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Biomass pre-processing for various applications

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Biomass utilization always requires at least some preliminary processing of the feedstock, be it used for combustion, gasification, paper-making or as feed to a 'biomass refinery' where oil, alcohol and/or some chemicals may be produced. Primary size reduction to a proper level for ease of handling is essential, followed usually by further processing prior to final utilization. Important considerations for such processing are cost, equipment capacity and power consumption. The Szego Mill, a planetary ring-roller mill with grooved rollers, is a good candidate for such processing after wood has been chipped. A quick overview of various types of grinding equipment will be given followed by a closer look at the Szego Mill which can be operated both wet and dry, with a special niche of 'paste' grinding. It is compact, has relatively low power consumption and is versatile in operation. Examples of selected applications will be given. These may include dry grinding of wood wastes for suspension firing as well as examples of wet grinding, including mechanical pulping, solvent extraction and both grain and corn stover pre-processing for conversion to sugars and fermentation to alcohol.

Biography

Olev Trass is an Emeritus Professor in Chemical Engineering & Applied Chemistry. He has an expertise in fossil energy (coal beneficiation and coal-slurry fuels) renewable energy (fuel ethanol, biodiesel, other biomass-based sources) separation processes (distillation, extraction, gas absorption, etc.) transport phenomena (fluid flow, heat transfer, mass transfer).

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