

MATERIAL SAFETY DATA SHEET OF

Aluminium phosphide 56% TB

1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Supplier: Shanghai Bosman Industrial Co., Ltd

Street address: No. 1611, North Sichuan Road, Hongkou, Shanghai R.P. China

Tel: + 86 21 63065878

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Product name: Aluminium phosphide 56% TB

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formulation Type: Tablet (TB)

Active Ingredients: Aluminium phosphide

IUPAC name: aluminium phosphide

Molecular Formula: ALP

Molecular Weight: 58.0

Other ingredients determined not to be hazardous

CHEMICAL NAME	CAS NO	PERCENT
Aluminium phosphide	20859 - 73 - 8	56%
Others	Not available	Up to 100%

3. HAZARDS IDENTIFICATION

Main Hazard: Product gives off toxic Phosphine gas when exposes to atmospheric moisture.

Flammability: Phosphine concentrations above 3% can cause autoignition. Diphosphine impurities in the phosphine given off can enhance flammability.

Chemical Hazards: Keep away from water, acids etc. Keep away from strong oxidising agents.

Eyes: Can cause irritation.

Skin: Can cause irritation

Ingestion: Extremely toxic by ingestion.

Inhalation: Extremely toxic by inhalation since phosphine gas is given off by reaction with moist air. Mild exposure causes a feeling of sickness, ringing in the ears, fatigue, nausea and pressure on the chest. Moderate poisoning results in pulmonary edema and may lead to dizziness, cyanosis, unconsciousness and death.

4. FIRST AID MEASURES

Product in the eye: Flush eyes with plenty of water, lifting upper and lower lids occasionally. Get medical attention.

Product on Skin: Brush or shake material off clothing and shoes in a well ventilated area where the clothes should be allowed to aerate prior to laundering. Do not leave clothes in confined or occupied areas such as vehicles or rooms. Wash contaminated skin with soap and water.

Ingestion: Call a physician. Place the person in fresh air and keep warm. Drink 1 or 2 glasses of water and induce vomiting by touching the back of the throat with finger or by administering syrup of ipecac. Do not induce vomiting or administer anything to an unconscious person.

Inhalation: Remove victim to fresh air. Keep warm and make sure person can breath freely. If breathing has stopped give artificial respiration.

Additional information: Additional symptoms of exposure. Can cause hyperemia, small perivascular brain hemorrhages and brain edema. Phosphine poisoning may result in pulmonary edema; liver elevated serum GOT, LDH and alkaline phosphatase, reduces prothrombin, hemorrhage, and jaundice; and kidney hematuria and anuria. Pathology is characteristic of hypoxia. Frequent exposure to concentrations above permissible levels over a period of days or weeks can cause poisoning.

Note to Physician: Treatment is symptomatic and include the following; (1) Give complete rest for 1-2 days keeping patient warm and quiet. (2) Should patient suffer from vomiting or increased blood sugar, appropriate solutions should be administered. Treatment with oxygen and cardiac and circulatory stimulants is recommended in cases of severe poisoning. (Intensive Care). Where pulmonary edema is observed steroid therapy should be considered and close medical supervision is recommended with blood transfusions as necessary. In the case of manifest pulmonary edema, venesection should be performed under vein pressure control; Heart glycosides (IV) (in case of hemoconcentration, venesection may result in shock); On progressive edema of the lungs, immediate intubation with constant removal of edema fluid and oxygen overpressure respiration, as well as any measures required for shock treatment; In case of kidney failure extracorporeal hemodialysis is necessary; No specific antidote is known; Mention is made here of suicidal attempts by taking solid phosphide by mouth. After swallowing, empty stomach by vomiting, flush stomach with diluted potassium permanganate solution or magnesium peroxide until flushing ceases to smell of garlic/carbide. Thereafter apply carbomedicinals.

5. FIRE FIGHTING MEASURES

Personal Protection: Wear protective clothing depending on the concentration of phosphine in the atmosphere. See section 8.

