

SURFACE TREATMENT

DSF 1.4.4 - Zinc Phosphate

Definition:

Phosphate coatings are used as a pre-treatment for paint bonding, to aid with cold forming, and to improve corrosion resistance in conjunction with supplementary treatments. Generally, the method for specifying phosphate coatings is by expressing the coatings requirements as a coating weight in either g/m² or mg/ft².

Components that are high tensile or have been heat treated to certain hardness may require stress relieving before phosphating and baking after phosphating for the relief of hydrogen embrittlement.

Information to be provided to the Surface Treatment Supplier:

- Material grade and condition (Hardness, UTS).
- Any Areas that must not be used as contact point for jiggling/wiring. (Must be specified on drawing).
- Any special packing requirements. – Oil paper then enclosed protective packaging.

Finish Definition:

- Fe – Chemical symbol of base material. - Designation of basis material by means of the material chemical symbol (i.e. the symbol of the primary alloy component).
- Znph – Zinc Phosphate (No Calcium).
- R – Adhesion promoter and /or corrosion protection.
- 5 – Coating Mass 5g/m².
- T4 – Application of oil.

Default Coating Finish (BS EN) ISO 9717:

- Phosphate Coating ISO 9717 – Fe/Znph/r/5/T4

Alternative Acceptable Finish:

- AMS 03-11 – Class II – 5g/m² (Coating Weight) – Oil Finish

Coating Options:

Alternative Coating parameters are permitted but must be specified on the drawing.

An example of MSDS sheet follows on.

Issue	01	02	03	04	05	06	07	08
Date	16/12/21							

SAFETY DATA SHEET (SDS)

ZINC PHOSPHATE

According to Regulation (EC) 1907/2006 and 453/2010

Version 1.0 - Revision Date 10.09.2012

SECTION 1 – IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product Identifiers

Product Name: Zinc Phosphate
Chemical name: Trizinc bis (orthophosphate)
CAS Number: 7779-90-0
Chemical formula: $\text{Zn}_3(\text{PO}_4)_2$
EINECS Number: 231-944-3
EC Number: 231-944-3
Index Number: 030-011-6

This Safety Data Sheet covers the supply of zinc phosphate, zinc phosphate dihydrate, zinc phosphate tetrahydrate and mixtures of these substances

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

Supplier: NUMINOR CHEMICAL INDUSTRIES LTD.

Address: P. O. BOX 92,
MAALOT 24952,
ISRAEL.

Tel: + 972-4-9978220
Fax: + 972-4-9976062
E-Mail: zinc@numinor.com
Web Site: www.numinor.com
Emergency Contact: Mr. Alan Kantor
+ 972-4-9978220
+ 972-54-7606673

Primary Use: Use in the manufacture of anti-corrosive coatings.

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Classification according to Regulation (EC) 1272/2008 (EU 'CLP' regulation) and GHS.

Acute aquatic toxicity (category 1)

Chronic aquatic toxicity (category 1)

Hazard Statement Codes

Hazard Statements:

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

P273 Avoid release to the aquatic environment

P391 Collect spillage

P501 Dispose of contents/containers as hazardous waste in accordance with applicable legislation (state the applicable legislation)

Classification according to EU Directive 67/548/EEC

R-phrase:

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S – Phrase

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

2.2 Label Elements

Labelling according to regulation (EC)1272/2008

GHS Pictogram:



GHS 09

Signal Word:

Danger

Labeling according to Directive 67/548

Hazard Symbol



N

Other Hazards

None

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

This material is a substance

CHEMICAL NAME	CAS NUMBER	EC NUMBER	INDEX NUMBER	CONCENTRATION
Zinc Phosphate	7779-90-0	231-944-3	030-011-00-6	>99%

SECTION 4 - FIRST AID MEASURES

General Advice

Remove from source of exposure

Although this material is not classified as hazardous to health, exposure of first aiders should be minimized, particularly inhalation of dust and fumes. In any case of feeling unwell, consult a physician and showing him this MSDS.

Inhalation

Move person to fresh air. If person experiences irritation or difficulty breathing, or feeling unwell seek medical advice. If not breathing or if breathing is difficult apply artificial respiration

Ingestion

Immediately rinse mouth with water. Give large quantities of water to drink, seek medical advice. If unconscious, never give a person to drink. Do not induce vomiting!

Skin contact

Wash immediately with plenty of water and soap, and then rinse thoroughly with water

Eye contact

Rinse immediately with clean water for at least 15 minutes. Keep eyelids open.
Remove immediately any contact lenses. In case of irritation seek medical advice.

Protection of rescue personnel

Avoid all unnecessary exposure. Use appropriate protection (see Section 9).

