



Langeloth Metallurgical Facility with the sulfuric acid plant in the foreground

Langeloth Metallurgical Facility

The Langeloth complex, located 25 miles west of Pittsburgh, Pennsylvania, is a world-class facility with a long history of producing high-quality metallurgical products used mainly in the steel and chemical industries. The facility has roasting capacity of 35 million pounds of molybdenum per year. Four multiple-hearth furnaces are used for the conversion of molybdenum disulfide concentrates into technical grade molybdenum oxide (tech oxide), which is sold in powder or briquettes or converted into pure molybdenum oxide or ferromolybdenum. Two other furnaces process spent catalyst material containing other metals.



Ferromolybdenum processing

A large portion of the molybdenum concentrates processed at the Langeloth facility comes from the Corporation's Thompson Creek Mine. The Corporation buys concentrates from other mining companies to process and sell in the market, and it also roasts concentrates on a toll basis for third-party customers.

The roasters, which operate at temperatures up to 1,200°F, convert molybdenum disulfide concentrate (MoS_2) into tech oxide (MoO_3) with a sulfur content of less than 0.1%. The roasters yield gases with sulfur dioxide (SO_2). The sulfur dioxide is converted to sulfuric acid (H_2SO_4), a by-product that is sold to industrial customers. As a result of this pollution-control initiative, sulfur dioxide emissions for molybdenum processing at the Langeloth complex have been reduced by more than 99%.

Some of the tech oxide is further processed into ferromolybdenum, an alloy consisting of about 60% molybdenum and 40% iron.

The Langeloth facility is the first site to commercially convert MoS_2 concentrate to technical molybdenum oxide.



Containers of ferromolybdenum being shipped to customers

Ferromolybdenum is preferred by some steel mills and cast-iron foundries in their manufacturing processes. A portion of the tech oxide produced at the Langeloth complex is converted into a higher oxide grade known as pure molybdenum oxide. The process involves sublimation using a special electric furnace where tech oxide is heated until it vaporizes. On cooling, the vaporized oxide returns to the solid state but with virtually none of the impurities inherent in the tech oxide. This pure molybdenum oxide is used for the production of superalloys, molybdenum metal and catalysts.

The Langeloth facility is the largest ferromolybdenum producer in North America, the first site to commercially convert MoS_2 concentrate to technical molybdenum oxide, and the first site to produce pure molybdenum oxide by sublimation. The site has 147 acres with an infrastructure to support additional projects.

The Langeloth facility is the first site to produce pure molybdenum oxide by sublimation.



Loading sulfuric acid for transport to customers



Monitoring sulfuric acid plant operations