KRONPHOS PZA

Safety Data Sheet

Date of issue: 8/21/2018 Version: 1.0

1. IDENTIFICATION OF PRODUCT AND OF THE COMPANY

Trade name / Substance Names: **KRONPHOS PZA**
(IUPAC: trizinc bis(orthophosphate) 78%, Aluminum Orthophosphate 22% mixture)

Type of use : anticorrosive pigment (solid corrosive inhibitor) for paints.(see section 16 and e-SDS for zinc phosphate)

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2. HAZARD IDENTIFICATION

Product description: KRONPHOS PZA is a mixture/ preparation of a:

- classified substance (CLP/GHS); 78% of zinc phosphate mixed with a,
- non-classified substance; 22% of Aluminium Phosphate (Aluminum OrthoPhosphate).

Classification according to Regulation 1272/2008/EC [CLP/GHS]

Hazard pictogram:

Signal word: **WARNING**
Hazard statements: **H410** Very toxic to aquatic life with long lasting effects

Precautionary statements:

Prevention:	**P273**	Avoid release to the environment
Response:	**P391**	Collect spillage
Disposal:	**P501**	Dispose of contents/ containers to be collected by a licensed contractor in accordance with national and local regulations.

A**Environmental Risks**: The zinc phosphate substance is classified as very toxic to aquatic life Acute Category 1 and Chronic Category 1: Very toxic to aquatic life with long lasting effects. It is highly recommended not to allow this substance to enter the Environment.

Description of the mixture: mixture containing Zinc Phosphate (78%) and Aluminium OrthoPhosphate.

Other hazards: none, PBT or vPvB non applicable (inorganic substance).

3. COMPOSITION/DATA ON COMPONENTS

Chemical composition : Zinc Aluminium Phosphate Hydrate
$Zn_3Al(PO_4)_3$, x H_2O.

CAS N°	EINECS N°	Name	%
7784-30-7	232-056-9	$AlPO_4$, $3H_2O$	22
7779-90-0	231-944-3	$Zn_3(PO_4)_2$, xH_2O	75
1314-13-2	215-222-5	ZnO	3

Hazardous components or impurities: A regulation 1272/2008/EC and (UE) 830/2015

CAS N°	Annex VI Index N°	EINECS N°	Name	%	Phrases	Symbol
Substances						
7779-90-0	030-011-00-6	231-944-3	$Zn_3(PO_4)_2$, xH_2O Zinc phosphate	75	H400 H410 (1)	GHS09
7784-30-7		232-056-9	$AlPO_4$, $3H_2O$ Aluminium phosphate	22		
Impurity						
1314-13-2	030-013-00-7	215-222-5	ZnO Zinc oxide	3	H400 H410 (1)	GHS09

4. FIRST AID AND MEASURES

Description of first aid measures : Get immediately medical attention.

Specific measure : no specific requirements.

After inhaling : remove from exposure area to the fresh air. Seek medical attention.

After skin contact : wash with mild soap and water until no evidence of product remains.

After eyes contact : immediately flush eyes with water for at least 15 min, until no evidence of chemical remains. Seek medical attention if necessary.

After ingestion: rinse mouth with water. Immediately get medical attention. Treat symptomatically and supportively. This product may induce intestinal troubles.

Most important symptoms and effects, both acute and delayed: No further relevant information available.

Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5. FIRE FIGHTING MEASURES

Suitable extinguishing means : no restriction for neighbouring fire.

Specific hazards arising from the substance or mixture : not flammable product, this mixture is very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment. Do not let this substance and its solutions contaminate the environment.

Advise for fire-fighters

Special personal protection equipment : wear an appropriate protective equipment and an appropriate air respirator.

Conduct of fire fighting : no specific requirement (not flammable fire retardant). Avoid creating dust under nuisance dust permitted limits. In case of fire, residues may contaminate the environment and have to be collected and stocked in special containers. Contaminated wastes have to be collected by a licensed contractor. Dike and contain, fire-control water, for later disposal. Do not let contaminated water contaminate the environment.

Additional information: contaminated residues must be disposed of according to local regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: If dusting (upper permitted limits), dust mask with a high-efficiency particulate filter (FFP2 minimum) and with a full face-piece.

