

Explosion Shock Separation: A New Approach In Pretreatment Technique of Lignocellulosic Materials

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Abstract

Combining action features of explosive shock with those of natural lignocellulosic biomass structure, we have successfully developed a new explosive shock dilatation and separation technique for pretreatment of natural lignocellulosic materials in the laboratory. Based on a brief introduction to the technical background and experimental procedure of this new method, some preliminary experimental results are given and discussed: the scanning electron microscope (SEM) qualitative observation results show that for treated natural lignocellulosic sample such as corn cob etc., their length of fibre bundle shortens, fibre bundle arrange disorders, biomass appearance and structure of samples largely change to be dilatation and loose state. The dilute acid hydrolysis quantitative measure results show that for treated samples, the overall yield of the reducing sugar largely increases, hydrolysis rate of corn cob sample is over 80%, rate and speed of hydrolysis are increased by times.