Antimony and its compounds have been known for centuries. Scientific study of the element began during the early 17th century, much of the important work being done by Nicolas Lemery. The name of the element comes from the Greek anti + monos for "not alone", while the modern symbol is rooted in the Latin-derived name of the common ore, stibnite. Antimony is a hard, brittle metalloid which is alloyed with other metals to increase hardness. It is also used in some semiconductor devices. The recovery of elemental antimony parallels that of arsenic: the sulfide ore (stibnite) is roasted in air and then heated with carbon.

**Antimony trisulfide**

Antimony trisulfide, \(\text{Sb}_2\text{S}_3\), is a sulfide mineral commonly called *stibnite* or *antimonite*. Antimony trisulfide exists as a gray/black crystalline solid (orthorhombic crystals) and an amorphous red-orange powder. It turns black due to oxidation by air. Antimony trisulfide is the most important source for antimony. It is insoluble in water and melts at 550°C. The chemical symbol of antimony (Sb) is derived from stibnite.

Amorphous (red to yellow-orange) antimony trisulfide can be prepared by treating an antimony trichloride solution with hydrogen sulfide:

\[
2 \text{SbCl}_3 + 3 \text{H}_2\text{S} \rightarrow \text{Sb}_2\text{S}_3 + 6 \text{HCl}
\]

When melting antimony trisulfide with iron at approx. 600°C the following reaction yields elementary antimony:

\[
\text{Sb}_2\text{S}_3 + 3 \text{Fe} \rightarrow \text{Sb} + 3 \text{FeS}
\]

\(\text{Sb}_2\text{S}_3\) is used as a pigment, in pyrotechnics (glitter and fountain mixtures) and on safety matches. In combination with antimony oxides it is also used as a yellow pigment in glass and porcelain. Antimony trisulfide photoconductors are used in vidicons for CCTV.

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