

New Approach to Slag Processing (Dry Granulation)

All of the iron blast furnace used for cementitious applications in Australia is produced by the water granulation method. Dr Jahanshahi gave a presentation to the November Technical Committee meeting on laboratory to pilot scale test work on dry granulation of molten iron blast furnace slag.

The presentation focused on recent advances in optimised atomisation to produce fine granulates and enhanced fast cooling to improve handling of hot granulates.

Conventional wet granulation method involves high capital costs, and consumes significant amounts of water. As one tonne of slag cools from 1 500 degrees to ambient temperature it releases more than 1.8 giga joules of high-grade waste heat.

The Australian steel industry produces more than two million tonnes of slag each year. Potentially, more than 4 peta joules of waste heat could be recovered from this slag. Recovered waste heat can then be used either in the steel plants or within other industrial processes.

Dry granulation is emerging as a very attractive alternative to water granulation. It delivers significant benefits for both industry and society, including:

- lower capital costs
- huge savings in water
- reduced air pollution
- waste heat recovery.

The new process can help reduce Australia's greenhouse gas emissions by about 1.8 million tonnes per annum, through significantly reducing emissions associated with cement production and steel production. Globally, greenhouse gas emissions could be reduced by hundreds of millions of tonnes per annum.

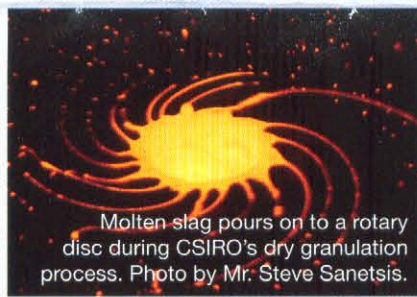
The CSIRO has made significant progress in overcoming some major technical challenges associated with the high-temperature process used to treat the molten slag.

The novel process is currently being tested through a prototype pilot facility. Once proven,

the process will be scaled up and plant trials conducted. The work has attracted world wide attention from industries and research institutions. The Dry Granulation project has recently gain support from Australian slag producers, OneSteel and BlueScope Steel. CSIRO are seeking additional support from Associations and members involved in slag processing and cement producers.

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Source: www.csrp.com.au



Molten slag pours on to a rotary disc during CSIRO's dry granulation process. Photo by Mr. Steve Sanetsis.

Hopes build for eco-concrete

Throughout history, there has been the search for 'cement less' concrete, using some other material to bind the aggregates and sand together into a strong durable building material. Reasons for this have been many, including the availability and cost of materials to produce and even the availability of Portland Cement. There have been many projects, particularly in the former Soviet Union in the 1950's, where alkali activated slag cements were used (Brandster, J.).**

An Australian project is currently under way in Melbourne aimed at transforming co - products from power stations and blast furnaces into geopolymer concrete (E-Crete). Zeobond founder Jannie van Deventer, a chemical engineer at the University of Melbourne asserts that "unlike with regular concrete the chemical reactions that form this polymer-based alternative don't give off carbon dioxide or require high temperatures, which also lead to CO₂ emissions. So it releases just 10 to 20 per cent of the greenhouse gases associated with making the standard stuff."

In the first instance, Zeobond is seeking to pilot E-Crete's use in smaller non safety critical applications. It is anticipated the product could be used initially in the construction of paths, building patios and sound attenuation walls along freeways. These applications are aimed at validating the durability of the product, exposed to the elements including the traffic induced environments in major cities. In time to come, the makers of E-Crete believe that durability criteria satisfied, the product could find application in high rise buildings

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Minister announces Greenhouse Reduction Timetable

Minister for Climate Change and Water, Senator Penny Wong announced the Australian Government's detailed timetable for the introduction of emissions trading in March 2008.

The timetable includes several important stages, including:

- March to June 2008: preliminary consultations on technical issues with industry and non-government groups;
- July 2008: public release of a Green Paper on emissions trading design, drawing on preliminary consultations;
- December 2008: public release of exposure draft legislation;
- March - Mid 2009: Bill consideration by Parliament;
- 2009: Consultation on emissions trading regulations;
- 3rd quarter 2009: Act enters into force, regulator established;
- 2010: Emissions trading scheme will commence.

"Emissions trading places a limit on the amount of emissions we will allow to be produced. This reform will not be simple, but it is the responsible course for Australia to take in reducing greenhouse emissions.

The Green Paper will canvass options and preferred approaches on issues, such as which industry sectors will be covered and how emission caps will be set. It will also include ways to address the impacts of emissions trading on Australian households, emissions-intensive trade-exposed industries and other strongly affected sectors.

The second phase of public consultation will focus on the Green Paper and will occur from early July to early September 2008. A further phase will follow the release of the emission trading legislation in December 2008.

The design of emissions trading will also be informed by economic modeling work being undertaken by the Australian Treasury, the work of the Garnaut Review, and the work done to date at the Federal, State and Territory levels. Emissions trading is central to achieving the Government's goal of reducing Australia's greenhouse emissions by 60 per cent by 2050.

Source: Press Release Minister for Climate Change and Water March 17th 2008