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Abstract
Reactive blending of polyolefins using various low molecular weight polybutadienes in their combination with an organic peroxide has been investigated. Tensile impact strength was used as the main criterion of compatibilization efficiency. Liquid polybutadiene without functional groups is an effective compatibilizer for the blends composed of virgin polyolefin components, while the properties of blends prepared from damaged polyolefins (aged at 200 oC) or from real polyolefinic waste are more affected by maleinized liquid polybutadiene. Compatibilizing effect can be increased by the incorporation of a basic inorganic admixture and a small amount of elemental sulphur

Abstract
Gassification of coal is a traditional industrial including an effective recovery of generated gas. Specifically in Europe there are efficient gas generators of a different type. Co gassification of coal with municipal waste allows to produce gas which can utilised in the power generating process or for a chemical synthesis.

Abstract
During co-pyrolysis of coal mixture/waste plastics the capability of an appropriate type of coal as a hydrogen donor has been positively applied. Brown coal and MMW mixed municipal waste with a high rate of plastics has been used. As plastics referential models a co-polymer SB and epoxy resin were co-pyrolysed.

Abstract

Co-pyrolysis of hard coal with waste PVC in stationary reactor was performed. The reason is that pyrolysis of coal together with waste polymers/organic materials (co-pyrolysis) gives the useful solid, liquid and gas products. Therefore, it is the way of treatment of industrial and municipal waste mixtures. In our case, the waste mixture with PVC was investigated. Mass balance of the process was evaluated and properties of products characterized. HCl formed during co-pyrolysis was partly removed by preparation of coal with NaOH. The influence of NaOH on the surface parameters of solid carbonaceous rest was investigated. It was found that solid carbonaceous rest (coke) obtained as the main product exhibited low ash and sulphur content and from point of view of industrial application satisfactory surface properties. Therefore, the solid rest could be suitable as a smokeless fuel or as an industrial sorbent. The by-products were tar and gas. Because high aromaticity, low sulphur content, low ash and water content and high calorific value, the tar obtained may be used as a source of chemicals as well as a low-sulphur heating oil. The gas obtained was high calorific, therefore, it is suitable as the heating gas for energetical purposes.

Abstract

A possibility of utilizing waste plastic is represented by its co-pyrolysis with high-aromatic substances. To verify the hypotheses, coal-tar high-temperature pitch mixed with a choice of polymers has been employed. The processing of suitable plastic and carbochemical mixtures accompanies a synergy effect which influences the quality and yield of particular products of heat processing. Further, in the paper presented, a comparison with the products of standard pitch pyrolysis has been made. A possibility of technical utilization of co-pyrolysis products is discussed.

Abstract

At present, more focus has been placed on co-liquefaction of waste plastics with coal. The literature data and results have shown that the conversion of coal and plastic waste into liquid fuel is possible on a laboratory scale.

Abstract

Coal and carbonaceous additives are the precursors of pyrolytic carbon and spheroidal graphite iron. With a laboratory unit the pyrolysis of coal and three additives was performed in two steps. In the first step carbonization took place with the formation of coke and the separated volatile products were in the second step degraded to pyrolytic carbon, reaction water and gas. It was proved that pyrolytic carbon can be macroscopically separated into the low-ordered amorphous carbon and the highly ordered lustrous carbon. The so-called "lustrous carbon" from the common I.~Bindernagel test has the character of amorphous carbon.