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Research area: General aims

Resource saving // -

Key words:

Deinking sludge, waste recovery, integrated production concepts, calcium carbonate

TITLE:**DIP-RCC – Experimental development of a new production process for calcium carbonate and metakaolin as raw materials for the paper and cement industry by recovery of deinking sludge combustion residues****Background/Problem area**

Papermills produce large quantities of sludge containing organic matter and minerals such as calcium carbonate and kaolin. This sludge is usually incinerated to produce energy and to reduce the quantity of waste to be disposed of. The resulting ash contains a mixture of calcium oxide, calcium carbonate and other inorganic substances.

Objectives/Research results

Objective of the project is a new process for the coupled production of recovered calcium carbonate (RCC) and a by-product. RCC will serve as mineral for the paper production, the by-product as cement constituent. Base materials are combustion residues (ashes) from paper industry deinking sludges. By chemically binding CO₂ in the RCC product the process contributes to the efficient use of resources.

The process chain comprises calcination, precipitation and purification steps. The concept was confirmed on laboratory and pilot scale. Incineration and calcination conditions were investigated to maximize the conversion of calcium carbonate while safeguarding product quality. Further investigations focused on process development for various qualities of paper sludge ashes, use of RCC as paper filler and as coating pigment and use of the by-product.

Application/Economic benefits

The production of a raw material from a material currently classed as waste and its reuse within paper industry will improve the resource and economic efficiency of the paper industry, just as external marketing of RCC and the by-product offers an additional source of income.

Period of time: 01.09.2010 – 31.10.2013

Remarks

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