

Lignin and styrene graft copolymer

Benzene extraction of lignin using the grafting reaction with styrene , the test procedure is as follows : the pure styrene (Sample A) was added to the conical flask, and passed N₂ 10min, lignin , CaCl₂ , and dimethylsulfoxide (DMSO) (sample B) was added to another Erlenmeyer flask. Drum gas 10min, H₂O₂ added to the sample B, the mixture was further drum gas 20min, added to the Sample A Sample B , stirred 5min, and continue with N₂ gas , and then the flask was placed in 30 °C water bath was stirred 48h, after the reaction without any terminator , termination plus 10 times the volume of the mixture (pH = 2) acid , precipitate recovered by filtration .

The resulting product is a graft surfactant molecules , mainly in the phenylpropanoid grafted aromatic ring , a surfactant which can form a stable emulsion which can be further confirmed while covered with lignin - styrene connection birch graft copolymer can increase the contact angle of water , wood and polystyrene can also increase the connection strength, the formation properties of the copolymer used to design wood - thermoplastic composite.

Synthetic polymer grafted to the cellulose, lignin and other natural polymers are used on a large radical process method , however, is difficult to control by free radical grafting method the molecular mass , while the presence of the grafting product various types of bond type connection , contains a lot of homopolymer. And difficult to repeat grafting , graft yield and some other characteristics . In view of the above problems, the product obtained by the method of such grafting is not well as a surfactant . Using a new synthetic method can well control the lignin skeleton and molecular weight of the product after the graft , the graft ratio and graft control connection key type , nature is relatively stable , that is a low molecular weight dispersion of small lignin with a molecular weight of anionic polymerization of styrene , by replacing the lignin macromolecule obtained methylsulfonyl structure determination of lignin - styrene copolymer. Then extracted unreacted styrene toluene , the residue (toluene -insoluble) was grafted product.