

Antimony Trioxide (Sb₂O₃)

Technical Product Datasheet — Industrial Grade

01 PRODUCT OVERVIEW

Antimony Trioxide (Sb₂O₃) is a white, odourless powder widely used as a flame-retardant synergist, catalyst, and pigment in a broad range of industrial applications. ZZ International Ltd supplies high-purity Antimony Trioxide conforming to stringent international quality standards, suitable for flame-retardant formulations, plastics compounding, glass manufacturing, and catalyst applications.

02 CHEMICAL INFORMATION

Chemical Name	Antimony(III) Oxide / Diantimony Trioxide
Chemical Formula	Sb ₂ O ₃ (Sb O) ₂₃
Molecular Weight	291.52 g/mol
CAS Number	1309-64-4
EC Number	215-175-0
HS Code	2825.80

03 PHYSICAL PROPERTIES

Appearance	White crystalline powder
Odour	Odourless
Density	5.2 – 5.67 g/cm ³
Melting Point	655 °C (1,211 °F)
Boiling Point	1,425 °C (2,597 °F)
Solubility in Water	Slightly soluble (0.002 g/100 mL at 25 °C)
Refractive Index	2.087 (valentinite polymorph)
Crystal Structure	Orthorhombic (valentinite) / Cubic (senarmontite)

04 CHEMICAL PROPERTIES

- Amphoteric oxide – reacts with both acids and strong bases
- Insoluble in dilute acids; soluble in concentrated HCl, H₂SO₄, and HNO₃
- Stable under normal storage and handling conditions
- Non-flammable; acts as a flame-retardant synergist with halogenated compounds
- Oxidation state of Antimony: +3
- Reduces to metallic antimony at high temperatures in reducing atmospheres
- Compatible with most organic polymers as a synergist additive

05 APPLICATIONS

- **Flame Retardants:** Primary synergist with halogenated flame retardants in plastics, textiles, and rubber
- **Plastics & Polymers:** PVC, polyolefins, engineering plastics, and epoxy resins formulations
- **Glass & Ceramics:** Decolourising agent and opacifier in glass and enamel coatings
- **Catalysts:** Used in the production of PET (polyethylene terephthalate) and other polyesters
- **Pigments & Paints:** White pigment and opacity enhancer in industrial coatings
- **Adhesives & Sealants:** Flame-retardant additive in construction and automotive sealants
- **Electronics:** PCB laminates and cable insulation for fire safety compliance

06 QUALITY SPECIFICATIONS

Sb $\blacksquare$ O $\blacksquare$ Purity	≥ 99.5 % (min)
Arsenic (As)	≤ 0.05 %
Lead (Pb)	≤ 0.05 %
Iron (Fe)	≤ 0.01 %
Moisture Content	≤ 0.3 %
Whiteness (Hunter L)	≥ 97
Average Particle Size	0.3 – 3.0 μm (customisable on request)
Bulk Density	350 – 600 g/L (loose)

All specifications are typical values. Certificate of Analysis (CoA) provided with each shipment.

07 SAFETY & HANDLING

- **GHS Classification:** Suspected carcinogen (Cat. 2); harmful if inhaled (H351, H332)
- **PPE Required:** Dust respirator (P2/N95 min.), chemical-resistant gloves, safety goggles, and protective clothing
- **Ventilation:** Use in well-ventilated areas or under local exhaust ventilation (LEV)
- **Ingestion/Skin Contact:** Avoid contact — wash thoroughly with soap and water after handling
- **Fire:** Non-flammable; use water spray, CO $\blacksquare$, or dry chemical to extinguish surrounding fire
- **First Aid (Inhalation):** Remove to fresh air; seek medical attention if symptoms persist
- **SDS Available:** Full Safety Data Sheet (SDS/MSDS) available upon request per GHS/REACH standards

08 ENVIRONMENTAL NOTES

- Antimony compounds are classified as a priority pollutant in several jurisdictions
- Prevent release to soil, waterways, and drains; collect spills as hazardous waste
- Product complies with EU REACH regulation (EC No. 1907/2006) requirements
- Disposal must comply with local, national, and regional regulations
- RoHS and ELV compliance confirmation available on request

09 PACKAGING

Standard Packaging	25 kg HDPE drums with inner polyethylene liner
Jumbo Bag (FIBC)	500 kg / 1,000 kg bulk bags available
Custom Packaging	Available upon customer specification
Labelling	UN-compliant labels; batch number, CoA QR code included

10 STORAGE CONDITIONS

- Store in a cool, dry, well-ventilated area away from direct sunlight
- Keep containers tightly sealed when not in use
- Store away from food, beverages, and incompatible materials (strong acids, reducing agents)
- Recommended storage temperature: 5 °C – 40 °C
- Shelf life: 3 years from date of manufacture under recommended conditions
- Keep away from sources of ignition and heat

11 DISCLAIMER

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