Small spills or leaks: Return all intact aluminium flasks to the cardboard carton. If flasks have been punctured

or are leaking they may be temporarily repaired with aluminium tape or [laced in a sound sealed metal container and suitably marked. Keep the product in a well ventilated area. Transport the damaged containers to a well ventilated area suitable for pesticide storage for inspection. If the spill is only a few minutes old, collect spilt material and return to sealable containers. NB These containers may flash upon opening at some later time.

Large Spills: Ensure the area is well ventilated. Phosphine disperses rapidly in air. If necessary use mechanical ventilation. Gather the spillage and place it in a small bucket of about 5 liters. Do not add more than one flask of material to the bucket. If on site where deactivation is not possible the bucket should be carried in an open vehicle to a suitable area. Wet deactivation can then be carried out as follows: Prepare a solution of 4 cups of detergent to 150 liters of water in a suitable drum. Wearing appropriate respiratory protection slowly pour the contents of the bucket into the solution. Allow the contents to react for 24 hours. Disposal in this way does not cause harm to the environment. Do not pour more than 50Kg on material into the 150 liter drum. Never place spilled material in a closed container such as a dumpster, sealed drum plastic bag etc since flammable concentrations of phosphine are likely to develop.

6. ACCIDENT RELEASE MEASURES

Personal Protection: Wear protective clothing depending on the concentration of phosphine in the atmosphere. See section 8.

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7. HANDLING AND STORAGE

Suitable materials: Aluminium flasks or hermetically sealed steel tins.

Precautions: Store under lock and key in a dry well ventilated area away from heat. Do not store together with food or feed. Do not store in buildings where humans or domestic animals reside or work. Keep out of reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits. TLV 0.3 ppm in air.

Respiratory protection: If the TLV is exceeded an approved full face gas mask with a hydrogen phosphide cannister may be used up to levels of 15 ppm. If exposure is to a higher level for any length of time then a self contained breathing apparatus must be used. Ventilate by mechanical means (general or local exhaust) to maintain exposure below the TLV.

Hands: Wear light cotton gloves.

Eyes: Wear dust goggles with side shields.

Other protection: As appropriate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Grey tablet

Odour: Strong garlic smell.

Boiling point: Greater than 1800Deg F

Ignition temp (of) Phosphine. 100deg c

Lower explosion limit (of phosphine) 1.8% vol

Oxidising Properties: Strong reducing agent

Solubility - water: Reacts

10. STABILITY AND REACTIVITY

Conditions to avoid: Keep away from water and acids. Keep phosphine concentrations as low as possible. Gives off Phosphine gas.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Highly Toxic LD50 Rat 11.8 mg /Kg (Oral) , 15.3 mg/Kg (Inhalation)

Skin and Eye: No skin or eye toxicity

Chronic Toxicity: Numerous tests show no chronic toxicity.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity: Keep away from aquatic life although solubility of phosphine in water is low.

Biodegradability: Phosphine is oxidised in the atmosphere to phosphates which are harmless to the environment.

Bioaccumulation: Does not occur.

13. DISPOSAL CONSIDERATION

Methods: See section 6.

Disposal of packaging: Empty flasks should be flattened and dumped in an approved dump.

14. TRANSPORT INFORMATION

UN No: 3048

IMCO Class: 6.1

Proper shipping name: Aluminium phosphide pesticide

Pack group: I

15. REGULATORY INFORMATION

Hazard symbols:

F Highly flammable

T+ Very toxic

N Dangerous for the environment

Risk phrases:

R23 Toxic by inhalation.

R28 Very toxic if swallowed.

R32 Contact with acids liberates very toxic gas.

R15/29 Contact with water liberates toxic, highly flammable gas.

R36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases:

S14 Keep away from water or any product containing water.

S20 When using, do not eat or drink.

S22 Do not breathe dust.

S38 In case of insufficient ventilation, wear suitable respiratory equipment.

S24/25 Avoid contact with skin and eyes.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection

16. OTHER INFORMATION

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how



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to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of the how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made the user should contact this company.

-- END OF MSDS --