



Central Pollution Control Board

Ministry of Environment & Forests, Govt of India, Parivesh Bhawan, East Arjun Nagar, Delhi - 110032

MATERIAL SAFETY DATA SHEETS

24

Aluminium phosphide

1. CHEMICAL IDENTITY

Chemical Name : Aluminium phosphide

Chemical Classification: Toxic

Trade Name : Phostoxin, Phostoxin-A, Delicia gastoxin

Synonyms: Al-Phos, Aluminum monophosphide, Celphos, Delicia, Detia, Detia Gas EX-B, Detia-EX-B, Quickphos

Formula : AIP

CAS No: 20859-73-8 **UN No:** 1397

Regulated Identification

Shipping Name : Aluminum phosphide

Hazchem Code : 4W

Codes / Label : Class 4.3, Toxic

Hazardous Waste ID No :

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S. No.
1 Aluminium phosphide	20859-73-8	3	
2		4	

2. PHYSICAL / CHEMICAL DATA

Boiling Pt. °C:

Physical State: Solid

Appearance: Dark gray or dark yellow crystals; cubic zinc blende structure.

Melting Pt °C: 2550

Vapour Pressure @ 35°C mmHg:

Odour: Garlic odor.

Vapour Density(Air =1):

Solubility in water at 30°C g/100ml: Reacts (Decomposes)

Others: Decomposes in water forming poisonous and flammable phosphine gas.

Specific Gravity (Water =1): 2.85 at 25°C with respect to water at 4°C

pH :

3. FIRE / EXPLOSION HAZARD DATA

Flammability : Yes

LEL:

Flash Point °C in OC:

TDG Flammability:

UEL:

Flash Point °C in CC:

Autoignition Temperature °C :

Explosion sensitivity to impact:

Explosion sensitivity to static Electricity:

Hazardous Combustion Products : Fire will produce irritating, corrosive and/or toxic gases, phosphine gas.

Hazardous Polymerization :

Combustible Liquid:

Explosive Material:

Corrosive Material

Flammable Material: Yes

Oxidiser :

Others:

Pyrophoric Material:

Organic Peroxide :

4. REACTIVITY DATA

- Chemical Stability** : Stable when dry
- Incompatibility with other material** : Reacts violently with water, carbon dioxide, and foam fire extinguishers. Contact with water and bases slowly releases flammable phosphine gas. Contact with steam and acids may be violent. Can ignite spontaneously in air.
- Reactivity** : 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.
- Hazardous Reaction Products** :

5. HEALTH HAZARD DATA

Routes of entry: Inhalation, skin, eyes and ingestion

Effects of Exposure / Symptoms:

Effects may be delayed for several hours. Caution is advised. Acute exposure to aluminum phosphide usually results in headache, cough, tightness and pain in the chest, shortness of breath, dizziness, lethargy, and stupor. Muscle pain, fatigue, chills, tremor, lack of coordination, seizures, and coma may be observed. Pulmonary edema and cardiac irregularities are also commonly found effects gastrointestinal. Contact with aluminum phosphide may cause severe burns to skin and eyes.

Emergency Treatment :

Inhalation: Move patient to fresh air. Monitor for respiratory distress. If cough or difficulty breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. Administer oxygen and assist ventilation as required.

Skin: Remove contaminated clothing and wash exposed area thoroughly with soap and water. A physician should examine the area if irritation or pain persists.

Eyes: Irrigate exposed eyes with copious amounts of tepid water for at least 15 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist, the patient should be seen in a health care facility.

Ingestion: Seek medical assistance.

LD50 (oral-rat) mg/kg:	11.5 mg/kg	STEL:	
LC50 (rat) mg/kg:	15.5 mg/m ³ /4 hr	Odour Threshold:	
Permissible Exposure Limit:		TLV (ACGIH) :	

NFPA Hazard	Health	Flammability	Reactivity	Special
Signals	4	4	2	W

6. PREVENTIVE MEASURES

Personal Protective Equipment : Protective gloves. Safety goggles or eye protection in combination with breathing protection.

Handling : Keep locked up and out of the reach of children (if sold to general public). Wear suitable protective clothing and gloves.

Storage : Keep in a cool well ventilated place away from water, oxidising agents, mineral acids. Never add water to this product

Precautions : In case of accident or if you feel unwell, seek medical advice immediately .

7. EMERGENCY / FIRST AID MEASURES

FIRE:

Fire Extinguishing Media : Do not use water or foam. Small fires can be extinguished with dry chemical, soda ash, or lime. Large fires: withdraw from area and let

fire burn. Move container from fire only if you can do it without risk.

Special Procedure : Smother with dry sand, dry clay, dry ground limestone. Do not use water. Violent reaction may result. Where access to the area is strictly controlled, it may be best to allow the release to burn.

Unusual Hazards : Releases toxic fumes on exposure to moist air, water, or acids.

EXPOSURE: First Aid Measures:

Inhalation: Move patient to fresh air. Monitor for respiratory distress. If cough or difficulty breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. Administer oxygen and assist ventilation as required.

Skin: Remove contaminated clothing and wash exposed area thoroughly with soap and water. A physician should examine the area if irritation or pain persists.

Eyes: Irrigate exposed eyes with copious amounts of tepid water for at least 15 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist, the patient should be seen in a health care facility.

Ingestion: Seek medical assistance.

Antidotes / Dosages:

SPILLS :

Steps To Be Taken : Shut off ignition; no flares, smoking, or flames in hazard area. Do not touch spilled material. Do not get water on spilled material or inside container. Dike spill for later disposal. Blanket release with dry sand, clay, or ground limestone.

Waste Disposal Method: Aluminum compounds are treated under anhydrous conditions to prevent violent reactions, recover solvent, and form Al compounds suitable for landfill by reaction with anhydrous hydrolysis agent, eg calcium hydroxide.

8. ADDITIONAL INFORMATION / REFERENCES

Insecticidal fumigant for grain, peanuts, processed food, animal feed, leaf tobacco, cottonseed, and as space fumigant for flour mills, warehouses, and railcars (Farm Chemicals Handbook 1984, p. C12); used in semiconductor research

9. MANUFACTURERS / SUPPLIERS DATA

NAME OF FIRM :	Contact person
MAILING ADDRESS :	in Emergency :
TELEPHONE / TELEX NOS :	Local Bodies involved :
TELEGRAPHIC ADDRESS :	Standard Packing :
OTHERS :	Trem Card Details / Ref :

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