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Turnkey Solutions for AF Implementation

Dirk Lechtenberg, MVW Lechtenberg, Germany, describes the company's recent alliance with Lindner-Recylingtech which offers alternative fuel implementation through turnkey arrangements with cement plants.

Lindner-Recyclingtech (Austria) and MVW Lechtenberg (Germany) have established an alliance in order to provide turnkey solutions for the implementation of alternative fuels in the cement industry.

Lindner is a family-run company that was established in 1948 and has premises in Spittal, Austria. Almost 100 employees use the most modern engineering and production technologies. The self-developed and continuously upgraded shredding installations provide output capacities of up to 40 tph of waste. The company has successfully built RDF (refuse derived fuel) treatment plants for a number of years.

MVW Lechtenberg is based in Ahaus, Germany, and has operated a treatment plant for alternative fuels for many years. Alternative fuels have become increasingly prevalent in the German cement industry and, as a result, the company has also taken on an advisory role, passing on its wide production experience in the field of alternative fuels to cement manufacturers worldwide.

This alliance enables plants to outsource the management of alternative fuels. Implementation of turnkey projects typically starts with the analysis of the available waste streams. A wide range of solid alternative fuels are covered, from coconut shells to rice husks, industrial waste and municipal waste. As well as the chemical and physical parameters of the waste streams, the impact of the alternative fuels on clinker quality and emissions is also analysed.

Basic engineering, i.e. layout of the processing technology, as well as dosing and the supply of material handling equipment, is provided by MVW Lechtenberg. Plant construction, erection and assembly is performed by Lindner, and locally manufactured components can be used if desired. The main components are made in Austria, and guarantee up to 12 tph of ready RDF in each processing line.

A strict quality management system, as well as ongoing monitoring of the substitution rates and the quality of RDF, are made possible by the most modern process technology and expert system for flame control.

The central points of the processing plants are the Jupiter, Saturn, Meteor and Komet shredders. A simple and robust direct drive, a safety clutch and a foreign parts flap prevent the machine from breakdowns as well as stopping long downtimes, and these are supplied as part of the standard equipment.

The waste can be fed into the shredder in bulk form or in bales by a wheel loader or excavator. The waste is then shred into parts of 300 mm in size.

Defined grain sizes enable the separation of ferrous fractions by an over-belt magnetic separation system.

Figure 1. Direct drive and safety clutch.

Figure 2. Jupiter 3200 primary shredder.

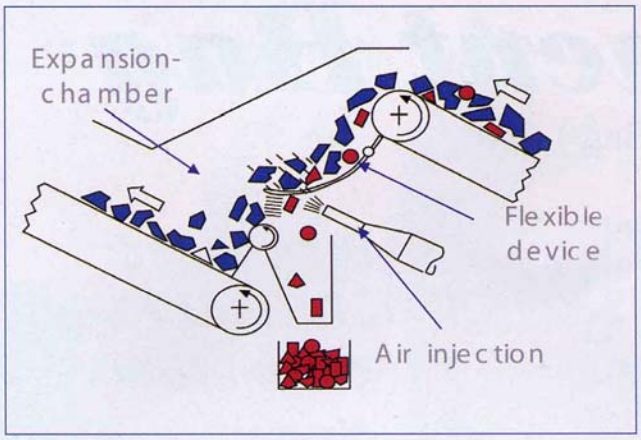

Figure 3. Diagram of the heavy fraction separator.

Figure 4. Komet final shredder.

Another feature is a self-developed heavy fraction separator, which separates different foreign parts such as stones and non-ferrous material.

There is also the possibility of separating the material into two different fractions: the high calorific light fraction can be separated from the municipal waste for further processing as an alternative fuel, or the high calorific light fraction can be separated for the main burner, as well as heavy fraction for precalciner combustion.

The Komet re-shredder cuts the alternative fuels to the exact sizes required for use as a ready-to-burn fuel. Also, the robust drive provides high production capacities. A high availability of the shredders is assured by direct access to the rotor, enabling a fast removal of foreign parts. Easily replaceable, purpose-developed knives also cut waste fractions that have more foreign parts.

Ready alternative fuels are stored in automatic bunker systems and then after weighing, either pneumatically or by belt conveyor, are fed into the burning system. This system is also provided within the turnkey contract.

A special expert system is an optional addition and can be integrated into all conventional control systems in the plant. Monitoring operational capacities, temperatures, free lime content and emissions values, among other things, enables optimal operation of the burning systems at high substitution rates.

Several plants have successfully implemented this method, including Holcim (Ecorec, Slovakia), Lafarge (Retznei, Austria), Lafarge Romania (order placed), and Heidelberg Cement (Sweden) among others. ◆