined.**Solubility in / Miscibility with water at 20°C:** >1000 g/l**Segregation coefficient (n-octanol/water):** Not applicable. This substance is inorganic chemical.**Viscosity at 20°C:** 1.1 - 600 mPa.s (5% - 105%)**Other information:** No further relevant information available.**10. STABILITY AND REACTIVITY****Reactivity:** Corrosive action on metals.

Reacts with reducing agents.

Reacts with alkali (lyes).

Ammonia (NH₃), fluorine, sulphur trioxide (SO₃), phosphorus pentoxide (P₂O₅).**Chemical stability:** No decomposition if used and stored according to specifications.**Possibility of hazardous reactions:** Reacts with metals forming hydrogen. Reacts with alkali (lyes).**Conditions to avoid:** To avoid thermal decomposition do not overheat.**Incompatible materials:** Alkalis Metals.**Hazardous decomposition products:** Phosphorus oxides (e.g. P₂O₅).

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11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Acute toxicity:

LD/LC50 values relevant for classification: Oral LD50 2600 mg/kg (rat) (equivalent to OECD 423)

Specific symptoms in biological assay: Phosphoric acid is classified as corrosive to the skin, therefore, no need to perform an acute dermal and an acute inhalative toxicity tests.

Primary irritant effect:

On the skin: Caustic effect on skin and mucous membranes.

On the eye: Strong caustic effect.

Sensitization: Phosphoric acid is classified as skin corrosive, thus a further assessment for skin sensitization is not necessary.

Additional toxicological information: Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of oesophagus and stomach.

Toxicokinetics, metabolism and distribution: This substance is not considered to have bioaccumulative potential as it is highly soluble in water and phosphate levels in the body are regulated via homeostasis. For risk assessment purposes oral absorption is considered to be 50-100%, inhalation absorption 100% and dermal absorption 50-100%. Wide distribution throughout the body is to be expected and excretion will be predominantly via urine. Supporting studies show increased phosphorus retention in bone and increased urinary phosphorus excretion after prolonged dietary administration of phosphoric acid and support the initial toxicokinetic assessment.

Repeated dose toxicity: Oral NOAEL 250 mg/kg bw/day (rat) (OECD 422 (subchronic) should not be classified for STOT - repeated exposure.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction).

Mutagenicity: None (acc. to OECD 471, OECD 473, OECD 476 tests)

Carcinogenicity: No data available (no carcinogenicity study needs to be performed as this substance is not genotoxic).

Toxicity for reproduction: No classification is necessary reproductive toxicity: NOAEL \geq 500 mg/kg bw/day; rat; oral (OECD 422).

Developmental toxicity: NOAEL \geq 410 mg/kg bw/day; rat; oral.

Maternal toxicity: NOAEL \geq 410 mg/kg bw/day; rat; oral (equivalent to OECD 414).

12. ECOLOGICAL INFORMATION

Toxicity:

Aquatic toxicity: Phosphoric acid toxicity is related to its acidic nature and, therefore, is more related to concentration than to dose.

EC50/48 h (static) >100 mg/L (Daphnia magna) (OECD 202, freshwater).

EC50/72 h (static) >100 mg/L (algae) (OECD 201, freshwater).

Median lethal pH 96h : 3-3.25 (Bluegill fish) fish mortality is caused by low pH values.

Persistence and degradability: The substance is inorganic; therefore no biodegradation tests are applicable. Phosphoric acid dissociates in water into H₃O⁺, H₂PO₄⁻, HPO₄⁻ ions, which cannot be further degraded.

Other information: The product should not get in high quantities into waste water because it may act as a plant nutrient and cause eutrophication.

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- Bioaccumulative potential:** Does not accumulate in organisms.
This substance is highly water soluble and dissociating.
Phosphoric acid dissociates in water into H_3O^+ , H_2PO_4^- , HPO_4^- - ions, which are ubiquitous in the environment.
Phosphoric acid is absorbed in form of phosphate anions. This anion is an essential component of the body.
- Mobility in soil:** This substance is highly water soluble and dissociating.
When spilled onto soil, phosphoric acid will infiltrate downward and will be partially neutralized by dissolving some of the soil material. On reaching the ground table phosphoric acid will be dispersed and diluted. Therefore, the environmental assessment should be limited to the aquatic compartment.
- Behaviour in sewage processing plants:** Phosphoric acid is of low toxicity to microorganisms, since in sewage treatment plants the microorganisms are essentially exposed to mainly H_2PO_4^- and HPO_4^- - ions, which are an essential nutrient for them, and not to parent phosphoric acid or to low pH values.
- Results of PBT and vPvB assessment** **PBT:** No assessment is required for inorganic substances. **vPvB:** No assessment is required for inorganic substances.
- Other adverse effects:** Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Rinse off bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Recommendation: Must not be disposed together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations. Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.

European waste catalogue: 06 01 04 phosphoric and phosphorous acid

Uncleaned packaging:

Recommendation: Empty contaminated packaging thoroughly. They may be recycled after thorough and proper cleaning. Packaging that may not be cleansed are to be disposed of in the same manner as the product. Disposal must be made in accordance with Local Authority requirements

Recommended cleansing agents: Water, if necessary together with cleansing agents

[cont...]

14. TRANSPORT INFORMATION**DOT Regulations:**

Hazard class: 8
Identification number: UN1805
Packing group: III
Proper shipping name (technical name): PHOSPHORIC ACID, SOLUTION
Label: 8

Land Transport ADR/RID (cross-border):

ADR/RID class: 8 (Cl) Corrosive substances
Danger code (Kemler): 80
UN Number: 1805
Packaging group: III
Hazard label: 8
Description of goods: 1805 PHOSPHORIC ACID, SOLUTION

Maritime transport IMDG:

IMDG class: 8
UN Number: 1805
Label: 8
Packaging group: III
EMS Number: F-A, S-B
Maritime pollutant: No
Proper shipping name: PHOSPHORIC ACID, SOLUTION

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Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 8
UN/ID Number: 1805
Label: 8
Packaging group: III
Proper shipping name: PHOSPHORIC ACID, SOLUTION
UN 'Model Regulation': UN1805, PHOSPHORIC ACID, SOLUTION, 8, III

Transport/Additional information:

ADR:
Tunnel restriction code: E
UN "Model Regulation": UN1805, PHOSPHORIC ACID, SOLUTION, 8, III

15. REGULATORY INFORMATION

National regulations:

Information about limitation of use: Employment restrictions concerning juveniles must be observed.

Other regulations, limitations and prohibitive regulations: Substances of very high concern (SVHC) according to REACH, Article 57 None

Registration status (Chemical Inventories listing): United States (TSCA): listed

Canada (DSL): listed

Australia (AICS): listed

Japan (ENCS): listed

Korea (KECI): listed

Philippines (PICCS): listed

China (IECSC): listed

NTP (National Toxicology Program): Substance is not listed

IARC (International Agency for Research on Cancer): Substance is not listed

Chemical safety assessment: A Chemical Safety Assessment has been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

[cont...]

16. OTHER INFORMATION

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road).

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail).

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NOAEL: No Observable Adverse Effect Level

STOT: Single Target Organ Toxicity

OECD: Organisation for Economic Co-operation and Development

RCR: Risk Characterisation Ratio

PRE: Personal Respiratory Equipment

LEV: Local Exhaust Ventilation

Legal disclaimer:

The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.