Zinc: History and Uses by Judy

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The word zinc is derived from the German word Zingk or Zink and is also called spelter. The symbol for zinc is Zn and it has the atomic number of 30. Zinc is a chemical element with metallic features. In some respects, zinc is fairly similar to magnesium as it also has an oxidation state of +2 and has a similar sized ion. Zinc has 5 isotopes which are stable. It is found in the earthâ€™s crust and is the 24th most abundant element found there.

History

There are several isolated examples of zinc being used throughout ancient times. There was a prehistoric statuette found in Transylvania that contained 87.5% zinc. There have been many types of ornaments found that were made with zinc alloys. These contain approximately 80 to 90% zinc mixed with other metals such as antimony, iron, lead, and other minerals.

Zinc ore was used in making zinc-copper alloys for many centuries before zinc was discovered as being a separate element. In Palestine, there is brass found dating back to the 14th through the 10th centuries that contain approximately 23% zinc.

By around 30 BC the manufacturing of brass was known to Romans. To make the brass they would heat powdered calamine, which is zinc silicate or zinc carbonate, and copper and charcoal together. The result was a calamine brass that was then hammered or cast into shapes and used as weapons.

In India, there are zinc mines that have been active since the Mauryan period which occurred in the later part of the first millennium BC. However, smelting zinc seems to have started in this area around the 12th century.

Uses for Zinc

The largest amounts of mineable zinc are found in Australia, the USA, and Asia. The production of zinc includes the froth flotation process, roasting, and finally extracting the ore using electricity.

In the United States the major uses for zinc are for Galvanizing, in alloys, for brass and bronze, and miscellaneous other uses. Galvanizing accounts for 55% of the use, alloys account for 21%, brass and bronze account for 16% and the remaining 8% is used for a variety of other things.

Zinc is used as an anti-corrosion agent. Galvanization refers to the coating of steel and iron with a substance that will protect the metals from corrosion. Zinc does not corrode easily, which makes it the perfect solution to use in this process.

One of the most common alloys that are made with zinc is brass. This alloy is made with around 3 to 45% zinc mixed with copper. The amount of zinc is dependent on the type of brass that is being made. Brass offers super corrosion resistance and is stronger than copper. It is also more ductile than copper.

Other uses of zinc include using it as a substitute for lead/tin alloys in pipe organs. It is also used to make specific types of machine bearings. Pennies in the United States use zinc as the primary metal. This began in 1982.

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