Elchemy

ELRASA – ATOx™ (Antimony Trioxide)

Technical Datasheet

1. Technical Datasheet

Property	Specification
Physical Properties	
Appearance	White, odorless crystalline powder
Physical Form	Powder
Odor	Odorless
Molecular Weight (g/mol)	291.52
Density or Specific Gravity	5.2 at 77 °F
Refractive Index	1.5144 at 589 nm
Density	5.2 at 77 °F
Chemical Properties	
Water Solubility	0.0033 g/l at 22.2 °C
Hazardous Reactions	Hazardous decomposition products formed under fire conditions
Thermal Properties	
Melting Point	1211 °F
Boiling Point	2822 °F at 760 mmHg (sublimes); 1598 °F at 210 mmHg
Flash Point	Not flammable
Solvent	
Water	Practically insoluble
Ethanol	Slightly soluble
Conc. HCl, fuming HNO_3/SO_4, oxalic/tartaric acid	Easily soluble

2. Processing Methods

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Paints

Add Sb_2O_3 during the pigment dispersion or mill base phase to ensure even particle distribution and avoid agglomeration. Sb_2O_3 is sensitive to moisture, which can reduce its flame-retardant effectiveness and cause clumping. Store in dry conditions and avoid water-based systems unless surface-treated grades are used.

Key Ingredients	Indicative Dosage (% w/w)
Polymer binder (e.g., PVC, epoxy)	85%
Halogenated additive (plasticiser)	5%
Antimony Trioxide	1%
Divalent metal stannate (e.g., zinc stannate)	4%
Aluminium Trihydroxide (smoke suppressant)	4%
Pigments & fillers	1%
Additives, stabilisers, etc.	–

Textile

To ensure good adhesion to fibers, disperse Sb_2O_3 thoroughly in the polymer binder, like acrylic, PU, or EVA emulsions, before applying it to textiles. Maintain even distribution and avoid agglomeration to ensure consistent flame-retardant performance.

Key Ingredients	Indicative Dosage (% w/w)
Water	~68%
Brominated flame retardant	16%
Antimony Trioxide	5%
Dispersion agent	1%
Thickener	1%
Wetting agent	1%
Coating resin	8%

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Glass

Introduce Sb_2O_3 in the melting phase along with other raw materials to ensure thorough incorporation and proper fining during high-temperature processing. Sb_2O_3 can act as an oxidizing agent, so balance it with other redox-sensitive ingredients.

Key Ingredients	Indicative Dosage (% w/w)
Silicon Dioxide	64%
Boron Trioxide	8.3%
Aluminum Oxide	4%
Sodium Oxide	6.5%
Potassium Oxide	7%
Zinc Oxide	5.5%
Titanium Dioxide	4%
Antimony Trioxide	0.6%
Chloride (as Chloride Ion or Source Compound)	0.1%

3. Dosing by Application

Products	Authorized dosage
Flame retardants (plastics, etc.)	2-10%
Pigment/additive (glass, ceramics)	<1%

The information and data contained herein are believed to be accurate but may not be all inclusive and should only be used as a guide. The information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the product for his particular use and on condition that they assume the risk of the use thereof.

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