

Availability of Indium and Gallium

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Indium

During 2010, Indium production continued steadily at a rate of about 500 metric tonnes (mt) per year. Production could have been expanded, had there been a need for higher quantities.

Indium Ores and Mining

After a reduction in mining due to the “2008” recession, base metal mining increased again, bringing on more supplies of indium-containing feedstock. The 2010 output of indium containing feedstock will be 15% higher than in 2009 and 5% higher than the 2008 pre-recession levels.

Still today, exploration and mining activities continue and will for the future, contributing to increased reserves. Companies such as Adex Mining, Lithic Resources, Argentex Mining, Trevali Resources, South American Silver, Avalon, Lundin Mining, etc. have identified indium in the mines they are exploring or developing.

The indium reserves (proven and probable, measured and indicated, and inferred) identified in base metal

mines in the “western” world remained unchanged at about 26,000 mt of indium. Those located in the rest of the world, i.e. China and the CIS (former Soviet Union) still amount to about 23,000 mt of indium, bringing the total world reserve to close to 50,000 mt of indium.

Indium Extraction

Still today, only one-third of the indium mined every year is being extracted and refined in high purity indium. Another third accumulates in residue and tailing form for later recovery and the last third is not recovered as it is being treated by base metals producers who do not have the capability to extract by-products such as indium. Investments were made, however, mainly in South America to extract more of the indium from the local zinc mines and refineries. These investments should result in gradually increasing indium outputs from 2012 onwards.

Indium Residues, Slag, or Tailings

Our study had identified that the total

“Long term, both indium and gallium will be available with intermittent price volatility.”

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residue reserves worldwide amount to over 15,000 mt of indium and that another 500 mt of indium is generated every year in residue form. This continues to take place so that the worldwide tailing reserves are increasing.

Indium Extraction and Refining Capacities

Global refining capacity continues to increase mainly in South America, as mentioned earlier, and in the Yunnan province of China.

Reclaiming of ITO targets

Reclaiming of ITO spent targets into refined indium metal has continued in an efficient and fast manner. The reclaim cycle time has been further reduced to about 15 days. These cycle time improvements have the effect of reducing the overall demand of virgin indium by the large FPD industry.

*We therefore continue to conclude that based on mining reserves (100 years at a rate of 500 mt of virgin indium per year), plus residue reserves (30 years at a rate of 500 mt per year), combined with continued improvements in recoveries of virgin and reclaimed materials and ongoing exploration, **the world will not run out of indium.** These reserve quantities do not factor in recovery yields but are significant enough to reassure the CIG and other indium consuming industries.*

Gallium Mining and Extraction Process Update

Gallium production has increased since

September 2009 to meet rising demand, and investments are currently being made to expand production capacity further.

Similarly to indium, the gallium reserves were not depleted. New reserves were identified. Alumina production, of which gallium is a by-product, increased. As a reminder, gallium is extracted from bauxite as part of the bauxite-alumina refining flow that most commonly utilizes the Bayer liquor process.

Currently still less than 10% of the gallium contained in bauxite is being extracted. The low extraction volume is due to the relatively small demand and to the economics of relatively low prices. The current price increase, on the back of increased demand for LED productions, is already triggering new investments in capacity.

As is for indium, reclaimed gallium is an important source of material and the reclaiming of broken GaAs wafers is a mature and ongoing process.

Conclusion

Indium- and gallium-containing raw materials exist abundantly worldwide. The metals industry has been investing in process improvements and capacity over the last few years to bring more indium and gallium to the market. Suppliers can and will continue to do so if the demand continues. Price volatility and short-term availability may continue intermittently due to numerous factors, including the time-lag required to install additional capacity, government regulation, and the lack of information suppliers receive about future demand.

Overall, we anticipate adequate indium and gallium supply and continued price affordability for current, emerging, and new applications.

Updated as of September 2010.