단계적 가스화 공정에서 활성탄에 의한 타르(에어로졸)의 제거

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Gasification, a thermo-chemical conversion processes, is a promising way to confront the energy crisis and environmental pollution by converting feedstock into a product gas called producer gas or syngas. Producer gas (or syngas) composed mainly of H2, CO, CH4, CO2, and other hydrocarbons can be mainly used to generate electricity, to produce chemicals and fuels, and to produce hydrogen. There is, however, one main obstacle needs to be overcome for the industrial implementation of gasification of carbonaceous materials. That is tar problem. Tar is a mixture of aerosols and generally defined as organic compounds larger in molecular weight than benzene. Condensed tar can block and foul the gasification process equipment, leading to causing to stop gasification operation. Tar removal technologies, in general, can be divided mainly into two methods: primary methods, which are treatments inside the gasifier, and secondary methods, which are measures downstream of the gasifier. The current study describes the challenges of and solutions for the gasification of biomass and plastic waste to produce a producer gas with a very low level of tar.