4.2 Most important symptoms and effects, both acute and delayed

To the best of our knowledge, no specific effects and/or symptoms have been reported or are known.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5 – FIRE, FIGHTING & EXPLOSION DATA

5.1 Extinguishing media

This material is not combustible. Use extinguishing media based on surrounding materials.

5.2 Special hazards arising from the substances or mixture

In fire, phosphorus oxides and zinc oxide may be formed.

5.3 Advice for fire fighters

Wear self-contained breathing apparatus.
Prevent fire-fighting water from entering watercourses, drains or the sewage system.
(environmental pollutant).

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

This material is not classified as hazardous to health but exposure should be minimised, particularly inhalation of dust. Do not undertake actions that will create airborne dust.
Avoid breathing dust. In case of significant airborne dust, wear a particle dust mask: P3, P2 or P1.
Evacuate people from area of spillage.

6.2 Environmental precautions

Do not allow to enter sewage system.
Do not allow to enter surface water drains
Do not allow to enter streams, rivers or any other waterways

Prevent soil contact.

Inform relevant authorities if the material does enter the above systems.

6.3 Methods and material for containment and cleaning up

Take up mechanically while minimise dust generation.

Collect spilled material in sealable containers.

Re-use/recycling of spilled material is highly recommended.

All contaminated materials from the cleaning-up operation must be disposed of as hazardous waste.

Do not wash residues from spillage to drain with water

6.4 Reference to any other sections:

See section 13 for disposal information

SECTION 7 - HANDLING AND STORAGE

7.1 Precautions for safe handling

Powder may be irritating to the skin or eyes by mechanical action. Dust may be irritating to the respiratory system. Minimise dust generation and exposure to dust. See section 8 for details of personal protective equipment

Clear up spillages immediately. Granules / pellets may present a slip hazard.

Follow good hygiene practices: do not eat, drink or smoke in the workplace. Wash hands after use. Remove contaminated clothing before entering eating and smoking areas.

7.2 Conditions for safe storage, including any incompatibilities

Keep in a dry place

Keep only in the original packaging or other sealable containers.

Keep away from acids and bases.

7.3 specific end use(s)

None identified

Handling & storing

Good housekeeping - store in a cool dry place - keep containers shut.

Avoid making dust.

Packing Materials

All materials suitable.

SECTION 8 - EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control parameters

The minimum level of control that should be undertaken is to comply with the UK occupational exposure limit for nuisance dust:

Workplace Exposure Limit: Inhalable nuisance dust 10 mg/m³ LTEL (8hr TWA)
Respirable nuisance dust 4 mg/m³ LTEL (8hr TWA)
Exposure should not exceed these levels

8.2 Exposure controls

Appropriate engineering controls

If the occupational exposure limit is likely to be exceeded use ventilation (natural or forced) or extraction to reduce exposure to below the limit.

Personal protective equipment

This material does not have hazardous chemical properties that require the use of specific personal protective equipment.

Normal occupational hygiene practices should be followed to minimise skin contact with the material. This includes the use of gloves and long sleeved clothing to prevent irritation by mechanical action.

To prevent eye irritation wear CEN approved box goggles, it is recommended not to wear contact upon application of the product.

If occupational exposure limits are exceeded use CEN approved dust masks with a filter type P1, P2 or P3. Dust masks must be used properly to be effective. Follow manufacturers instructions and also obtain specialist advice to select the correct filter type.

Occupational Exposure Limits

8 Hour TLV-TWA [mg/m³] 0.2 (Dust)
Engineering measures: Mechanical ventilation is recommended.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemicals properties:

Appearance:	White-yellowish solid (powder or granules)	
Odour:	Odourless.	
Odour threshold:	Not applicable	
pH:	6 – 8 (100g/l H ₂ O @20°C)	DIN ISO 787 Part 9
Melting point:	912 °C.	
Boiling point:	Not applicable (solid)	
Flash point:	Not flammable	
Evaporation rate:	Not applicable (solid)	
Flammability:	Not flammable	
Upper/lower flammability or explosive limits:	Not flammable	
Vapour pressure:	Not applicable (stable solid)	
Vapour density:	Not applicable (stable solid)	
Relative density:	Not applicable to form supplied	
Bulk density:	1.1 g/cm ³	
Solubility in water:	<0.1% (20°C)	DIN ISO 787 Part 3
Solubility in other ingredients:	Negligible.	
Partition coefficient		
Octanol/water:	Not applicable (essentially insoluble in water and octanol)	
Auto-ignition temperature:	Not flammable	
Decomposition temperature	Not available	
Viscosity	Not applicable (solid)	
Explosion properties:	Not explosive	DI 2263
Oxidising properties:	Not oxidising.	

9.2 Other information:

No additional data available

SECTION 10 - STABILITY & REACTIVITY DATA

10.1 Reactivity

Not reactive to materials commonly used in the transportation, handling and storage of industrial materials.

