

MATERIAL SAFETY DATA SHEET: ZINC PHOSPHIDE “RATIL”

1. PRODUCT INFORMATION

Product name : ZINC PHOSPHIDE TECHNICAL “RATIL”
Recommended use : Rodenticide
Manufacturer : Sandhya Organic Chemicals Private Limited
Address : Admn. & Sales Office
312, Nand Prem, 142, Nehru Road, Vile Parle (E)
Mumbai- 400057
INDIA
Tel no. 91-22-26104202/26151500/6136732
Fax no. 91-22-26104201
Regd. Office
Plot no. 808/A/2, III Phase, G I D C,
Vapi – 396195, Gujarat, INDIA
Tel no. 91-260-430875/426235
Fax no. 91-260-430875
www.sandhya-group.com
socpl@vsnl.com

2. HAZARDS IDENTIFICATION

HAZARDOUS SUBSTANCE – DANGEROUS GOOD
Very Toxic if swallowed or inhaled.

Zinc phosphide reacts with water and acids to release phosphine gas, which kills the pests. RATIL is formulated with 80% Min zinc phosphide.

Risk Phrases: R15 Contact with water liberates flammable gases.
R29 Contact with water liberates Toxic gases
R28 Very toxic if swallowed
R32 Contact with acids liberate toxic gases

3. COMPOSITION /INFORMATION ON INGREDIENTS

Ingredients:	CAS No.	% w/w
Zinc Phosphide	1314-84-7	80% Min
Inert Ingredient	-	20% Max

4. First Aid Measures

If Poisoning occurs, immediately contact the physician. Show the MSDS to the physician

SYMPTOMS OF POISONING

Earliest symptoms are usually nausea, abdominal pain, chest tightness, excitement and agitation and a feeling of chilliness, of being "cold all over". Vomiting is constant. Later symptoms may include shock, dyspnoea, thirst, oliguria and kidney failure, convulsions and coma. Purpura and asymptomatic thrombocytopenia have been observed. Early deaths may occur from pulmonary oedema. The majority of fatal cases die after 30 hours as a result of cardiac damage.

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EMERGENCY AND FIRST AID PROCEDURES

IF swallowed: Immediately call a physician or transport the patient to nearest hospital. DO NOT DRINK WATER. Do not administer anything from mouth.

If in eyes : Flush with plenty of water. Get medical attention if irritation persists.

If on skin : Remove contaminated clothing and wash affected areas with soap and water

If inhaled : Assist respiration as needed and watch for signs of poisoning.

Note to physician

Treatment is mainly symptomatic. Vomiting should be induced immediately followed by very thorough gastric lavage. It is important to clear zinc phosphide from the gastrointestinal tract, with non-oily purgatives if absorption of zinc phosphide particles is to be avoided. Correction of fluid loss and electrolyte disturbances is important.

Antitode

Use of 0.5 gm of copper sulfate (as a 1% aqueous solution) which has the additional theoretical benefit of forming insoluble copper phosphide, or gastric lavage with a 1 in 1000 potassium permanganate solution, which has been suggested as a means of oxidizing the phosphide.

5. FIRE FIGHTING MEASURES

Extinguishing Media : Suffocate flames with sand or dry extinguishing powder.

Do not use water

Hazards from combustion product : Fires involving Phosphine or metal phosphides will produce phosphoric acid.

Precaution for Fire fighting : Wear full protective clothing & self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Avoid bodily contact. Wear protective equipments. Keep water and ignition sources away. Carefully shovel/sweep up and packaged material in clean, dry labeled containers. Move containers away and flush surface with plenty of water. Regard washing as waste. Do NOT let this chemical enter the environment

7. HANDLING & STORAGE

Handling : Handle only in well ventilated areas. Full protective clothing should be used by all those handling the compound. Adequate washing facilities should be available at all times during handling and should be close to the site of handling. Eating, drinking and smoking should be prohibited during handling and before washing after handling. Baits of zinc phosphide should be removed and the area thoroughly cleaned up after the necessary purpose has been fulfilled.

