SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	:	Substance
EC index no	:	030-011-00-6
EC no	:	231-944-3
CAS No	:	7779-90-0
REACH registration No	:	01-2119485044-40-0005
Product code	:	D2, D4, D2M
Formula	:	Zn3(PO4)2
Synonyms	:	C.I. 77964 / C.I. pigment white 32 / Delaphos 2 (D2) / Delaphos 2M (D2M) / Delaphos 4 (D4) / pigment white 32 / zinc acid phosphate / zinc orthophosphate / zinc(II) phosphate
BIG no	:	28472

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

1.2.1. Relevant identified uses

Main use category	:	Industrial use,Professional use
Industrial/Professional use spec	:	Industrial For professional use only
Use of the substance/mixture	:	Use in the manufacture of anti-corrosive coatings.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

JPE Holdings Ltd,
The Lodge
Warstone Road
Essington
Wolverhampton
WV11 2AR
United Kingdom

Telephone +44 (0) 1922 475055
Fax +44 (0) 1922 477354
E-mail stevebirch@delaphos.co.uk

1.4. Emergency telephone number

Emergency number : +44 (0) 1922 475055

Country	Organisation/Company	Address	Emergency number
IRELAND (REPUBLIC OF)	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	: +353 1 8379964
UNITED KINGDOM	National Poisons Information Service (NHS Direct)	http://www.npis.org	111 (England & Wales only) or 112 (EU) or 08454 24 24 24 (Scotland)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Aquatic Acute 1 H400

Aquatic Chronic 1 H410

Full text of H-statements: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

N; R50/53

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS09

Signal word (CLP) : Warning

Hazard statements (CLP) : H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (CLP) : P273 - Avoid release to the environment
P391 - Collect spillage
P501 - Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste

Listed in Annex VI : EC index no : 030-011-00-6

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Name : trizinc bis(orthophosphate)

CAS No : 7779-90-0

EC no : 231-944-3

EC index no : 030-011-00-6

Name	Product identifier	%	Classification according to Directive 67/548/EEC
trizinc bis(orthophosphate)	(CAS No) 7779-90-0 (EC no) 231-944-3 (EC index no) 030-011-00-6 (REACH-no) 01-2119485044-40-0005	> 99	N; R50/53

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
trizinc bis(orthophosphate)	(CAS No) 7779-90-0 (EC no) 231-944-3 (EC index no) 030-011-00-6 (REACH-no) 01-2119485044-40-0005	> 99	Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of R- and H-statements: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Allow breathing of fresh air. Allow the victim to rest.

First-aid measures after skin contact : Rinse with water. Soap may be used. Take victim to a doctor if irritation persists. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse with water. Take victim to an ophthalmologist if irritation persists. Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Immediately call a POISON CENTER or doctor/physician. Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Victim is fully conscious: immediately induce vomiting. Consult a doctor/medical service if you feel unwell. Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries	:	Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/injuries after inhalation	:	No effects known.
Symptoms/injuries after skin contact	:	No effects known.
Symptoms/injuries after eye contact	:	No effects known.
Symptoms/injuries after ingestion	:	No effects known.
Chronic symptoms	:	No effects known.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	:	No unsuitable extinguishing media known. Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	Non combustible.
Explosion hazard	:	No direct explosion hazard.
Hazardous decomposition products in case of fire	:	Fumes. Phosphorus oxides. Zinc oxide.

5.3. Advice for firefighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	:	Dilute toxic gases with water spray. Use water moderately and if possible collect or contain it. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting	:	Heat/fire exposure: compressed air/oxygen apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	:	Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. See "Material-Handling" to select protective clothing.
Emergency procedures	:	Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Evacuate unnecessary personnel.
Measures in case of dust release	:	In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment	:	Equip cleanup crew with proper protection.
Emergency procedures	:	Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers. Prevent entry to sewers and public waters. Notify authorities if substance enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	:	Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray.
Methods for cleaning up	:	Stop dust cloud by humidifying with water. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Comply with the legal requirements. Do not discharge the waste into the drain. Avoid raising dust. Keep away from naked flames/heat. Observe normal hygiene standards. Keep container tightly closed. Carry out operations in the open/under local exhaust/ventilation or with respiratory protection. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use. Keep only in the original container in a cool, well ventilated place away from : Direct sunlight, Heat and ignition sources.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Prohibitions on mixed storage : No data available.

Storage area : Store in a dry area. Meet the legal requirements.

Special rules on packaging : closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : wood. polyethylene. glass.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Zinc Phosphate (7779-90-0)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	83 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	5 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0,83 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	2,5 mg/m³
Long-term - systemic effects, dermal	83 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	20,6 µg/L
PNEC aqua (marine water)	6,1 µg/L
PNEC (Sediment)	
PNEC sediment (freshwater)	117,8 mg/kg dwt
PNEC sediment (marine water)	56,5 mg/kg dwt
PNEC (Soil)	
PNEC soil	35,6 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	No potential for bioaccumulation
PNEC (STP)	
PNEC sewage treatment plant	52 µg/L

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation.

