

## **Rocket Mill cuts kiln fuel-preparation costs**

With the world's cement industry constantly looking for ways to cut production-energy costs, there has been a strong move towards the use of alternative fuels. Firing with materials such as municipal solid waste (MSW), plastics, sewage sludge, biofuels, waste wood, used tyres and other biomass is on the increase, replacing more expensive traditional fuels such as coal.

However, handling and preparing these materials has always presented challenges, mainly on account of their physical characteristics. Alternative fuel materials tend to have high moisture content, with a wide range of particle sizes that must be homogenised before they can be used for firing.

The Rocket Mill, a technology by A TEC Production and Services GmbH, part of the Loesche group, provides an effective answer. Used in the fuel-preparation process, it enables cement producers to make greater use of the alternative fuels that are locally available, helping them to cut costs while maintaining product standards.

A TEC's Rocket Mill consists of two robustly-designed grinding circular chambers, each of which is equipped with four horizontally rotating chains and perforated screens. Since the Rocket Mill can accept feed up to 200 mm in size, only one pre-shredding stage is usually needed. A magnetic separator removes any ferrous metals in the feed, with clean non-ferrous metal being recovered separately from the crushing chamber.

In operation, the feed is fragmented by impact with the rapidly rotating chains, as well as through inter-particle collisions. The screens surrounding the crushing chamber allow only particles of the required size to pass through, with the fine material then being removed from the mill by screw conveyors. Any uncrushable material is automatically removed via slide gates from the chamber.

The output from the Rocket Mill has big advantages in terms of its fuel properties. The process creates particles with a higher specific surface that improves ignition and combustion characteristics, while the heat generated within the mill helps reduce the inherent moisture content of the feed from typically 25% to 15% in the fine material.

Featuring twin crushing chambers, each powered by a 315 kW direct electric drive, the Rocket Mill can produce 5-6 t/h of alternative fuel for kiln firing when fitted with 15 mm circular-hole screens. With 40×50 mm rectangular hole screens, the capacity increases to 10-12 t/h of calciner fuel.

As well as providing cement producers with a lower-cost alternative for producing correctly sized alternative fuels, the Rocket Mill is easy and cost-effective to maintain. A complete change-out of a set of wear parts takes less than two hours, with screens having a life time of around 900 – 1000 hours for screen and 200 – 250 hours for chains, depending on the material being crushed.

With its high reduction ratio, the Rocket Mill produces alternative fuel particles ready for firing in just one step. Easy to operate and maintain, it offers lower operating costs than a complete shredder system for such small size of final product, while allowing cement producers to achieve higher fuel-substitution rates in their kilns and calciners.