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Tin is in

MOVE over dysprosium and graphite. Tin is a “forgotten EV metal” and will enjoy a much brighter future as it starts infiltrating EV battery manufacturing, a UK research group says. ***The Metal Detective*, by Stephen Bell**



It has been a long time since the *Metal Detective* has had cause to cogitate on tin unless it was in the context of “hand me another tinny”.

He remembers writing in 2015 that tin is, “handy but dull and one of this year’s price duds”. But beauty is in the eye of the beholder and some people just can’t get enough of element number 50 on the periodic table.

“Ah, tin, what a lovely, lovely element. Pretty much completely nontoxic, stays shiny forever, easy to melt and cast into minutely detailed shapes, not horribly expensive – really what more could you ask for?” (“The Elements”, by Theodore Gray, Black Dog and Leventhal, 2009).

Mr Gray certainly has a tin fetish and, given he wrote this review in 2009, we can forgive him for not mentioning tin’s latest allure – it looks set to join the increasingly crowded club of “metals that you cannot possibly do without in making electric vehicles”.

MD did not know this until last week when he came across “Tin: The Forgotten EV Metal” – a presentation from the UK-based International Tin Research Institute.

Very appropriately, ITRI delivered the slide show this month at the Beer & Co Tin Conference – presumably a regular supply of tinnies was obligatory at this talk fest.

It certainly piqued *MD*'s interest, who thought we'd fully exhausted the list of "must-have" EV metals.

To lithium, rare earths, cobalt, graphite, nickel, manganese and copper we can now add good old tin.

Even without a heady dose of EV hype, tin prices are up 50% in 18 months due to rising demand and declining sources of major supply, with ITRI predicting small market deficits for this year and next.

ITRI believes the metal has been overlooked for its EV potential, despite its widespread usage in soldering for electrical circuitry and, more importantly, its potential role in new generation battery anodes.

Tin-rich anodes are evidently much faster than graphite for recharging Li-Ion batteries. And apparently Toyota is working on a solid state battery that would use tin and silicon in the electrolyte, and could be in production by 2022.

It may explain why the trading arm of Toyota bought 20% of Perth-based Kasbah Resources', Achmmach tin project in Morocco a few years ago for about \$16 million. Previous studies on the underground deposit near Meknes suggested a 10-year mine could be developed at a cost of about \$80m.

Yes, it is in North Africa, but *MD* was surprised to learn that Morocco has moved well beyond its colourful tourism image of medieval souks and seedy cafes in the last decade or so.

It is now regarded as North Africa's economic hub, boasting the continent's biggest car manufacturing factory and the world's biggest solar power plant, among other industrial marvels such as high-speed trains.

Ruled by a constitutional monarchy, the country also has a longstanding history of mining and is looking to triple resource sector revenue by 2025, says Kasbah's new managing director Russell Clark.

Clark resigned as CEO from Wolf Minerals, the ASX-listed UK tantalum miner, in May and was appointed CEO of Kasbah in late September.

He takes the helm after nearly a year of upheavals at Kasbah, including a failed merger attempt and subsequent boardroom instability, which saw the share price tank badly. Clark tells *MD* the way is now clear for the company to fund and develop Achmmach, which has had \$90m spent on it over nine years, mostly on drilling out a 6.5Mt underground reserve.

A revision of a 2016 feasibility study is due in the first quarter of next year, and will consider a 750,000tpa project, costing approximately \$100m, that would produce 4000tpa of tin in concentrate (about 1.5% of global mine production).

This will trigger a 6-9 month funding period – French and African banks have expressed early interest – and 12 months of construction leading to first production in late 2019.

Having recently been stung by commodity markets, when tungsten prices halved just as his previous company, Wolf, was building its UK mine, Clark says he isn't reading too much into ITRI's enthusiasm about tin's EV potential.

But he says tin demand is steadily rising – recent growth rates call for 4000t of new supply each year – just as production shows signs of drying up in countries such as Myanmar and Indonesia.

Of course, the situation may change dramatically if speculators start pricing tin – now trading at US\$19,500/t – as an “EV metal”.

For instance, it is thought that a price of US\$25,000/t would attract a large number of new tin projects into the market.

If that situation eventuates, Clark believes Kasbah will still have “first mover advantage” in starting production from a mine in the hills of Morocco that would have been in gestation for more than 10 years.

Or, as The Clash would sing it, “If tin is in, rock the Kasbah”.

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