Personal protective equipment : Protective clothing. Protective goggles. Gloves.

Materials for protective clothing	:	GIVE GOOD RESISTANCE: PVC. butyl rubber
Hand protection	:	Gloves. Wear protective gloves
Eye protection	:	Safety glasses. In case of dust production: protective goggles. Chemical goggles or safety glasses
Skin and body protection	:	Protective clothing
Respiratory protection	:	Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Dust/aerosol mask with filter type P1. Dust/aerosol mask with filter type P2. Dust/aerosol mask with filter type P3

Other information	:	Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Powder. Granular powder.
Molecular mass	:	386,05 g/mol
Colour	:	White. yellowish.
Odour	:	Odourless.
Odour threshold	:	No data available
pH	:	6 - 8 DIN ISO 787 Part 9
pH solution	:	100 g/l
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	912 °C
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Non flammable
Vapour pressure	:	< 0,1 hPa
Relative vapour density at 20 °C	:	No data available
Relative density	:	4,0
Density	:	1,1 g/cm³
Solubility	:	Insoluble in water. Substance sinks in water. Soluble in ammonium hydroxide. Soluble in acids. Water: < 0,1 % (20°C) DIN ISO 787 Part 3
Log Pow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	Product is not explosive.
Oxidising properties	:	Non oxidizing material according to EC criteria.
Explosive limits	:	No data available

9.2. Other information

VOC content	:	Not applicable
Other properties	:	Substance has neutral reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (phosphorus oxides).

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Thermal decomposition generates : Corrosive vapours. Phosphorous oxides (e.g. P2O5). Fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Zinc Phosphate (7779-90-0)	
LD50 oral rat	> 5000 mg/kg bodyweight (Rat; OECD 401: Acute Oral Toxicity; Experimental value)

Skin corrosion/irritation : Not classified
Based on available data, the classification criteria are not met
pH: 6 - 8 DIN ISO 787 Part 9

Serious eye damage/irritation : Not classified
Based on available data, the classification criteria are not met
pH: 6 - 8 DIN ISO 787 Part 9

Respiratory or skin sensitisation : Not classified
Based on available data, the classification criteria are not met

Germ cell mutagenicity : Not classified
Based on available data, the classification criteria are not met

Carcinogenicity : Not classified
Based on available data, the classification criteria are not met

Reproductive toxicity : Not classified
Based on available data, the classification criteria are not met

Specific target organ toxicity (single exposure) : Not classified
Based on available data, the classification criteria are not met

Specific target organ toxicity (repeated exposure) : Not classified
Based on available data, the classification criteria are not met

Aspiration hazard : Not classified
Based on available data, the classification criteria are not met

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Dangerous for the environment.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.1.

Ecology - water : Ground water pollutant. Highly toxic to fishes. Very toxic to invertebrates (Daphnia). Highly toxic to algae. May cause eutrophication. Inhibition of activated sludge. Very toxic to aquatic life with long lasting effects.

Zinc Phosphate (7779-90-0)	
LC50 fish 1	0,14 - 0,26 mg/l (96 h; Oncorhynchus mykiss; Nominal concentration Zn2+/L)
EC50 Daphnia 1	0,04 - 0,86 mg/l (48 h; Daphnia magna; Nominal concentration Zn2+/L)
EC50 other aquatic organisms 1	0,136 - 0,15 mg/l (72 h; algae - Selenastrum capriocornutum; Nominal concentration Zn2+/L)
Threshold limit algae 1	0,136 mg/l (72 h; Selenastrum capricornutum; GLP)

Zinc Phosphate (7779-90-0)	
Threshold limit algae 2	0,024 mg/l (3 days; Selenastrum capricornutum; GLP)

12.2. Persistence and degradability

Zinc Phosphate (7779-90-0)	
Persistence and degradability	Biodegradability: Not applicable. Adsorbs into the soil. May cause long-term adverse effects in the environment.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

Zinc Phosphate (7779-90-0)	
Bioaccumulative potential	No data available.

12.4. Mobility in soil

Zinc Phosphate (7779-90-0)	
Ecology - soil	No data available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Additional information : LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 3077

UN-No. (IMDG) : 3077

UN-No. (IATA) : 3077

UN-No. (ADN) : 3077

UN-No. (RID) : 3077

14.2. UN proper shipping name

Proper Shipping Name (ADR) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Proper Shipping Name (IATA) : Environmentally hazardous substance, solid, n.o.s.

