



MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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1. Chemical Product Identification

Product Name: Aluminum phosphide 56% TBC

Molecular Formula: AlP

Molecular Weight: 57.96 g/mol

Structural Formula:



Chemical Name: Aluminium Phosphide

Form: Tablet

Color: Gray white

CAS No.: 20859-73-8

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Aluminium Phosphide	20859-73-8	56.0
Other ingredients		44.0

3. Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce



inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

Potential Chronic Health Effects:

Carcinogenic effects: There was no evidence of a carcinogenic effect.

Mutagenic effects: No evidence was available regarding the ability of aluminium phosphide or phosphide to cause mutations or increase the mutation rate.

Teratogenic effects: The available evidence for teratogenic effects in animals suggests that such effects are not likely in humans under normal conditions.

Developmental toxicity: Not available. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

4. First Aid Measures

Eye: Flush eyes with plenty of water, lifting upper and lower lids occasionally. Get medical attention.

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.

5. Fire-Fighting Measures

Extinguishing media: Water must not be allowed to come into contact with the product since a dangerous reaction will take place. Product is not flammable, but phosphine gas is flammable. Extinguish fire using carbon dioxide, foam or dry agent. Do not use water.

Hazards from combustion products: This product will probably cause the fire to intensify as contents ignite. On burning will emit very toxic fumes. Firefighters to wear self-contained



breathing apparatus and suitable protective clothing if risk to of exposure to vapour or smoke. Product is unlikely to be explosive if kept dry. However water and many liquids cause immediate release of phosphine from the product. Uncontrolled release of phosphine may results in fire or explosion and release of gas will pose a serious risk of injury to firefighters and bystanders.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind residents. Wear full protective clothing and self contained breathig apparatus. Do not breathe smoke or vapours generated.

6. Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Immediately call the Fire Brigade.

Personal care: Wear full protective chemically resistant clothing including eye/face protection, gauntlets and self contained breathing apparatus. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should include a full face shield. If there is a significant chance that dusts are likely to build up in cleanup area, we recommend that you use a suitable Dust Mask. Use a P1 mask, designed for use against mechanically generated particles e.g. silica & asbestos. If there has been any water contact, a respirator must be worn to protect against phosphine gas.

Notice: Do not use water. Keep sparks, flames, and other sources of ignition away. Keep material out of water sources and sewers. Keep material dry.

7. Handling And Storage

Precautions for Safe Handling: No smoking, eating or drinking should be allowed where material is used or stored. Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Avoid contact or contamination of product with incompatible materials, especially liquids, listed in Section 10.

When using, open container in the open air. Keep away from water and liquids. Keep away from naked flames. Forms toxic gas. Use the entire contents in one operation, if not possible, seal container thoroughly with waterproof adhesive tape or air tight closure. Wash hands after use. When opening the container or using the product wear elbow length PVC gloves



and full face piece respirator with combined dust and gas cartridge (canister) or supplied air respirator.

The product may react while sealed with the moisture in the air in the container, liberating toxic phosphine gas. Phosphine may react spontaneously with oxygen.

Consequently there is a chance that when the lid is removed from a package that has been stored for a lengthy period, a flash may take place. Therefore make sure that when removing the lid, it be done in a well ventilated area, with no flammable materials close by.

Conditions for Safe Storage: Observe all relevant regulations regarding sale, transport and storage of this class of poison. Store in the closed, original container in a cool, dry, well ventilated locked area, out of the reach of children and unauthorised persons and away from all dwellings, animals, food, feedstuffs, seed and fertilisers. DO NOT store or carry container in vehicle cabins (this includes glove compartments, luggage compartments or other common air-spaces). Keep away from water and liquids. Water and many liquids cause immediate release of phosphine from the product. Uncontrolled release of phosphine may result in fire or explosion and release of gas will pose a serious risk of injury to workers and bystanders.

8. Exposure Controls / Personal Protection

Biological Limit Values: No biological limit allocated.

Engineering controls: Use in ventilated areas. Use fans or self contained breathing apparatus if ventilation is not adequate. Keep containers closed when not in use.

Personal Protective equipment (PPE): When opening the container or using the product wear elbow length PVC gloves and full face piece respirator with combined dust and gas cartridge (canister) or supplied air respirator. Wash hands after use.

Respiratory Protection: If there is a significant chance that dusts are likely to build up in the area where this product is being used, use a suitable Dust Mask. Use a P3 mask, designed for use against all particulates including highly toxic materials.

9. Physical And Chemical Properties

Appearance: Gray white tablet

Melting point: >1000°C

Boiling point:>1800°F

Tablets weight: 3.0±0.1g/tablet



Anti-crush hardness: ≥ 0.7 Mpa

Dust & bits of broken tablets weight: $\leq 1.5\%$

10. Stability And Reactivity

Incompatibilities: Can react vigorously upon contact with oxidizing agents.

Stability: Reacts violently with diluted strong acids causing fire and explosion hazard.

Runoff to sewer may create fire or explosion hazard. Reaction with dilute mineral acids is explosively violent.

Decomposition: When heated to decomposition, yields toxic phosphorus oxides. Combustion

Products: Fire will produce irritating, corrosive and/or toxic gases.

11. Toxicological Information

Acute oral LD₅₀ for rats: 8.7 a.i.mg/kg.

Acute dermal LD₅₀ for rats: >460 a.i.mg/kg.

Inhalation LC₅₀ for rats: 11.0 a.i.mg/L.

Skin irritation: Not absorbed by dermal (Rabbit).

Eye irritation: Not applicable (Rabbit).

Skin Sensitization: Not a Sensitizer (Guinea Pig).

12. Ecological And Ecotoxicological Information

Effect on Bird: Acute LD₅₀ for Coturnix japonica: 49 a.i.mg/kg.

Effects on fish: Acute LC₅₀ for Oncorhynchus mykiss (96h): 0.0097 a.i.mg/L. Acute LC₅₀ for rainbow trout: is 4.1 a.i.µg/L.

Effects on fish food species: Acute EC₅₀ for Daphnia magna (48h): 0.37 a.i.mg/L.

Effects on honey bees: LD₅₀ (oral, 48 h): 0.24 a.i.µg/bee.

Effects on Earthworm: The Acute 14 day LC₅₀ for earthworm is 663.5 a.i.mg/kg.

13. Disposal Considerations

Triple rinse the empty containers with soapy water to ensure residual phosphide is destroyed.

Dispose of rinsings in an approved disposal pit. Destroy empty containers by breaking, crushing, or puncturing and delivering empty packaging to an approved waste management facility. If a waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation



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and tree roots, in compliance with relevant local, state or territory government regulations.

Do not burn empty containers or product.

14. Transport Information

Not applicable

15. Regulatory Information

Not applicable

16. Other Information

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.