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Milling technology could open new recycling markets

April 15, 2011

New patented milling technology has the potential to meet the fine grinding requirements of bulk and waste plastics that were previously regarded as uneconomic, says Gateshead-based engineering design specialist International Innovative Technology (IIT). The company cites low energy consumption, a compact size and a powerful grinding action.

As well as being suitable for the conventional grinding of a wide range of minerals and other materials the system can also convert plastic waste and GRP into fine powders for recycling.

As part of a sustainable manufacturing programme IIT has already worked for two years with an established UK manufacturer to overcome concerns that GRP cannot be recycled cost-effectively. In a two-stage process, the GRP waste is first converted into flakes before secondary reduction in an IIT M series mill. This converts the flakes into a fine powder, of less than 100 microns diameter. The modular mill can grind soft, medium and hard materials (up to 9.5 on the Mohs scale) to a powder, with 90% passing a 45 micron screen.

The centrifugal grinding mechanism includes a vertical material flow path and unique roller assembly, claimed to ensure that the electrical energy input is translated into maximum particle grinding power. IIT claims a typical specific energy consumption of 5-10kWh/tonne.

Managing director George Ord said: "Working with established suppliers in the glass reinforced plastics industry, we have been able to demonstrate the cost-effective and environmentally efficient grinding of production-line GRP offcuts which had previously gone to landfill.

"Turning the scrap into a fine powder means that it can be used economically for recycling in batch mix and other applications."

For materials which have the potential to combust or explode, ATEX-rated versions of the M series grinding mill and ancillary plant are available.