Storage : Should be stored in clearly labeled, hermetically sealed impermeable containers away from oxidizing agents, acids and living quarters, under lock and key, secure from access by unauthorized persons and children. They must not be stored in damp conditions or be allowed to become damp, as in these circumstances there is both a toxic and fire hazard. No food or drink should be stored in the same compartment. Keep out of reach of children.

8. EXPOSURE CONTROLS

Inhalation Exposure Limits:

Component	OSHA PEL	ACGIH TLV	ACGIH STEL
Zinc Phosphide*	Not assigned	0.4mg/m ³	1mg/m ³
Inert Ingredient	Non Harardous		

Engineering Controls

No engineering controls are required for the normal use of this product. Follow label instruction.

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9. PHYSICAL & CHEMICAL PROPERTIES

Appearance	: Amorphous Black Grey free flowing powder
Odor	: Garlic
Vapour Pressure	: Zinc Phosphide 0mm Hg Phosphine gas 40 mm Hg @ -129.4 C
Vapour Density	: Not available
Melting point/ Freezing Point	: Zinc phosphide >420C Phosphine Gas -133C
Solubility in water	: Insoluble in water. Reacts with acidified water to form phosphine gas

10. STABILITY & REACTIVITY

Chemical stability	: Stable when dry but decomposes slowly in moist air. It reacts violently with acids with decomposition to the spontaneously inflammable phosphine gas.
Hazardous Polymerization	: Hazardous Polymerization will not occur. Reaction with moisture, acid will liberate toxic flammable gases.
Condition to avoid	: Moist air
Incompatible Material	: Avoid contact with water, acids including dilute and oxidizing agents
Hazardous decomposition Product	: Will react with moist air, water, acids and some other liquid to form toxic and flammable gases.

11. TOXICOLOGICAL INFORMATION

Ingestion	: Fatal if swallowed
Skin Contact	: Not absorbed dermally
Inhalation	: Symptoms of inhalation of phosphine gas includes malaise, ringing in ears, fatigue, nausea & pressure in chest. Exposure can be fatal

Acute Toxicity

Zinc phosphide has high acute oral toxicity. Zinc phosphide ingested orally reacts with water and acid in the stomach and produces phosphine gas, which may account in a large part for observed toxicity.

LD50 (Rat)	: 40mg/kg
LD50 (Sheep)	: 60-70mg/kg

Chronic : No adverse effect.

12. ECOLOGICAL INFORMATION

Birds

Zinc phosphide is likely to be very highly toxic

LD50 < 10 mg/kg for sensitive bird species such as geese and galliforms

LD50 < 50 mg/kg to many other bird species (highly Toxic).

Fish

The LC50s fell in a narrow range between 0.3 and 0.8 mg/L, indicative of high toxicity.

Non – Target Mammals

Reported mammalian LD50s range from 5.6 mg/kg in nutria to 93 mg/kg in kit fox. Most LD50s are in the 20-40 mg/kg range, indicative of high toxicity.

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Fate in Environment

Breakdown in soil and groundwater: Zinc phosphide may be applied as an active ingredient in either bait or a dust. Under average conditions, toxic activity persists for approximately 2 weeks. Soil acidity and moisture tend to accelerate the break down of the compound. Phosphine gas may be liberated as a result of this process.

Breakdown in vegetation: No data are currently available.

13. DISPOSAL CONSIDERATION

Dispose of used containers by crushing and burying below one meter in a disposal pit specifically marked and set up for this purpose, clear of waterways, vegetation and roots. Excess or unused baits must be buried below one meter. Empty containers and product must not be burnt.

14. TRANSPORT INFORMATION

UN Nnumber : 1714
Proper shipping name : Zinc Phosphide
Class : 4.3
Pack Group : I
Hazchem code : 4WE

15. REGULATORY INFORMATION



Symbol

16. OTHER INFORMATION

This information is based on our present state of knowledge. It should not therefore be constructed as guaranteeing specific properties of this product or their suitability for a particular application.