auzex RESOURCES LIMITED

BISMUTH

...Clean, Friendly and in Hot Demand

Chemical Symbol: Bi

Artistic Symbol of Bismuth
Source: Metalprices.com

The outlook for bismuth seems to be more optimistic than for many other minor metals, given the "green" applications that bismuth has the potential to fill. *Source: Bill McCutcheon, Natural Resources Canada*

What is Bismuth?

Bismuth is a brittle metal which often occurs in very small quantities within ores of other metals such as gold, silver, lead, zinc and tungsten. The most common bismuth minerals are bismuthinite (Bi_2S_3) and bismite (Bi_2O_3).

Properties

Unlike many metals, bismuth has a low toxicity and is often used as a replacement for lead. The metal's unique properties include:

- low thermal conductivity (low melting point)
- high electrical resistance and highly diamagnetic (repels magnets)
- increases in volume when solidified
- non-carcinogenic

Main Uses of Bismuth

Key uses include additions to steel and aluminium alloys, malleable iron castings and pharmaceutical (used in stomach ulcer remedies) and cosmetic (lipstick) applications. Also, due to its low melting point, bismuth is used in alloys within electrical fuses and in automatic fire alarm and sprinkler systems. For example, fire alarm plugs made of such alloys melt from the heat of the fire which then turns on the systems. Bismuth can also be used in nuclear reactors as both a carrier of uranium and as a liquid metal coolant, such as lead-bismuth.

Some of the applications for Bismuth – lipstick and safety devices for fire detection.

Replacement for Lead

In the early 1990's, research began on the evaluation of bismuth as a non-toxic replacement for lead. By 1998, many US government authorities required lead-free plumbing equipment for new installations and repairs of facilities providing potable water. Similarly, recent international agreements involving Europe, Japan and North America to eliminate lead from solders and replace lead in pigments have increased the focus on low toxic alternatives.

These issues have significantly increased bismuth demand and the metal continues to replace lead in such uses as ceramic glazes, fishing sinkers, lubricating greases and food processing equipment.

World Supply & Demand

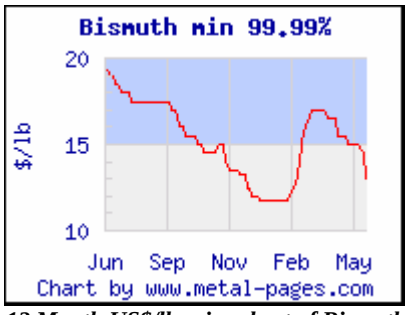
As a result of bismuth being an environmentally friendly substitute for lead, demand has increased significantly in recent years. Buyers of the metal are becoming increasingly concerned over future supply with no new production expected for at least another two years.

China is the world's largest producer of bismuth, with more than half of that production resulting as a by-product of tungsten production. Other major producers are Mexico, Peru, Canada and Kazakhstan.

Ongoing supply restrictions out of China are causing shortages with supply relief not expected until production commences at Vietnam's Nui Phao deposit in 2009. At capacity, this mine is expected to yield 2,000 tonnes of bismuth per annum. It is estimated that annual world bismuth consumption exceeds 9,000 tonnes and is growing at a considerable rate.

Recent Price Movements

Bismuth prices have firmed considerably over the last 3 years due to a lack of new supply coming onstream. As at 29 May 2008, the metal was trading at US$14.25/lb (A$33,000 tonne equiv.).



12 Month US$/lb price chart of Bismuth

Future of Bismuth

New applications and increased demand from China are likely to fuel the bismuth market in the near future. With limited new production in the pipeline over the next few years, it is unlikely the price will retrace its recent gain in the medium term. Bismuth can be substituted by other metals in certain applications, such as solders, pigments and specific alloys. However, the focus on the "green" benefits of using bismuth should ensure the metal's bright future is assured.