Fusion characterization of biomass ash - DTU Orbit (09/11/2017)

Fusion characterization of biomass ash

The ash fusion characteristics are important parameters for thermochemical utilization of biomass. In this research, a method for measuring the fusion characteristics of biomass ash by Thermo-mechanical Analyzer, TMA, is described. The typical TMA shrinking ratio curve can be divided into two stages, which are closely related to ash melting behaviors. Several characteristics temperatures based on the TMA curves are used to assess the ash fusion characteristics. A new characteristics temperature, T_m, is proposed to represent the severe melting temperature of biomass ash. The fusion characteristics of six types of biomass ash have been measured by TMA. Compared with standard ash fusibility temperatures (AFT) test, TMA is more suitable for measuring the fusion characteristics of biomass ash. The glassy molten areas of the ash samples are sticky and mainly consist of K-Ca-silicates.

General information

State: Published
Organisations: Department of Chemical and Biochemical Engineering, CHEC Research Centre, Chinese Academy of Sciences
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Pages: 1-9
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information

Journal: Thermochimica Acta
Volume: 638
ISSN (Print): 0040-6031
Ratings:

BFI (2017): BFI-level 1

Web of Science (2017): Indexed Yes

BFI (2016): BFI-level 1

Scopus rating (2016): SJR 0.683 SNIP 1.17 CiteScore 2.4

Web of Science (2016): Indexed yes

BFI (2015): BFI-level 1

Scopus rating (2015): SJR 0.706 SNIP 1.125 CiteScore 2.18

Web of Science (2015): Indexed yes

BFI (2014): BFI-level 1

Scopus rating (2014): SJR 0.916 SNIP 1.489 CiteScore 2.56

Web of Science (2014): Indexed yes

BFI (2013): BFI-level 1

Scopus rating (2013): SJR 0.628 SNIP 1.513 CiteScore 2.33

ISI indexed (2013): ISI indexed yes

Web of Science (2013): Indexed yes

BFI (2012): BFI-level 1

Scopus rating (2012): SJR 0.75 SNIP 1.424 CiteScore 2.1

ISI indexed (2012): ISI indexed yes

Web of Science (2012): Indexed yes

BFI (2011): BFI-level 1

Scopus rating (2011): SJR 0.588 SNIP 1.286 CiteScore 1.99

ISI indexed (2011): ISI indexed yes

Web of Science (2011): Indexed yes

BFI (2010): BFI-level 1

Scopus rating (2010): SJR 0.572 SNIP 1.246

BFI (2009): BFI-level 1

Scopus rating (2009): SJR 0.778 SNIP 1.289

BFI (2008): BFI-level 1

Scopus rating (2008): SJR 0.613 SNIP 1.245

Scopus rating (2007): SJR 0.801 SNIP 1.215

Scopus rating (2006): SJR 0.576 SNIP 1.119

Web of Science (2006): Indexed yes

Scopus rating (2005): SJR 0.623 SNIP 1.142