

[2008-11-3]Rhenium defies downturn

Already a few weeks now into the largest financial crisis since 1929, there are few items that have resisted the force of gravity. Except funeral directors, debt collectors and bicycle tyre repair kit makers, all have joined the fall out.

A very few minor metals have defied the odds. Zirconium and Hafnium, perhaps because of the renaissance of the nuclear industry, are two. Tantalum, influenced by dependence on Australia for over 60% of the world's supply, is also holding steady. And Rhenium, at \$11,000 per kg Re, now almost double the price of Palladium, is another.

For those involved with Rhenium, it is time to be grateful that the metal's uses are not linked to the car industry or any other mass industry for that matter. But to say it is steady without explanation at this time is not enough, so please forgive me for once again running over the statistics that lie behind this small market.

Whichever way you look at it, this is still a metal with not more than 45 mt of new supply each year (excluding scrap & revert) and demand in the order of 65 mt. Credit crunch or not, any fall in prices can only therefore be pounced upon by long term buyers grateful for the chance to build inventory for known future demands.

And those demands are building up rather nicely, \$390 bln worth of new aeroplanes for China by 2027 according to Boeing, or as much as 15 mt of Rhenium needed for every new GTL plant, or just simply an average of about 25 kgs for every new jet engine. One mind-blowing calculation is that if you take Boeing's estimate of almost 30 000 new aeroplanes by 2027 and multiply by a low of 20 kgs Re per engine, the aeroindustry needs on average 60 mt of Rhenium a year for next two decades.

With the top three consumers GE, Pratt & Whitney and Cannon Muskegon alone consuming 45 mtpy it is not difficult to see where the problem lies. Important as those three parties are to the market, they are not the only ones needing Rhenium. While all three are thought to be covered via long term renewable contracts with producers in Chile and USA, others are not so blessed. Industrial Gas Turbine makers (IGT) do not have the benefit of the long term producer relationships enjoyed by the top three. Nor do oil companies and catalyst makers whose purchasing, as ever, is sporadic and unplanned.

Significant in the news last week, was the announcement that Poland's *Ecoren* (a subsidiary of KGHM) had entered into a five year agreement to supply Johnson Matthey of the UK with about 1 mt per year of Rhenium contained in Ammonium Perrhenate (APR). Nobody can know for certain, but it is thought that such an order would most likely be for the Gas to Liquids (GTL) industry in which JM became involved via the takeover of Syntex from ICI in 2002. In 2007 this division won the Queen's Award for Exports for the 'commercialization and international sales of specialty adsorbents for the removal of sulphur and mercury contaminants from both gaseous and liquid hydrocarbons'. In other words – GTL.

In a market as opaque as Rhenium, these are important facts to hold on to. It now means that Poland at 3 mtpy, the world's 4th largest producer, after Kazakhstan (5 tpy), USA (7 tpy) and Chile (27 tpy), who in 2007 agreed to sell 2 mt per year to Rolls-Royce Plc., is to all intents and purposes

sold out.

Negative factors for Rhenium include GE's intention to reduce Rhenium content in nickel base alloys within its aero engines. If it were possible to remove Rhenium this would indeed bring the supply-demand deficit more into balance. However, GE has not made it clear how the overall performance of the engines would be maintained without the use of this metal.

And not to be dismissed are the strong moves made all over the world to recover lost Rhenium units from discarded nickel base alloy. But even here the theory is more impressive than the practice. The technology is not inexpensive, amounting to at least \$3000 per kg Re to get from alloy to re-usable super alloy or catalyst grade Rhenium. With time factors of more than six months this will certainly be a greater efficiency but perhaps not a panacea to bringing this market into balance.

Another short term weakness is the lower offers of basic grades of APR emerging in pockets – perhaps from merchants drawn into this market by the high prices alone – but these quantities are not thought to be large and hitherto are not affecting end product prices. Indeed they give a chance for the first time in a couple of years for margins to open between raw material and end product.

But above all, the main cause of Rhenium's stability is that it remains an investor-free, zone. The action of Rhenium makes the point that needs to be made to those who still seem bent on launching futures contracts for Cobalt and Molybdenum on the LME. Whatever its price, with Rhenium we at least know it to be true to the supply and demand facts of its market, un-muddied by the influence of outside forces of leveraged funds. Long may it last.