

# Burning biomass at Lucerne

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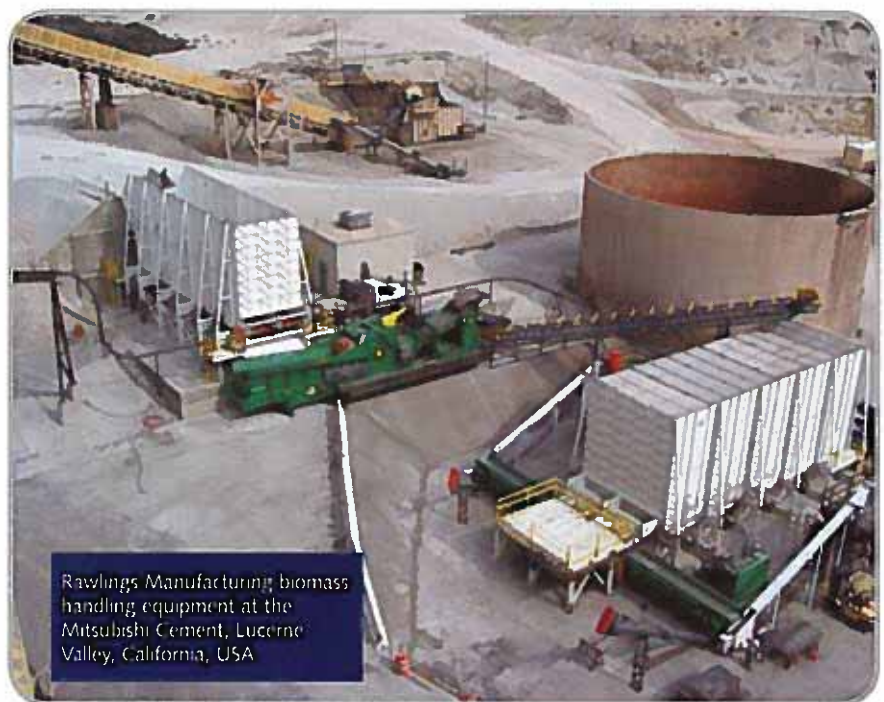
Once the wood waste has been processed through the portable electric wood hog, which reduces various types and sizes of contaminated wood waste to biomass fuel, the metal is removed by an overhead self-cleaning magnet and then conveyed to a 250t walking floor stoker storage system. To ensure the optimal size end product, the wood waste is then processed over two vibrating finger screens and then transferred to the kilns via a blower system. Mitsubishi is working toward a 50:50 coal to alternative fuels ratio. Biomass residues that are used in the project are normally disposed in a landfill, the project implementation would dispose these wastes in a sustainable manner and recover their energy content.

The aim of the project activity is to substitute as much coal as possible for alternative fuels. This will result in significant long-term reductions of CO<sub>2</sub> emissions. Traditionally, solid fuels such as coal, petcoke and lignite are used in the burning process in clinker kilns. However, kilns are particularly well-suited for alternative fossil fuels and biomass.

In North America, 60 per cent of clinker production uses alternative fossil fuel, for up to a maximum of 40 per cent of energy, but very little biomass. In Latin America, around 80 per cent of production uses alternative fossil fuel and biomass, with some installations using over 30 per cent energy from biomass. There is significant potential to further develop the sourcing of thermal energy from alternative fuels across all regions of the world.

Such progress, however, largely depends on governmental policies such as the development, control and

*Rawlings Waste Wood Recovery Systems has designed, manufactured and installed one of the first turnkey wood waste recovery systems in the United States to introduce biomass as fuel to heat cement kilns at Mitsubishi Cement in Lucerne Valley, California. The system is capable of receiving, processing and storing up to 350t of biomass fuel wood waste to be burned along with coal to reduce the amount of greenhouse emissions. The biomass will replace part of the annual tonnage of coal the plant would otherwise have used.*



Rawlings Manufacturing biomass handling equipment at the Mitsubishi Cement, Lucerne Valley, California, USA

enforcement of waste legislation and the subsequent roll-out of waste collection and pre-treatment infrastructure by public or private companies. CO<sub>2</sub> reduction credits for the resulting prevention of greenhouse gas emissions at the waste disposal sites could provide important incentives for these developments.

"Rawlings is constantly developing new grinding technologies to expand the types of biomass feedstocks that can be fed into the wood hog," Judi Tyacke said.

"We are working with other cement plants in the preliminary designs stages and hope we can do this at quite a few more cement plants."

A study conducted by scientists in Spain showed using biomass in cement kilns decreased CO<sub>2</sub> emissions by 144,000t between 2003 and 2006, according to a

journal article written by the researchers. The study evaluated the effects of using sewage sludge to generate 20 per cent of the thermal energy needed in the cement manufacturing process at a plant in Vallcarca.

The Mitsubishi Cement Mine and Plant is the former Kaiser Cement plant, which was purchased by Mitsubishi in the 1990s. Lucerne plant manager, Scott Smith said the system will reduce CO<sub>2</sub> emissions at the Mitsubishi facility, but didn't have specific amounts to cite.

For over 35 years, Rawlings has been manufacturing and installing customised wood waste recovery systems. The company offers a blend of leading edge biomass processing expertise, solid detailed design capability and proven project management skills. \_\_\_\_\_