

عنوان مقاله:

Biomass Characterization and its Use as Solid Fuel for Combustion

محل انتشار:

فصلنامه انرژی و محیط زیست ایران، دوره 3، شماره 2 (سال: 1390)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

The power industry is confronting challenges with seemingly conflicting goals. They provide the economy of scale needed to minimize the cost of production. Consumers, including industry, rely on affordable, dependable electrical energy. It's an important part of our economy and our daily lifestyle. However, reducing emission levels and conserving our finite resources are key components for achieving a sustainable environment. Biomass is a resource that can be substituted for coal, in varying degrees for existing pulverized coal plants. New, large power plants are being designed to utilize biomass as the primary fuel. Biomass is available now and biomass based new products and sources are being developed, as the market unfolds. However, fuel properties and characteristics are important to boiler design and operation. Different boilers have unique design and fuel requirements. Heating value, percent volatiles, total ash and moisture content, ash constituents and particle size are all key parameters considered by the boiler designer. Some biomass products have unique utilization issues. The chemical fraction behavior of biomass materials is quite different from that of typical coals. For co-firing applications, the properties of biomass and coal can be blended as a designer fuel. The objective is to best meet boiler, combustion, emission and economic requirements. Fuel degradation and spontaneous combustion are more important concerns for biomass fuel products. This is a moisture-dependent issue. Dry biomass can be stored for longer periods. High moisture levels become a concern for degradation and spontaneous combustion. Therefore, the paper deals with the biomass characterization in terms of its physico-chemical properties which can be useful to understand biomass combustion related issues.

کلمات کلیدی:

Ash; Biomass; Corrosion; Combustion; Fouling; Proximate Analysis; Slagging

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