

## Lignin graft copolymerization of acrylic monomer -1

Lignin monomer vinyl radical graft copolymerization , the most studied is the reaction of lignin and acrylamide because these monomers acrylamide maximum activity , the use of a cerium salt initiator ,  $\text{H}_2\text{O}_2\text{Fe}(\text{II})$  , potassium permanganate , persulfate , and  $\gamma$  2 rays.

0.001mol/LNaOH dissolved lignin solution , adjusted with 5%  $\text{H}_2\text{SO}_4$  to pH 8 , concentration of 1g / L, with ceric ammonium nitrate as an initiator , and copolymerized acrylamide . They found that the grafting reaction product , relative molecular mass less than 50,000 parts significantly reduced, more than 100,000 parts increased significantly , almost no less than 5000 parts of the graft reaction can only generate short-chain , the relative molecular mass of each segment molecules also varies considerably ; from scanning electron microscopy (SEM) shows the surface of the grafted products mesh structure exist, but the lignin ratio , has been basically no larger mesh , and the mesh is vague .

Of lignin sulfonate and acrylamide or acrylic acid graft copolymerization reaction conditions :  
lignin sulfonate

0.5g ( $7.35 \times 10^{-4}$ mol / L), the monomer acrylic acid 2.5mL (0.72mol / L) or acrylamide, 2.5g (0.70mol / L), ferrous chloride 18.5mg ( $2.95 \times 10^{-3}$ mol / L) , hydrogen peroxide 20mg ( $1.18 \times 10^{-2}$ mol / L), the reaction medium 50mL, reaction temperature of lignin sulfonate - acrylic system is 30 °C, the lignin sulfonate - acrylamide system is 50 °C, reaction time is 2h. Extracted with ethanol homopolymer of acrylic acid , and then extracted with methanol and the copolymer , the lignin sulfonate - acrylamide reaction , unreacted lignosulfonate with dimethyl formamide extraction .

MozeA , also studied the lignin and acrylamide , acrylic acid graft copolymer , the choice of  $\text{CaCl}_2\text{-H}_2\text{O}_2$  as initiator system, and effects of reaction temperature , the amount of monomer and lignin monomer ratio.  $\text{H}_2\text{O}_2\text{-Fe}(\text{II})$  is the most commonly used initiator in the graft copolymerization , ferrous ion and hydrogen peroxide form hydroxyl radicals and iron ions , hydroxyl free radicals and the lignin aromatic vinyl monomer graft copolymerization , and also occur ethylene monomer itself polymerized. In such initiator systems , to achieve a high yield and conversion of lignin , however , a homopolymer of acrylic monomer is 50% to 60%.