Environmental protection conduct : Do not sweep or wash in public stretches of water or unknown discharge, in respect with local regulations. . To prevent dispersion on the floor and later in the environment, it is highly recommended to forbid walking on the product spillage. Do not discharge contaminated water in public sewage.

Methods and material for containment and cleaning up

Spill and leak procedure : Avoid/minimise residues and waste production according to local regulations. Use wet clean up technique to avoid dusting. Keep covered material in watertight and closed containers. Suck up avoiding dust (vacuum or wet device). Eliminate residues according to local regulations (dangerous waste).

Soil: Remove containers from spill area. In large spills, rescue must be in the same direction as the wind and prohibit the formation of dust clouds. Collect spills on the floor, eliminate waste according to national regulations.

Water: Not contaminate the environment. Seal the manhole sewer, prohibit access to water, contaminated with this product in water systems and, contain the water in area water resistant to removal by an authorized company.

7. HANDLING AND STORAGE

Precautions for safe handling:

EC:

Handling : Avoid dust breathing and walking in the fallout of the product on the ground. Keep away from food stuff. Use adequate exhaust ventilation to maintain nuisance dust below permitted limits. Suck up avoiding dust (vacuum or wet device). Avoid residues production according to local regulations.

Protection against fire and explosion : the product is non-flammable. Take precautionary measures against electrostatic discharges in explosive area.

Conditions for safe storage, including any incompatibilities:

Storage conditions : store under clean, dry conditions at room temperature. Keep containers tightly sealed.

Material/Chemical incompatibility : none. However, it is recommended to store this product away from acids and ammonia (solubility in these solvents). Storage class (VCI, Germany): 13. Seveso II and III Directives apply if a total sum of 200 tons environmentally toxic substances and preparations in production and storage are exceeded.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

PROFESSIONAL EXPOSURE CONTROL

EXPOSURE LIMIT VALUE (Occupational Exposure Limits) :

Engineering controls : no specific exposure limits established for substances (OSHA, ACGIH, NIOSH). Cf §7.

Parameters of exposure controls : Total dust, Aluminium, Zinc

Designation	Type of Data	Unit
Total dust	ACGIH-91/93	
(no special effect)	TLV : TWA (USA)	10 mg/m^3

	MAK (Germany)	6 mg/m³ Valid as per (mm/yy) : 05 / 95
	VME France 8H	10 mg/m³ inhalable dust
	VME France 8H	5 mg/m³ respirable dust
Aluminium	(ACGIH 91/93)	
	TLV : TWA (USA)	2 mg/m³

Parameters of exposure controls : ZnO – group : slightly soluble Zn compounds (as ZnO – $Zn(OH)_2$ – $Zn_3(PO_4)_2$ – $ZnCO_3$ – Zn metal - ZnS

Designation	Type of Data	Unit
ZnO	ACGIH-91/93 USA	10 mg/m³
	OSHA (1989)(legal limit values)	5 mg/m³ respirable
	dust DFG (1997) (Germany)	6 mg/m³
	Arbejdstilsynet (1992) Denmark	10
	mg/m³ VME France	10
	mg/m³	
	SZW (1997) Netherland	5 mg/m³ fumes
	HSE (1998) UK	10 mg/m³
	NBOSHS (1993) Sweden	5 mg/m³ fumes

Aluminium orthophosphate is not classified and as such no exposure assessment or risk characterisation is required. Aluminium phosphate monitoring is not necessary. The unique reference values coming from Aluminium Phosphate 2013 CSR are : Inhalation $DNEL_{long\text{-}term}$ Worker = 8.14 mg/m³ Inhalation $DNEL_{long\text{-}term}$ general public = 2.01 mg/m³

OCCUPATIONAL EXPOSURE MANAGEMENT:

Zn Risk management minimizing, needs an 8 hours time weighted average exposure below the DNEL in occupational workplaces. In order to perform a real exposure on workplace, it is recommended to:

- Keep under control Zn nuisance dust exposure,
- Determine the accurate working time per shift,
- Choose appropriate Personal protective equipment (Respiratory Protective device…) with accurate safety factor.

