

GPS Safety Summary

Substance Name:

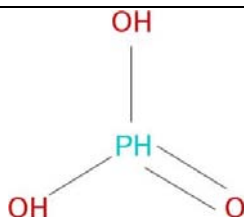
Phosphonic Acid

1. General Statement

Phosphonic acid is an inorganic substance used in a variety of applications.

2. Chemical Identity

Name:	phosphonic acid
Brand names:	phosphonic acid 70%
Chemical name (IUPAC):	phosphonic acid
CAS number(s):	13598-36-2
EC number:	237-066-7
Molecular formula:	H ₃ O ₃ P
Structure:	



3. Use and applications

Phosphonic acid is mainly used for the production of additives, fertilisers, flame retardants, textiles....

4. Physical / Chemical properties

The pure substance is a solid usually available as flakes or powder. However, the substance is produced and marketed by Arkema in aqueous solution.

The following table is related to the physical/chemical properties of the pure substance except stated otherwise.

Property	Value
Physical state	Liquid at 20°C and atmospheric pressure (aqueous solution)
Colour	Brown, yellow (aqueous solution)
Odour	Very faint (aqueous solution)
Molecular weight	82 g/mol
Density	1.837 at 20°C
Vapour pressure	<0.01 Pa at 20°C

Melting / boiling points	62.5°C / 258°C at atmospheric pressure
Flammability	Not flammable
Self-ignition temperature	Not auto-flammable
Explosive / oxidizing properties	Not explosive, not oxidizing
Water solubility	1.067 g/L at 20°C
Dissociation constant (pK _a)	6.2 at 20°C
Octanol-water partition coefficient (Log K _{ow})	Not relevant as the substance is inorganic

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful by oral route
Irritation / corrosion Skin / eye/ respiratory tract	Corrosive for the skin and the eyes
Sensitisation	Information not available
Toxicity after repeated exposure Oral / inhalation / dermal	An oral study did not suggest a significant systemic toxicity following repeated exposure
Genotoxicity / Mutagenicity	No evidence of genetic toxicity
Carcinogenicity	Not anticipated to cause cancer under conditions of normal use
Reproductive / Developmental Toxicology	A screening study did not suggest toxic effects on the fertility and the development

6. Environmental Effects

Effect Assessment	Result
Aquatic Toxicity	No significant toxicity to freshwater aquatic organisms.

Fate and behaviour	Result
Biodegradation	Not relevant (inorganic substance)
Other degradation	If released in water, it will dissolve and dissociate, and will enter into the biogeochemical cycle of phosphorus
Bioaccumulation potential	Not relevant (inorganic substance)
PBT / vPvB conclusion	Neither PBT nor vPvB

7. Exposure

7.1 Human health

Phosphonic acid is generated during the production of acid chlorides, which are produced under strictly controlled conditions to minimize exposure. Thus, the synthesis of phosphonic acid occurs in a totally closed process. Workers could only be exposed during loading/unloading operations. Based on the risk assessment, risk is controlled when activities are carried out under conditions recommended in the extended safety data sheet (chapter 8 and exposure scenarios).

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In addition, the general population is not expected to be exposed to phosphonic acid by inhalation, dermal or oral exposure, as the product is only used at industrial stage as intermediate or processing aid and does not remain in final products.

7.2 Environment

Releases of phosphonic acid into the environment are to be expected during production and industrial uses mainly via wastewater. Potential release during production is treated by on-site and off-site risk management measures.

The substance is used as an intermediate or as a processing aid, so the substance is almost totally consumed during the process. On top of that, releases to water have to be directed to a wastewater treatment plant. Therefore the release to environment is very low.

8. Risk Management recommendations

Human health measures		
Organizational	Management/supervision. Work procedures minimising risk of splashes and spills. Minimization of manual phases. Regular cleaning of equipment, work area and clothing. Avoidance of contact with contaminated tools and objects	
Protection	Eye/Face protection:	Safety glasses with side-shields Face shield in case of spattering
	Skin protection:	Acid resistant clothing Non-skid boots
	Hand protection:	Acid resistant gloves: PVC, neoprene
	Respiratory protection:	Suitable respiratory equipment in case of insufficient ventilation
Engineering controls	Provide sufficient air exchange and/or exhaust ventilation in work rooms	
Environmental protective measures		
Do not dispose of waste into sewer. Recycle if possible. Neutralize with slaked lime or neutralize with an alkaline carbonate. Destroy the product by incineration (in accordance with local and national regulations). Do not release into the environment. Destroy packaging by incineration at an approved waste disposal site (in accordance with local and national regulations).		

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information



This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)

9.2 Classification and labelling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and safety data sheets. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according to CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification and labelling according to Regulation (EC) n° 1272/2008 and GHS:

Classification	
– Corrosive to metals, Category 1 – Acute Toxicity (Oral) Category 4 – Skin Corrosive Category 1A – Eye Damage 1	
Signal word	
– Danger	
Pictogram	
– GHS05	
– GHS07	
Hazard statement	
– H290: May be corrosive to metals – H302: Harmful if swallowed – H314: Causes severe skin burns and eye damage	

10. Contact Information within Company

For further information on this substance or product safety summary in general, please contact:

- arkema.peroxides-reach-uses@arkema.com
- **ICCA portal where the GPS Safety Summary is posted:**
<http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

11. Date of Issues / Revision

- Date of issue: 2014/10/31
- Date of revision:

12. Disclaimer

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