

# Refining our thinking on waste

It's the nature of our industry and Sibelco's drive for operational excellence, that our customers demand the highest quality, finer products.

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Customers of our Kemaman lime plant on the east coast of Malaysia require a particularly fine, Grade A specification of calcium hydrate – a white powder that's used in a variety of applications, from construction, to dentistry and food production.

To achieve the fine consistency of the Grade A product, a dynamic separator is used to remove coarse hydrate. This 'Grade B' product can make up to 20% of total output, and has traditionally been stored on site as waste. In 2015, alongside the opening of a new Lime Technical Centre, the team at Kemaman implemented a two-pronged strategy to resolve this waste issue targeting a more sustainable operation and resource by reducing the amount of waste whilst still supplying our customer's needs.

First, focusing on the refining process to reduce production of the Grade B by-product, a number of tests were introduced. The performance and yield of the hydrator upstream were examined in detail, while the impact of adding specific additives and adjusting the separators were studied in the Technical Centre. By validating the concepts in the Lime Technical Centre, prior to upscaling to industrial tests, costs could be kept low, while new ideas and concepts were implemented with ease.

The team has now turned its attention to recycling the Grade B waste into milk of lime – a slurry used as a liquid chemical neutraliser of acidic effluents.

The Lime Technical Centre is again involved, this time in defining the process to separate and recover the hydrate component in the Grade B product from its other constituents.

The process to reduce production of Grade B hydrate is pioneering in Malaysia, and, combined with a parallel strategy to recycle any waste that is produced, is likely to lead to considerable savings per year. Additionally, by improving the hydrator, the team has uncovered an opportunity to develop a premium hydrate for some high-margin applications.

Sibelco's investment in the new Lime Technical Centre has been fundamental to the speed of implementation and success so far; the ability to validate new processes and test their feasibility before large-scale rollout has allowed the team the freedom to be more agile and creative in their approach to solving the challenge.