After calculation, Risk Characterisation Ratio (RCR) must be below than 1 for safe operating conditions. For more information see extended safety data sheet.

PERSONAL PROTECTIVE EQUIPMENT

The GES for trizinc bis(orthophosphate) production mentions the following in this respect:

- Wearing of gloves and protective clothing is compulsory (efficiency >=90%).
- With normal handling, no respiratory personal protection (breathing apparatus) is necessary. If risk for exceedance of OEL/DNEL, use e.g.:
  - dust filter-half mask P1 (efficiency 75%)
  - dust filter-half mask P2 (efficiency 90%)
  - dust filter-half mask P3 (efficiency 95%)
  - dust filter-full mask P1 (efficiency 75%)
  - dust filter-full mask P2 (efficiency 90 %)
  - dust filter-full mask P3 (efficiency 97.5%)
- Eyes: safety glasses are optional
- Information-training of the workers and their staff and line managers focused on careful hygiene behaviour.

Respiratory protection : adapted dust mask while handling the powder (for example FFP2). If possible, use a full face piece mask (upper permitted limits) when dust occurs.

Hand protection : use gloves during handling.

Eye protection : safety glasses with side shields (for example EN166).

Skin protection : Wear appropriate clothing to avoid any contact with skin.

Clothing: Employee must wear appropriate protective (impervious) clothing and equipment to prevent from any possibility of skin contact with this substance,

Other protective equipment/recommendations : observe good personal hygiene. Keep away from food stuff, drinks on the site. Wear appropriate working clothing.

ENVIRONMENT PROTECTIVE MEASURES

Avoid any dust generation. No data are available as to the Environment exposure. However, emissions have to conform to the authorised limits.

The GES for Zinc Phosphate can be used for KRONPHOS PZA (mixture containing 78% zinc phosphate "dangerous" with a non-hazardous substance). Production mentions the following in this respect:

- Local exhaust ventilation systems (generic LEC (84%) as worst case; higher efficiencies (90-95%) are usual,
- Cyclones/filters (for minimizing dust emissions) : efficiency: 70-90% (cyclones), 50-80% (dust filters), 85-95% (double stage, cassette filters),
- Process enclosure, especially in potentially dusty units,
- Dust control: dust and Zn in dust needs to be measured in the workplace air (static or individual) according to national regulations,
- Special care for the general establishment and maintenance of a clean working environment by e.g :
- Cleaning of process equipment and workshop,
- Storage of packaged Zn product in dedicated zones.

It is impervious to keep under control the zinc emissions of this product in the environment. If necessary an appropriate treatment device must be installed according to regulations.

Atmospheric emissions: ventilation systems must be appropriate for the level of performance required to control air emissions in accordance with current national requirements.

Water emissions: must be controlled to prevent contamination of public sewage, rivers, surface water according national and local regulations.

Soil emissions: Do not let this material to contaminate soils or ground.

PNECs for zinc

Environmental compartment	PNEC value for Zn
Freshwater	20.6* µg/L
Saltwater	6.1* µg/L
Freshwater sediment	117.8 mg/kg sediment dry weight**.
Saltwater sediment	56.5 mg/kg sediment dry weight**
Soil	35.6 mg/kg soil dry weight***.
STP	100 µg/L

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Physical state	: solid, fine powder
Appearance	: white powder
Odour	: odourless

Change in physical state

Dehydration	Melting	Decomposition
60 - 600° C	900° C	None as long as properly used.

Flash point	: not applicable	
Flammable properties	: not combustible, fire retardant	
Explosion risk	: not applicable	
Vapour pressure (20° C)	: not applicable	
Specific gravity	: 2.7 g/cm^3	ISO 787/10
Solubility (water 20° C)	: 0.03 g/l	
pH (20°C)	: 6 - 8	ISO 787/9
others information	: none	
Partition coefficient: n-octanol-water	: not applicable	

10. STABILITY AND REACTIVITY

Reactivity: unreactive with respect to materials commonly used in transport, handling and storage of industrial materials

Chemical stability: stable at room temperature and at temperatures up to A60°C (dehydration)

Possibility of hazardous reactions: None hazardous reactions if stored and handled in accordance

Conditions to avoid: Keep clear of acids and bases (solubility in these media), Prevent static electric sparks

Incompatible materials: No further relevant information available, excessive heat, sparks or open flame.