10.2 Chemical stability

Stable at room temperature and temperatures up to 90 °C

10.3 *Possibility of hazardous reactions*

None

10.4 *Conditions to avoid*

Keep away from acids and bases.

10.5 *Incompatible materials*

Acids and bases

10.6 *Hazardous decomposition products*

Phosphorus oxides and zinc oxides may be formed in a fire conditions.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 *Information on toxicological effects*

Acute toxicity:	Oral: LD 50 (rat): > 5000 mg / kg
Skin corrosion/irritation:	Not irritating (rabbit).
Serious eye damage/ eye irritation:	Not irritating (rabbit).
Respiratory or skin sensitization:	Not sensitising.
Germ cell mutagenicity:	No data available.
Carcinogenicity:	No evidence of carcinogenicity.
Reproductive toxicity:	No evidence of reproductive toxicity.
Specific target organ toxicity:	
– Single exposure:	No data available.
Specific target organ toxicity:	
– Repeated exposure:	No data available.
Aspiration hazard:	No data available.

Not classified as having any of these hazards according to the harmonised classification given in REGULATION (EC) No 1272/2008 and the first ATP.

SECTION 12 - ECOLOGICAL INFORMATION

12.1 *Toxicity*

Acute toxicity for fish (<i>Oncorhynchus mykiss</i>):	LC(50) (96h) 0.14-0.26 mg Zn ²⁺ /L
Acute toxicity for ctustacea (<i>Daphnia magna</i>):	EC(50) (48h) 0.04 – 0.86 mg Zn ²⁺ /L
Acute toxicity for algae (<i>Selenastrum capriocornutum</i>):	EC(50) (72h) 0.136 – 0.150 mg Zn ²⁺ /L

12.2 Persistence and biodegradability

Data not available.

12.3 Bioaccumulative potential

Data not available.

12.4 Mobility in soil

Data not available.

12.5 Results of PBT and vPvB assessment

Data not available.

12.6 Other adverse effects

Very toxic to aquatic life.

SECTION 13 - DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Dispose of as hazardous waste, to be treated in accordance with local regulations.
European waste code will depend upon the use of the material and cannot be specified here.

Packaging

Clean, uncontaminated packaging can be recycled.
Packaging contaminated with the product must be disposed of as hazardous waste.
and be treated according to local regulations

SECTION 14 - TRANSPORT INFORMATION

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code

		ADR/RID	ADNR	ADNR	IATA
14.1	UN number	3077	3077	3077	3077
14.2	UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (TRIZINC BIS ORTHOPHOSPHATE)			
14.3	Transport hazard class(s)	9	9	9 + MP	9
14.4	Packing group	III	III	III	III
14.5	Environmental hazards	yes	yes	Marine pollutant, Yes	yes
14.6	Special precautions for user	None identified			
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code				

SECTION 15 – REGULATORY INFORMATION

This Safety Data Sheet has been prepared in accordance with the requirements of regulation (EC) No 1907/2006 as amended by regulation (EU) No 453/2010.

The Workplace exposure Limit given in section 8 has been taken from the UK HSE document: EH40/2005 Workplace exposure limits as amended.

Relevant regulations:

Regulation (EC) 1272/2008 (EU 'CLP' regulation)

Regulation (EC) 790/2009 First Adaptation to Technical Progress (ATP) for CLP regulation

EU Directive 67/548/EEC ('Dangerous Substances Directive')

Regulation (EC) No 1907/2006 ('REACH')

Regulation (EU) No 453/2010.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
None identified

15.2 Chemical safety assessment
No data available

SECTION 16 - OTHER INFORMATION

Text of H-code(s) and R-phrases mentioned in Section 2

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 to environment

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Date of Issue: September 2010
Last update: September 2010
MSDS prepared by: Dr. A.R McMurray

ANNEX

The following exposure scenarios have been considered in the compilation of this SDS:

- 1) Use as a component in the production of coatings, paints, enamels or varnishes.
The substance may be converted to these products directly or it may be converted into an

intermediate that is further processed to produce the product.

These are industrial processes in which the following activities may take place:

- Removal of the substance from the packaging / supply container
- Transfer to a storage vessel and storage
- Transfer to a mixing vessel and mixing with other components (solid or liquid)
- Pellitising, sintering or pressing followed by direct use or transfer to a container for transport or supply (packaging).

Subsequent operations may include:

- High temperature processing including pressing, sintering, grinding, fritting or casting
- Low temperature processing including pressing and pellitising
- Transfer to a container for transport or supply (packaging).

2) **Use of a dispersion, paste or paint containing this substance.**

This is an industrial or professional process in which the following activities may take place:

- Reception/unpacking/opening of the container of material
- Application by spraying, coating or embedding.
- Disposal of waste / residual material