

# Shandong BIO Industry Co., Ltd.

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## Specification of zinc borate

Item\Specification	ZB3.5H <sub>2</sub> O (excellent grade)
ZnO %	37.5 ± 0.5
B <sub>2</sub> O <sub>3</sub> %	47.5 ± 1
Appearance water% ≤	0.5
Weight loss on ignition	14.5 ± 1
Particle size μm (D50)	<b>2-5</b>
Melting point	<b>980</b>
Whiteness ≥	97
Refractive index	1.58
Specific Gravity (g/cm <sup>3</sup> )	<b>2.67</b>
<b>Temp.of dehydration</b>	<b>320</b>
Cd ppm ≤	<b>4</b>
Pb ppm ≤	<b>10</b>
Arsenic ppm ≤	<b>1</b>

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### Key Benefits

- **Flame Retardant**
- **Smoke Suppressant**  
In contrast to antimony oxide, which promotes smoke formation, zinc borate reduces smoke emission
- **Synergist with antimony oxide**  
Use in conjunction with antimony oxide to give synergistic effect
- **Synergist with Alumina Trihydrate (ATH) or Magnesium compounds**  
Use in conjunction with alumina trihydrate or magnesium compounds such as magnesium hydroxide and magnesium carbonate to give synergistic effect
- **Acid Suppressant**  
Low HCl/acid value
- **Afterglow Suppressant**
- **Char Promoter**  
Form a glassy layer
- **Corrosion Inhibition**  
Used in flame retardant vinyl chloride latex formulations, as an adhesive in bonding fiberglass insulation to aluminum foil
- **Low Tinting Strength**  
Has a refractive index similar to most polymer systems, which results in the retention of considerable translucence, which allows the use of lower pigment loading as compared to antimony oxide
- **Specific Gravity of 2.77**
- **Considered Low Toxicity**

### Introduction:

Zinc Borate is environmental protection non-halogen flame retardants, According to the difference of composition ( $XZnO \cdot YB_2O_3 \cdot ZH_2O$ ), FB flame retardant has more than ten varieties. Through SGS testing, zinc borate is environmental protection type non-halogen flame retardants. Zinc Borate can be used as a fire retardant in PVC, Polyolefins, Elastomers, Polyamides, Epoxy resins. In halogen-containing systems, ZB is used in conjunction with antimony oxide, while in halogen-free systems; it is normally used in conjunction with alumina trihydrate, magnesium hydroxide, or red phosphorus. In some particular application Zinc Borate can be used alone. The most commonly used variety is this product-3.5 water zinc, also know ZB-2335, flame retardants. This product is non-toxic, low-water-soluble, high heat stability, small

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particle size, proportion small proportion, good dispersion characteristics, as highly effective flame retardants is widely used in plastics, rubber, paint and other fields.

### Product Applications:

1. Zinc Borate can be used as a kind of multi-functional synergistic additive of Antimony oxide and other halogen flame retardant ,can improve the nature of flame retardant effectively, to reduce the smoke produced when combustion, and can adjust rubber products chemical machinery, electricity and other aspects of performance.
2. As the partial or completely environmental protection substitute of containing halogen and other flame retardants , zinc borate is being directly applied to a wide range of plastics and rubber processing, such as PVC, PE, PP, enhance polyamide, PVC resin, polyphenylene ethylene, epoxy resin, polyester resin acid ethylene and natural rubber, styrene butadiene rubber, chloroprene rubber. It can also be applied to the production of paper, fiber fabric, decorative panels, floor leather, wallpaper, carpet, ceramic glaze, fungicides, and paint production in order to improve flame retardants performance.
3. Based on other natures, zinc borate, can also be used for anti-corrosion, far-infrared absorption, and timbers anti-pest and anti-bacteria handle and other fields.