

## MATERIAL SAFETY DATA SHEET

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**SECTION 1 – CHEMICAL NATURE**

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**Product**Zinc Phosphide – 80 % (**RAT FREE**) Rodenticide/Fumigant**Chemical Name**

Zinc Phosphide

**Chemical Family**

Trizinc diphosphide

**Chemical Formula** $P_2Zn_3$ **Molecular Weight**

258.1

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**SECTION 2 – COMPOSITION, INFORMATION OF INGREDIENTS / COMPONENTS**

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	Percent Purity	CAS NO.
Zinc Phosphide	80% Min	1314-84-7
Other Ingredients	20%	

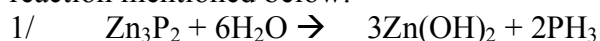
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**SECTION 3 – HAZARDOUS IDENTIFICATION INFORMATION**

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**3.1 Emergency Overview**

Product reacts with water to produce Phosphine. The product also contains ammonium carbamate, which decomposes to release ammonia, and carbon dioxide as detailed in the reaction mentioned below:



Keep out of reach of children.

**3.2 Potential Health Hazards:****Route of Entry**

The toxicity of magnesium phosphide through the dermal route is very low; the substance can be absorbed into the body by ingestion or by inhalation of powdered material or dust – Phosphine being very powerful respiratory poison.

Magnesium Phosphide has very high acute toxicity – both magnesium phosphide and Phosphine not causing chronic poisoning.

There have been no long-term studies on the effects of Phosphine or metal phosphide on animals or man and there are no data relating to mutagenicity, teratogenicity, or carcinogenicity

**3.3 Sign and Symptoms of exposure****Inhalation**

Abdominal pain, burning sensation, cough, dizziness, dullness, headache, laboured breathing. Nausea, sore throat

**Skin**

Very low possibility of exposure through skin

**Eyes**

Redness, Pain

**Ingestion**

Convulsions, diarrhoea, unconsciousness, vomiting

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**SECTION 4 – FIRST AID MEASURES**

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**When inhaled**

Remove the patient to fresh air and rest. Give artificial respiration if breathing has stopped. Do not give anything by mouth to an unconsciousness person. Refer to medical attention.

**When on skin**

Remove contaminated clothes. Rinse and then wash skin with water and soap.

**When Swallowed**

Rinse mouth. Induce vomiting (only if the person is conscious). Provide rest and refer to medical attention immediately.

**When in eyes**

Rinse eyes with plenty of water for several minutes (remove contact lenses if easily possible). Refer to medical attention.

**Antidote**

In the case of exposure to Phosphine, rapid recovery will usually occur when the patient is moved to fresh air. No specific antidote is known.

**Note to Physician**

Treatment should be symptomatic and supportive with particular attention to liver and kidney function.

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**SECTION 5 – FIRE FIGHTING MEASURES**

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**Flash Point**

Zinc Phosphide is not flammable by itself. However, when it reacts with water to produce Phosphine gas; the latter ignites spontaneously in air

**Flammability Limit**

The LEL for Phosphine is 1.8% v/v. UEL of Phosphine is not known

**Fire & Explosion Hazard**

Phosphine-air mixtures at concentrations above the LEL of 1.8% v/v ignite spontaneously. Ignition of high concentrations of Phosphine can produce a very energetic reaction, which can be injurious to body. Buildup of Phosphine to exceed explosive concentrations should NEVER be allowed.

Open the containers in open air only and never in flammable atmosphere. Used or partially used material should never be confined

**Extinguishing Instructions**

Suffocate the flames with inert material like sand, CO<sub>2</sub> or dry extinguishing material. DO NOT use water.

**Fire Fighting Equipment**

Wear MSHA/NIOSH approved self-contained breathing apparatus or similar protective gear. It is not necessary to wear gloves while handling the product however, it is advisable to wear dry gloves of cotton or other suitable material to prevent coming in contact with the product or its dusts.

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**SECTION 6 – ACCIDENTAL RELEASE MEASURES**

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Freshly spilled material which has not been contaminated by water / moisture / foreign material may be replaced into its original container; tightly close the container. If the spill is old and contaminated, collect the spillage in small open container and then take the same to a suitable and approved area for decontamination.

Small spillages can be spread out over the ground in open area for its natural decontamination by the atmospheric moisture.

