

The price of copper

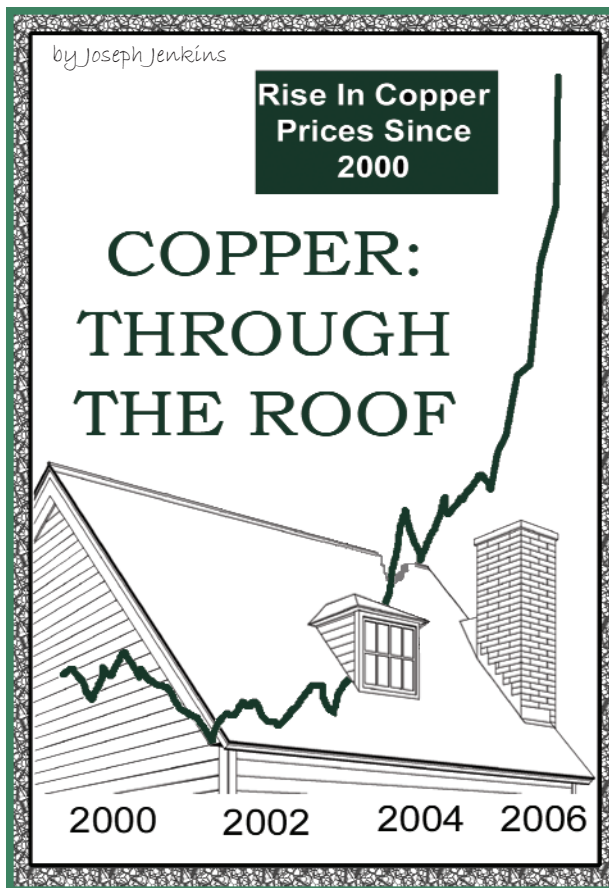
has gone through the roof! Prices have tripled in the past three years and doubled in the first six months of this year. What's going on?

Well, in short, the demand exceeds the supply. The world is expected to consume more copper than is produced in 2006 by 100,000 tons. In 2005, world consumption exceeded production for the third consecutive year, by 66,000 tons. The biggest reason for the price increase is China, which consumes more than 10,000 tons of copper every day. China overtook the U.S. as the largest copper consumer in 2002 and it retains a huge potential for continued growth. China is expected to account for 23% of global copper consumption in 2008, which is an increase from just 10% in 1996. Western Europe is expected to consume 22% in 2008, the U.S. 13.4%. India, Japan, and other nations are also showing increased demand. It doesn't look like copper prices will be falling any time soon.

What is copper? Although copper occurs naturally in a pure state, it's primarily mined from the minerals chalcopryrite, bornite, and malachite. Copper ore is extracted from the earth, then converted into copper concentrate, which is then roasted, smelted and converted into refined copper. The resultant metal is widely used for its high electrical and heat conductivity; its malleability; its ability to form alloys with other metals; and its resistance to corrosion. This last attribute is what makes copper so attractive for flashing on durable and long-lasting slate and tile roofs. Copper wire and cable, however, account for half of the world's copper production.

Chile is the world's leading copper producer, producing about 37% of the world's total. Every continent produces copper, yielding a worldwide total production of about 9 million short tons of copper each year. The four largest copper producing nations in order are Chile (37%), U.S. (8%), Indonesia (8%) and Peru (7%).

The U.S. mines 1/5 of the world's



The author at the Erdenet Copper Mine in Mongolia, May, 2006. Here, copper ore is converted into copper concentrate.



The open-pit Erdenet copper mine in Mongolia,



All Photos by Joe Jenkins

copper, while Arizona produces 2/3 of the copper here. If Arizona was a country, it would be the second largest producer of copper in the world. The Bingham Canyon copper mine in Utah is a half mile deep, 2 1/2 miles wide, 100 years old, and the world's largest human-made excavation. The Chino copper mine in New Mexico covers over 9,000 acres and is 1.75 miles across. This location has been mined for at least two centuries.

Copper has a long history with humans, being the first metal we ever used, dating back about 10,000 years. Sumerians and Egyptians produced cooking pots that date back to 3,900 BC. By 2,500 BC, Egyptians were making copper crowns. Archeologists have dug up copper drain pipes that date back to 3,500 BC, still in good condition. Pre-Columbian Americans used copper for weapons, armor, beads, earrings, bells and other ornaments. The Bronze Age is named after a copper alloy.

The average American uses 1,500 pounds of copper during her lifetime. Our average home contains about 400 pounds of copper, primarily in wiring, plumbing and appliances. The average automobile contains about 50 pounds of copper.

The good news is that copper is highly recyclable. A million and a half tons of scrap copper were recycled in the U.S. last year, saving 85% of the energy that would have been required to produce new copper from ore. In the United States, about 2/3 of all copper consumed since 1864 has been recycled. So don't throw those copper scraps away! Save them up and cash them in at the scrap yard on a rainy day. ☔

Copper concentrate — the final product of the Erdenet mine. The concentrate is shipped to China for refining.

