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Molybdenum in the 21st century- An assessment of demand and supply

To better understand what the future holds for molybdenum prices and their effect on current and potential producers, one must look at some of the unique fundamentals inherent to the molybdenum market. The world demand for molybdenum has doubled from under 90,000t/y to over 180,000t/y (estimated) in 2007. Nearly all of the world's molybdenum comes from mines located in North America, South America and China.

Molybdenum (moly) is a transition metal used primarily as an alloy in various types of steel products. moly's attributes are its high heat strength and corrosion resistance, making it crucial in the production of specialty steels for drilling equipment, high-speed tools, pipelines, turbines, water de-salination and power plant components. Importantly, global demand for moly is considered relatively inelastic; there are few effective substitutes and there are currently no stockpiles or derivative markets. While over 75% of total world moly consumption is used in the production of steels, many steels contain little or no moly. Many moly-alloy steel products are used in the energy industry that is reaching ever farther, deeper and into more hostile environments for resources. Roughly 14% of global moly is used in the catalyst and chemicals sector, with much of that usage coming in the form of petrochemical catalysts where moly is an effective catalyst in the de-sulphurisation of fuels. This segment of the market is expected to grow at a 6-8% per annum rate; perhaps 50% faster than the overall moly market demand growth.

What is molybdenum come from?

In terms of supply, an important aspect of the moly market is that over 60% of the world's supply comes as a by-product of copper mining. Many of these sources are now mature open-pit mines, which do not have a great deal of flexibility in the amount of moly they can produce. Recovery rates are generally low and significant upgrading of moly concentrates is required to bring the material up to an industry standard specification. Many of the new copper mines coming on stream have cobalt as a by-product, lessening potential moly production. The remaining 40% of global moly supply comes from primary moly mines such as Henderson (Freeport McMoRan) in Colorado, which produces nearly 10% of the world's supply. Primary producers are considered to be the 'swing' producers to satisfy periodic increases in demand. As with most metals, little investment in primary moly projects has occurred over the past two decades leading to a lack of flow in the project pipeline. Moly prices were sub-US\$10/lb between 1983-2003, leaving most potential new projects unattractive and difficult to finance.

The China wildcard

One of the more important drivers for molybdenum demand has been the incredible growth seen in Asia,

particularly in China where huge infrastructure and construction projects require large amounts of moly-alloy steel. China, which has historically sold its moly on the world market, has taken numerous steps recently to stem the export. These include export duties and the removal of tax rebates. This can only be construed as bullish as China looks to retain and consume its domestic moly production. On the other side of the coin, a number of the moly mines in the Huludao province of China were shut down in 2005 and are projected to come back on stream by the end of 2008. Production from new Chinese mines is expected. However, how much will be consumed domestically or exported remains to be seen under China's recent export rule restrictions.

Future demand and supplies - where from?

It has been suggested that demand growth may be higher than the 4-6% average due to a potential higher level of world economic growth, pipeline construction and remediation and the increasing demand for molybdenum in other facets of the energy industry. The more conservative view calls for a 4% average annual growth rate in molyb demand. This would take annual moly demand to roughly 230,000t by 2012.

At the date of writing, moly enjoyed its third anniversary of sustained prices in excess of US\$20/lb leading many junior explorers and developers seeking to take advantage of the robust pricing to get their projects to market. Former producing mines such as Climax in Colorado are in the pre-development stage with many others in North America, China and Australia in various stages of feasibility, permitting and pre-development. What remains to be seen, particularly in light of the recent North American credit crisis, is whether many of these projects receive financing and are able to get to production.

One company on the cusp of production is Roca Mines with its MAX moly mine in British Columbia, Canada. MAX is a primary molybdenite deposit with significant high-grade zones, which the company intends to mine in the first 3-4 years of production. Roca is projecting that MAX will have the ability to produce roughly 2300t/y over this timeframe. Phased mine and mill expansion is planned to increase potential throughput extending the mine-life significantly. Furthermore, current exploration on the MAX deposit will test the vertical extent of the known resource, currently open at depth. 