Hazardous decomposition products : no hazardous decomposition product in normal storage conditions.

11. TOXICOLOGICAL PROPERTIES

Acute toxicity:

LD_{50} mouse intraperitoneal: 522 mg/kg Zinc phosphate.

LD_{50} oral (rat): > 5 000 mg/kg Zinc phosphate,
>2 000 mg/kg Aluminium Phosphate (OECD 420 Bradshaw J 2010).

LC_{50} Inhalation Dusts and mists: >5.7 mg/L 4H (Klimisch and all 1982) based on cross-reading from zinc oxide
LC_{50} Aluminium Phosphate: Acute inhalation 5100 mg/m^3 (read across from Aluminium tris(dihydrogen phosphate).

Additional information:

With LD50 values consistently exceeding 2,000 mg/kg bw, slightly soluble compounds such as, zinc phosphate (LD50 is > 5,000) show low level of acute oral toxicity, not leading to classification for acute oral toxicity.

Trizinc bis(orthophosphate) (based on cross-reading from zinc oxide) is of low acute inhalation toxicity (i.e., LC50 values of > 5.7 mg/L/4hrs), not leading to classification for acute inhalation toxicity.

Primary irritant effect:

Skin: not irritant **Zinc phosphate** (based on cross-reading from ZnO : Löser, 1977; Lansdown, 1991), **Aluminium Phosphate**, (UE Guideline Testing of Chemicals B46 Warren N 2010), non-Corrosive (OECD 431 Skin Corrosion Warren N 2010)

Eyes: not irritant **Zinc phosphate** (Mirbeau & all 1999),
Aluminium Phosphate (OECD 405 Bradshaw 2010)

Respiratory tract: not irritant (based on cross-reading from ZnO: Klimish et al, 1982)

Sensitization: No sensitizing effects known: **Zinc phosphate** (based on cross-reading from ZnO: Van Huygevoort, 1999 g,h), **Aluminium Phosphate** (OECD 429 Bradshaw 2012)

Repeated dose toxicity:

- **Specific target organ toxicity (single exposure):**
  No experimental or epidemiological sufficient evidence for specific target organ toxicity (single exposure) (based on cross-reading from ZnO) ; no classification for target organ toxicity (single exposure: STOT-SE required) (Heydon and Kagan, 1990; Gordon et al., 1992; Mueller and Seger, 1985 [Cited in Chemical Safety report (CSR) Trizinc bis(orthophosphate). 2010]).

- **Specific target organ toxicity (repeated exposure):**
  No experimental or epidemiological sufficient evidence for specific target organ toxicity (repeated exposure) (based on cross-reading from ZnO) ; no classification for specific target organ toxicity (repeated exposure: STOT-RE required) (Lam et al, 1985, 1988; Conner et al. ,1988 [Cited in Chemical Safety report (CSR) Trizinc bis(orthophosphate).

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  10]).
  Aluminium Phosphate (oral), No adverse effect observed NOAEL: 323 mg/kg bw/day (subchronic: Dog) (CSR Aluminium Orthophosphate 2013).

- **Aspiration hazard:** Not available

Carcinogenicity, Germ cell mutagenicity, Reproductive toxicity (CMR): No further experimental or epidemiological evidence available

- **Carcinogenicity**
  No experimental or epidemiological evidence exists to justify classification of zinc compounds for carcinogenic activity (based on cross-reading between Zn compounds); no classification for carcinogenicity required (Chemical Safety report (CSR) Trizinc bis(orthophosphate). 2010),
  Aluminium Phosphate, No relevant information available (CSR Aluminium Orthophosphate 2013).

- **Germ cell mutagenicity**
  No biologically relevant genotoxicity activity: based on cross-reading between Zn compounds; no classification for mutagenicity required (Chemical Safety report (CSR) Trizinc bis(orthophosphate). 2010), Aluminium Phosphate, No adverse, in vitro/in vivo, effect observed (CSR Aluminium Orthophosphate 2013).

