



IS 15219: 2024 Aluminium Phosphide Powder Formulation- Specification

Pesticides used in stored products can prolong the viable life of the produce, prevent huge post-harvest losses from pests and diseases and protect the grain so it is safe to eat.

Aluminium phosphide (AIP) is a highly toxic chemical compound that is commonly used as a **fumigant** in pest control, particularly for the control of rodents, insects, and other pests in stored grain, warehouses, and shipping containers. In its powder formulation, aluminium phosphide is typically used in the form of small pellets or tablets, which release **phosphine gas (PH₃)** upon contact with moisture (such as water or atmospheric humidity). This gas is a potent toxicant, effective against a wide range of pests.

Key Quality Parameters: The powder is made primarily from aluminium phosphide, a solid compound that reacts with water or moisture in the air to release phosphine gas, so **stability** is a concern. The powder is generally applied by mixing with a suitable inert carrier or in pelletized form for more controlled release of phosphine gas.

IS 15219: 2024 prescribes essential requirements that the material shall be in the form of powder greyish in colour; shall not be spontaneously combustible in contact with air and shall contain AIP as the only active ingredient with minimum content not less than 56 percent by mass. It shall also contain a chemical fire retardant, and a suitable binding material. Hence the concern of stability and controlled release is addressed by the Indian Standard.

Thus, a product complying to this specification will ensure stability and controlled release of phosphine gas which acts as a metabolic inhibitor, disrupting cellular respiration and leading to the rapid death of pests. This makes it effective against insects, rodents, and other stored-product pests.

The Indian specification ensure the quality for effective **pest control** applications which includes Grain and Food Storage by **Fumigating Grain Silos, Fumigate Cargo shipments, Rodent & insect control.**

Few popular brands in India selling the product are: **Phostoxin, Fumico, Vapormate, Alphas.**

In India, **Aluminium Phosphide (AIP)** is regulated under the **Insecticides Act, 1968**, which governs the manufacture, sale, and use of insecticides to ensure they are safe for human health, animals, and the environment. Aluminium phosphide is considered highly toxic to humans and animals, and it is classified as a **Category I (Highly Toxic)** insecticide under the Insecticides Act. The manufacturer must be registered with the **Central Insecticides Board and Registration Committee (CIBRC)** before it can be manufactured, sold, or distributed.