

## Lignosulfonate phenolic resin -2

Using the kraft pulping liquor obtained in the reaction with a phenol lignin sulfonates, with formaldehyde polymer, more suitable to obtain the production of fiber with plastic. When this gel modified with nitrobenzene, further improved toughness.

In addition, the application of two-step condensation of lignin obtained very good performance particleboard adhesive. The first step of sulphite waste liquor (pH = 4) at 80 °C with small amounts of formaldehyde and phenol prepolymerization; step under alkaline conditions and then with the large amount of formaldehyde polymer. Obtained by the method using such a phenol - lignin - formaldehyde adhesive can replace the traditional production of plywood using a phenolic plastic, and, to extract lignin from the black liquor can replace up to 60% of the phenolic plastic phenol.

There methylolated lignin first, then with phenol and formaldehyde condensation. Lignin in alkaline conditions with formaldehyde generated hydroxymethyl reactions include two aspects, one lignin present on the aromatic ring hydroxymethyl reaction vacancy occurs. Second, the side chain of an aromatic ring hydroxymethyl reaction occurs.

Test Results: (1) When replacing Hydroxymethylated herbal product lignin phenolic resin reached 47.8%, obtained with its repression plywood adhesive, the shear strength still exceeds the national standard class I board > 1MPa requirements; (2) made of a synthetic adhesive process may take advantage of the existing equipment phenolic resin adhesive, and thus can replace some conditions where the production of phenolic resin adhesive; (3) has been carried out pilot plant test plate obtained average wet strength is 14.8MPa (Ash) class I plywood, so the production has a certain significance.