- **Reproductive toxicity**
  No experimental or epidemiological evidence exists to justify classification of zinc compounds for reproductive or developmental toxicity (based on cross-reading between Zn compounds); no classification for reproductive toxicity required (Chemical Safety report (CSR) Trizinc bis(orthophosphate). 2010)
  Aluminium Phosphate, (CSR Aluminium Orthophosphate 2013).Further, in an expert review (2) of the data relating to the health effects of Aluminium (from different sources), no studies were located regarding reproductive effects in humans following acute, sub-chronic or chronic inhalation exposure to various forms of Aluminium. In addition there were no data to suggest that Aluminium is a development toxicant either.

This product is not hazardous for the human being when used properly.

12. ECOLOGICAL INFORMATION

Aluminium orthophosphate is not considered to pose a risk to the environment and as such are neither classified as harmful nor dangerous to the environment, in accordance with Regulation (EC) No. 1272/2008 (EU CLP).

Zinc Acute aquatic toxicity

The Acute aquatic toxicity database on zinc contains data on 11 standard species obtained under standard testing conditions at different pH and hardness. The full analysis of these data is given in the CSR.

The reference values for acute aquatic toxicity, based on the lowest observed EC_{50} values of the corresponding

databases at different pH and expressed as Zn^{2+} ion concentration are:

Acute toxicity for fish (Oncorhynchus mykiss) as zinc	**LC_{50}** (96 h)	0.14 – 2.6 mg Zn^{2+}/l.
Acute toxicity for crustacea (Ceriodaphnia dubia) as zinc	**EC_{50}** (48 h)	0.413 mg Zn^{2+}/l. for pH <7

(48 hr Ceriodaphnia dubia test according to US EPA 821-R-02-012 standard test protocol reference: Hyne et al 2005) Acute toxicity for algae (Selenastrum capricornutum) as zinc **EC_{50}** (72 h) 0.136– 0.150 mg Zn^{2+}/l. (=Pseudokircherniella subcapitata) test according to OECD 201 standard protocol; reference: Van Ginneken, 1994)

Zinc Phosphate M Factor for this product is 1 for an equivalent LC_{50} [0.1-1.0]mg/l (GHS or 1272/2008/EC regulation).

Zinc Chronic aquatic toxicity:

Freshwater: The chronic aquatic toxicity database on zinc contains high quality chronic NOEC/EC_{10} values on 23 species (8 taxonomic groups) obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as Zn^{2+} ion concentration). This PNEC is an added value, i.e. it is to be added to the zinc background in water, see table above.

Marine water: The chronic aquatic toxicity database on zinc contains high quality chronic NOEC/EC_{10} values on 39 species (9 taxonomic groups) obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as Zn^{2+} ion

concentration). This PNEC is an added value, to be added on the zinc background in water, see table above.

Zinc Sediment toxicity: The chronic toxicity of zinc to sediment organisms in the freshwater was assessed based on a database containing high quality chronic NOEC/EC_{10} values on 7 benthic species obtained under a variety of conditions. These data, outlined in the zinc phosphate CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as total Zn contained in the sediment). This PNEC is an added value, to be added on the zinc background in the sediment, see table below. For the marine sediments, a PNEC was derived using the equilibrium partitioning approach, see table above.

Zinc Soil toxicity: The chronic toxicity of zinc to soil organisms was assessed based on a database containing high quality chronic NOEC/EC_{10} values on 18 plant species, 8 invertebrate species and 17 microbial processes, obtained under a variety of conditions. These data, outlined in the zinc phosphate CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as total Zn contained in the soil). This PNEC is an added value, to be added on the zinc background in the soil, see table above.

Zinc Toxicity to micro-organisms in STP: The PNEC for STP was derived by applying an assessment factor to the lowest relevant toxicity value: 5.2 mg Zn/l (Dutka et al., 1983).

Zinc Persistence and biodegradability: Zinc is an element, and as such the criterion “persistence” is not relevant for the metal and its inorganic compounds in a way as it is applied to organic substances. An analysis on the removal of zinc from the water column has been presented as a surrogate for persistence. The rapid removal of zinc from the water column is documented in the zinc phosphate CSR. So, zinc and zinc compounds do not meet this criterion, neither.

