HCFA and CO_2 savings in Europe – resources, markets, technologies

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ABSTRACT

Recently it was possible to observe an increase in the share of calcareous ashes in total volumes of coal combustion products, which in Europe stand now at approximately 60% level. This increase comes from bigger amounts of lignite and bituminous shales being burnt for power generation, greater popularity of dry and semi-dry flue gas desulfurization technologies and from a significant growth of fluidized bed combustion.

The calcareous fly and bottom ashes are distinct from other kinds not only with higher contents of calcium compounds, but also with having high hydraulic activity, determining their suitability for the production of building materials and applications in civil engineering works.

To what degree the calcareous combustion are beneficially utilized depends to large extent on the active involvement of their producers (power plants), who may provide conditions for their selective capturing and possible processing (mixing with other constituents). Key to large scale utilization is development and implementation of adequate technologies as well as market development.

In Europe, high-calcium ashes are applied in the production of cement-containing and cementless binders, massive concrete, for soil stabilization in civil engineering, road asphalt production, soil fertilization and amelioration, etc. Using high-calcium ashes not only reduces the consumption of natural raw materials and other traditional materials, but also is adding to lowering of CO_2 emissions into atmosphere, making building- and other technologies more competitive.

Optimal growth of calcareous ash utilization may be effected by research efforts, revision of some of the current technical norms and requirements, as well as development and implementation of new legal regulations and technologies in international frameworks. Technologies of HCFA processing are developed to bring them into conformity with current standard requirements, through fractional selection, preliminary or complete hydration, combining with ashes having other specific properties, seasoning, etc.

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