

## A better use for Spent Potlining

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**Aluminium smelter Spent Potlining (SPL) is a hazardous waste material that can be transformed and then safely re-used by the cement industry, resulting in a closed “industrial ecosystem” where waste from one industry becomes feedstock for another.**

SPL has high levels of fluorides, sodium and carbon, which are potentially valuable in industries like cement manufacture where large energy inputs are required.

- Fluorine and sodium in the right amounts allow manufacturing to occur at lower temperatures with significantly lower energy consumption.
- Carbon provides an alternative fuel source, substituting for mined coal or natural gas.

But first the SPL has to be properly treated to destroy cyanide and stop generation of explosive gases. Proper treatment transforms the SPL into products that can be safely transported for re-use as they are no longer classified as a hazardous waste.

So what is the market for these treated products?

The global primary aluminium industry produces one million tonnes of SPL per year. Worldwide cement clinker production is more than 4 billion tonnes. A quarter of the world's cement clinker plants can make good use of about 20kg of SPL-derived products for each tonne of clinker. Therefore some 20 million tonnes of SPL-derived products can be consumed by the cement industry, absorbing the generation of SPL by aluminium smelters many times over.

It is possible to optimise this equation by manufacturing products that maximise the benefits to cement makers of the valuable chemicals and minerals in SPL. Such products are proven to be a competitive advantage to progressive companies in reducing energy and resource consumption, with a quarter of a million tonnes of SPL processed using this innovative technique and sold in Australia and around the world.

This transformation process is a model of what people are now calling the “Circular Economy”. It has proven that there is a positive environmental benefit to re-use of SPL. Cement companies gain significant energy savings, more than ten times the energy used in transforming the SPL, and their greenhouse gas emissions are reduced. For aluminium companies, the legacy liability of toxic SPL in landfill or other storage is eliminated.

Society is demanding material stewardship of industry to reduce our consumption of energy and natural resources. Transformation of SPL for re-use provides a safe, sustainable solution that mimics the ecosystem approach and is an economical alternative to landfill.

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