



## Strategic Metals Update

### Outlook for high temp metals

At the Argus Metals Week conference in London in March 2017 an increasing demand for so-called nickel-based super-alloys has been predicted. This will also impact the future demand for their constituent minor metals, such as Chromium, Cobalt, Hafnium and Rhenium. Demand is reported to be driven by aerospace and power industries. The American engine maker Pratt & Whitney expects an annual growth of 10% in its aircraft engine sales until at least 2022. Their game-changing Geared Turbofan Engine will deliver double-digit reductions in fuel burn and emissions for the next generation of aircraft. There are talks that this will require additional use of Rhenium-containing super-alloys in the hot section of the turbine to allow the engine run at higher temperatures.

### Electronic metals

Market for both Indium and Germanium has remained illiquid over the last couple of weeks. Leading producers were committed to long-term contracts. Consequently, prices for spot metals have moved higher. It is not the same with Gallium where there is still plentiful material available. After several factories had shut down within 2016 most of them are operational once again not allowing prices to move any higher at this point in time.

### Positive future for rare earths

The market Research company BAIINFO predicts increasing prices for most rare earth metals. To some

extend this is said to be affected by certain crackdown activities through Chinese Government. But BAIINFO also reports of an increasing downstream demand in various applications. At the same time ARGUS Metals have reported of rising prices in China due to tight supply. At this stage this would mainly apply for Praseodymium, Neodymium, Gadolinium, Erbium and Terbium. It is said that most suppliers tend to increase their prices to avoid further losses.

### Driving technology magnets

Independent market researchers all come to the same result when it comes to growth rates in rare earths markets. The main driver is permanent magnets with an expected growth rate of 5-10% for the next 10 years. Those magnets are used in both wind turbines as well as in hybrid- and electric vehicles. In Feb. 2017 the output of new energy vehicles in China increased by 15.5% on a year-on-year basis. According to BAIINFO, China has exported 25.27 million tons of permanent magnets in January 2017. This is an increase of 17.9% vs. Jan. 2016. Taking into account that those magnets use a lot of Neodymium and Praseodymium, but also some Dysprosium, Terbium and Gallium it will certainly effect long-term availability of those metals.

Links:

<http://www.popularmechanics.com/flight/a17813/purepower-gtf-coming-to-market>