Zinc Behaviour in the environmental compartments

Bioaccumulative potential: Zinc is a natural, essential element, which is needed for the optimal growth and development of all living organisms, including man. All living organisms have homeostasis mechanisms that actively regulate zinc uptake and absorption/excretion from the body; due to this regulation, zinc and zinc compounds do not bioaccumulate or biomagnify.

Mobility in soils: For zinc (like for other metals) the transport and distribution over the different environmental compartments e.g. the water (dissolved fraction, fraction bound to suspended matter), soil (fraction bound or complexed to the soil particles, fraction in the soil pore water,...) is described and quantified by the metal partition coefficients between these different fractions. In the CSR, a solids-water partitioning coefficient of 158.5 l/kg (log value 2.2) was applied for zinc in soils (CSR zinc 2010).

Results of PBT and vPvB assessment: Aluminium Orthophosphate and zinc phosphate are not PBT or vPvB.

Others lasting effects: No further relevant information available

13. DISPOSAL CONSIDERATIONS

Methods of waste treatment:

Material : Reduce as possible the amount of waste containing this product. It is possible that contaminated waste may meet with the criteria of hazardous waste. Dispose in accordance with local environmental regulations.

* this product does not meet the definition of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Contaminated package and containers : empty bags can be either destroyed, or recycled according to the international norms that apply. Spoiled and unclean packaging is regulated by the ADR/IMDG regulation.

14. TRANSPORT INFORMATION

ADR : UN 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MIXTURE CONTAINING 75% OF ZINC PHOSPHATE), 9, III, (E)

IMDG : UN 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MIXTURE CONTAINING 75% OF ZINC PHOSPHATE), 9, III, MARINE POLLUTANT FS: F-A, S-F

IATA : UN 3077, Environmentally hazardous substance, solid, n.o.s. (Mixture containing 75% of zinc phosphate), 9, III

Packing instruction: Y956 for limited quantity if gross weight < 30 kg Gross and inner package <5kg, or 956 (full IATA requirements).

15. REGULATORY INFORMATION

15.1 Labelling according 1272/2008/EC (CLP –GHS):

Hazard pictogram:

WARNING

EINECS: 231-944-3 **CAS N°**: 7779-90-0 **Annex VI Index N°**: 030-011-00-6

Hazard statements:	**H410**	Very toxic to aquatic life with long lasting effects.
Prevention:	**P273**	Avoid release to the environment.
Response:	**P391**	Collect spillage
Disposal:	**P501**	Dispose of contents/ containers to be collected by a licensed contractor in accordance with national and local regulations.

15.2 Labelling according 67/548/EEC:
This product is subjected to labelling in accordance with the 67/548/EEC and 1999/45/EC directives. The substance Zinc Phosphate is quoted in the corrigendum to 2004/73/EC of 29 April 2004 adapting to technical progress for the 29th time Council Directive 67/548/EEC.

Symbol of danger :

Dangerous for the environment.

N
R50/53

EC phrases:

R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S60 : This material and its containers must be disposed of as hazardous waste.
S61 : Avoid release to the environment. Refer to special instructions / safety data sheets.

Chemical safety assessment: Chemical safety report was performed for the substances contained in the mixture: Zinc Phosphate and Aluminium Orthophosphate (see chapter 16)

- **TOTAL LEAD** : < 0.1 %
- **SOLUBLE LEAD (HCl 0,07 N)** : < 0.1 %

UE :

Important phrases (according 1272/2008/UE) H400: Very toxic to aquatic life
H410: Very toxic to aquatic life with long lasting effects.