Proper Shipping Name (ADN) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Proper Shipping Name (RID) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Transport document description (ADR) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trizinc bis(orthophosphate)(7779-90-0)), 9, III, (E)

Transport document description (IMDG) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 9

Danger labels (ADR) : 9

: 

IMDG

Transport hazard class(es) (IMDG) : 9

Danger labels (IMDG) : 9

: 

IATA

Transport hazard class(es) (IATA) : 9

Hazard labels (IATA) : 9

: 

ADN

Transport hazard class(es) (ADN) : 9

Danger labels (ADN) : 9

: 

RID

Transport hazard class(es) (RID) : 9

Danger labels (RID) : 9

: 

14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information : No supplementary information available

14.6. Special precautions for user

14.6.1. Overland transport

Classification code (ADR)	:	M7
Special provisions (ADR)	:	274, 335, 601
Limited quantities (ADR)	:	5kg
Excepted quantities (ADR)	:	E1
Packing instructions (ADR)	:	P002, IBC08, LP02, R001
Special packing provisions (ADR)	:	PP12, B3
Mixed packing provisions (ADR)	:	MP10
Portable tank and bulk container instructions (ADR)	:	T1, BK1, BK2
Portable tank and bulk container special provisions (ADR)	:	TP33
Tank code (ADR)	:	SGAV, LGBV
Vehicle for tank carriage	:	AT
Transport category (ADR)	:	3
Special provisions for carriage - Packages (ADR)	:	V13
Special provisions for carriage - Bulk (ADR)	:	VV1
Special provisions for carriage - Loading, unloading and handling (ADR)	:	CV13
Hazard identification number (Kemler No.)	:	90
Orange plates	:	
Tunnel restriction code (ADR)	:	E
EAC code	:	2Z

14.6.2. Transport by sea

Transport regulations (IMDG)	:	Subject
Special provisions (IMDG)	:	274, 335, 966, 967
Limited quantities (IMDG)	:	5 kg
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	P002, LP02
Special packing provisions (IMDG)	:	PP12
IBC packing instructions (IMDG)	:	IBC08
IBC special provisions (IMDG)	:	B3
Tank instructions (IMDG)	:	T1, BK1, BK2, BK3
Tank special provisions (IMDG)	:	TP33
EmS-No. (Fire)	:	F-A
EmS-No. (Spillage)	:	S-F
Stowage category (IMDG)	:	A

14.6.3. Air transport

Transport regulations (IATA)	:	Subject to the provisions
PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y956
PCA limited quantity max net quantity (IATA)	:	30kgG
PCA packing instructions (IATA)	:	956
PCA max net quantity (IATA)	:	400kg
CAO packing instructions (IATA)	:	956
CAO max net quantity (IATA)	:	400kg
Special provisions (IATA)	:	A97, A158, A179
ERG code (IATA)	:	9L

14.6.4. Inland waterway transport

Classification code (ADN)	:	M7
Special provisions (ADN)	:	274, 335, 61
Limited quantities (ADN)	:	5 kg
Excepted quantities (ADN)	:	E1
Carriage permitted (ADN)	:	T* B**
Equipment required (ADN)	:	PP, A
Number of blue cones/lights (ADN)	:	0
Additional requirements/Remarks (ADN)	:	* Only in the molten state. ** For carriage in bulk see also 7.1.4.1. ** * Only in the case of transport in bulk.
Carriage prohibited (ADN)	:	No
Not subject to ADN	:	No

14.6.5. Rail transport

Transport regulations (RID)	:	Subject
Classification code (RID)	:	M7
Special provisions (RID)	:	274, 335, 601
Limited quantities (RID)	:	5kg
Excepted quantities (RID)	:	E1
Packing instructions (RID)	:	P002, IBC08, LP02, R001
Special packing provisions (RID)	:	PP12, B3
Mixed packing provisions (RID)	:	MP10
Portable tank and bulk container instructions (RID)	:	T1, BK1, BK2
Portable tank and bulk container special provisions (RID)	:	TP33
Tank codes for RID tanks (RID)	:	SGAV, LGBV
Transport category (RID)	:	3
Special provisions for carriage – Packages (RID)	:	W13
Special provisions for carriage – Bulk (RID)	:	VW1
Special provisions for carriage - Loading, unloading and handling (RID)	:	CW13, CW31
Colis express (express parcels) (RID)	:	CE11
Hazard identification number (RID)	:	90
Carriage prohibited (RID)	:	No

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:	
3.c. Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1	Zinc Phosphate

Zinc Phosphate is not on the REACH Candidate List

Zinc Phosphate is not on the REACH Annex XIV List

VOC content : Not applicable

15.1.2. National regulations

Germany

Water hazard class (WGK)	:	2 - hazard to waters
WGK remark	:	Classification based on the R-phrases in compliance withVerwaltungsvorschrift wassergefährdender Stoffe (VwVwS)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of R-, H- and EUH-statements:	
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
N	Dangerous for the environment

SDS EU_NSC

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.