

## **Lignin synthesis resin binder**

Lignin can be used for preparing phenol - formaldehyde adhesives, phenol replace part , while improving the performance of the adhesive . For lignin phenol - formaldehyde resin binder preparation methods can be divided into two categories : direct method and modification method . Reaction direct method is simple, but less the amount of lignin phenol substituted ; the modification method due to the modified lignin and other resin components have good chemical affinity , substituted phenolic lignin increase in capacity , and the obtained wood Su adhesive has a strong crosslinking property .

Lignin modification methods are chemical and non- chemical method . Chemical modification methods are mainly hydroxymethylation , phenol hydroxylation, dealkylation , etc. ; non-chemical methods include physical methods ( mainly by ultrafiltration ) , bio- fermentation method . Domestic researchers compared the lignin by hydroxymethyl phenol hydroxylation and then react with phenolic glue two process routes , the results show that both methods can increase the amount of lignin and improved alternative resin binder performance, but the latter is more effective. Besides domestic lignin also carried out by bio-fermentation processing, then for preparation and application of the adhesive . Lignin is also used to reduce the direct incorporation as Formaldehyde Scavenger unreacted formaldehyde emissions do .