Important phrases (according 1999/45/CE directive)
R50/53: Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

EUROPEAN LABELLING:

Labelling inherent in the use of this compound in mixture (regulation CLP/ GHS 1272/2008/EC)
Classification of Zinc Phosphate substance: Acute and chronic aquatic very toxic Category 1. **M** factor = 1

The mixture containing this product is classified in different categories according the following the calculation concentration rules:

- **Labelling category 1:**  ***GHS Label 09 + Warning***

  Hazard*:* **H410** Precautionary: P273 + P391 + P501
  when the concentration of zinc phosphate will exceed 25% in formulation (excluding any addition of other aquatic hazardous material) ***or*** *according the formula:*
  *[Σ (**M** x Concentration Chronic Category 1]) □ 25%:*
  H410 *if KRONPHOS PZA is the unique material labelled H410*

- **Labelling category 2:**  ***GHS Label 09***

  Hazard*:* **H411** Precautionary: P273 + P391 + P501
  when the concentration of zinc phosphate will be include in the range between 2,5%□ x <25% (excluding any addition of other aquatic hazardous material) ***or*** *according the formula:*
  *[Σ (**M** x 10 x Concentration Chronic Category 1) + Σ Concentration Chronic Category 2] ≥ 25%*
  H411 *if KRONPHOS PZA is the unique material labelled H410*

- **Labelling category 3:** Hazard*:* **H412** Precautionary: P273 + P501

when the concentration of zinc phosphate will be include in the range between 0.25%□ x <2.5% (excluding any addition of other aquatic hazardous material) ***or*** *according the formula:*
[Σ (M x 100 x Chronic Category 1) + Σ (10 x Chronic Category 2) + Σ Chronic Category 3] ≥ 25%
H412 *if KRONPHOS PZA is the unique material labelled H410*

EC storage: KRONPHOS PZA storage is likely to be regulated by the SEVESO II and III directives; it would be

16. FURTHER INFORMATION

considered as a very dangerous product for the aquatic environment.

Numerous uses were identified for **zinc phosphate $Zn_3(PO_4)_2$, $4H_2O$**. These are listed in table below.
Recommended uses by the SNCZ for downstream channel are in the e-SDS

Identified uses for $Zn_3(PO_4)_2$,$4H_2O$ may be use for KRONPHOS PZA (mixture with zinc phosphate dangerous 78% and an additive non hazardous 22%) and corresponding Generic Exposure Scenario (GES) of zinc phosphate:
IU: 10 Laboratory reagent; **GES code: 3**
IU: 14 Component for production of Coatings / paints, inks, enamels, varnishes; **GES code: 1**
IU: 15-16 Use of $Zn_3(PO_4)_2$ containing paints & coatings; **GES code: 7**, and Generic consumer/environment*****
***** corresponds to “GES 8” in IUCLID

Aluminium orthophosphate is not classified and as such no exposure assessment or risk characterisation is required.

GERMANY :

Wassergefäfrdungsklasse WGK (VwVwS) : WGK 2 – water pollutant – in accordance with annex 3, German VwVwS.

USA :

- Cercla Hazard Rating (scale 0-3) :

* $Zn_3(PO_4)_2$, $4H_2O$ Toxicity 2 - Flammability 0 - Reactivity 0 - Persistence 3
* $AlPO_4$ Toxicity U - Flammability 0 - Reactivity 0 - Persistence 3

- **RTECS n°**: TD 0590000 - TB 645 000 (Register of Toxical Effects of Chemical Substances).
- Substances listed in the Toxic Substances Control Act Inventory (TSCA) (USA).
- HMIS Rating : H = 0 - F = 0 - PH = 0.

HMIS III : The HMIS III ratings are from the HMIS Third Edition. There have been significant changes made to the system. "PH" stands for "Physical Hazard" as defined in the OSHA Haz Com Standard and replaces the former code "R" for "Reactivity". For a more detailed explanation of the system and the ratings, please contact our Offices at INT = 33 1 30 40 57 57.

International status of the product
:

- **Australia** : Listed in the AICS.
- **Canada** : Domestic Substance List (DSL).
- **Europ (EC)**: EINECS registered substances.
  A This product meets with RoHS 2 directive (2015/863/UE) for Lead, Cadmium, hexavalent Chromium, Mercury, Diphenylethers Polybrominated, Polybromated Biphenyls and Phtalates: DEHP, BBP, DBP, DIBP.
  This product complies with directive ELV (End Life of Vehicles) 2000/53/EC
- **Japan** : Listed in the MITI.
- **USA** : TSCA registered