Notify and consult with proper regulatory authorities.

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**SECTION 7 – HANDLING AND STORAGE**

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**Keep Out of Reach of Children**

Store in fireproof areas with provision to contain effluent from fire extinguisher. The storage should be in a dry, sealed, and properly lined drums; the area of storage and the product should be separated from food/feed stuff.

Keep the product dry and properly closed and sealed.

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**SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION  
ENGINEERING CONTROL**

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Local ventilation is generally adequate to reduce Phosphine levels in fumigated areas to below the TLV/TWA. Exhaust fans may be used to speed the aeration of the silos, warehouses, shiploads, containers etc.

**Personal Protective Equipments****Eye**

Preferable goggles

**Clothing**

Wear gloves, when contact with magnesium phosphide is likely to occur.

**Gloves**

Waterproof gloves.

**Respiratory**

NIOSH/MSHA approved facemasks with recommended canister for Phosphine may be worn. At levels of Phosphine higher than 15 ppm or when the concentration is unknown, NIOSH/MSHA approved self-contained breathing apparatus or equivalent must be worn.

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**SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES**

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**Physical Description**

Amorphous grey-black powder

**Chemical Formula**

$Zn_3P_2$

**Molecular weight**

258.1

**Melting Point**

420 °C

**Density**

4.55

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**SECTION 10 – STABILITY AND REACTIVITY CHEMICAL STABILITY**

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Stable to most of chemical reactions except for hydrolysis. Magnesium Phosphide will react with moist air, liquid water, acids and some other liquids to produce Phosphine, which is toxic and flammable. when dry but reacts with atmospheric moisture and violently with acids, producing Phosphine

**Conditions to Avoid**

Low temperatures and moisture/humidity

**Incompatibility with other chemicals**

Do not allow the product to come in contact with water and oxidizing agents

**Corrosion**

Phosphine may react with certain metals and lead to corrosion, at higher temperature and RH. Even precious metals like gold and silver are susceptible by Phosphine.

**Hazardous Polymerization**

Will not occur.

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**SECTION 11 – TOXICOLOGICAL INFORMATION**

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**Acute Toxicity**

Oral LD <sub>50</sub> (rat, female)	:	45.7 mg/kg body weight
Dermal LD <sub>50</sub> (rat)	:	2000-5000 mg/kg body weight
Eye Irritation (rabbit)	:	None-Irritant
Skin Irritation (rabbit)	:	None- irritant

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**SECTION 12 – ECOLOGICAL INFORMATION (Phosphine)**

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Fish LC <sub>50</sub> (96 h) – Rainbow trout	9.7 x 10 <sup>-3</sup> ppm
Daphnia EC <sub>50</sub> (24 h)	0.2 mg/lt.

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**SECTION 13 – DISPOSAL CONSIDERATIONS**

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Combustible packages can be incinerated at high temperatures or disposed of in deep landfill.

When disposing of spilled or partially reacted material, follow the Federal Regulations. When properly exposed, the grayish-white residual dust will no longer be hazardous waste; it may then contain very minor amount of unreacted magnesium phosphide

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**SECTION 14 – TRANSPORT INFORMATION**

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<b>UN No.</b>	<b>: 1714</b>
<b>IMDG No.</b>	<b>: 4372</b>
<b>UN Hazard class</b>	<b>: 4.3</b>
<b>UN subsidiary Risks</b>	<b>: 6.1</b>
<b>UN Pack group</b>	<b>: 1</b>

Do not transport with food and feedstuffs.

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**SECTION 15 - MANUFACTURE'S / SUPPLIER'S DATA**

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**Name of Firm:** SWAL CORPORATION LIMITED**Mailing:**

UNIPHOS HOUSE,  
Madhu Park, 11<sup>th</sup> Road  
Khar (West), Mumbai -400052.  
Maharashtra (INDIA)

Tel. 0091-22 - 2640 1111

Fax 0091-22- 2640 1010

Local Bodies Involved

Collector of Vapi  
Gujarat, India

**Manufacturing Site**

UNITED PHOSPHORUS  
LIMITED,  
3-11, G I D C, Vapi, Gujarat,-  
396195, India

Tel. 91-260-2432716

Fax 91-260-2431823

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**SECTION 16 – DISCLAIMER**

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**Date: 21/09/2004**