



Protobind™ 1000 based Shell Moulding PF Resins

Asian Lignin Manufacturing Pvt. Ltd. has extensively worked on the development and optimization of PF resins based on **Protobind™** 1000 for several applications, including shell moulding resins. Although various substitution levels are possible, 15% phenol replacement is recommended as a starting point that offers excellent performance and cost savings as compared to the use of phenol.

Typical Properties of **Protobind™** 1000 based shell moulding PF resins (15% phenol substitution)

Solids Content	70%
pH	3 - 3.5
Specific Gravity	1.1 - 1.12
Hot Tensile Strength (4% resin on sand & 16% catalyst)	370 - 400 psi.
Peel back	<2%
Built up	50 - 55%
Gas Content	17 - 20 gms/cc

The formulations developed are entirely compatible with the equipment and operating practices available at typical Indian PF resin plants that cater to the phenolic resins market.

Resins based on **Protobind™** 1000 have properties that are comparable to those of standard shell moulding PF resins. **Protobind™** 1000 modified shell resin is a novolac type phenolic resin developed to maintain hot tensile strength as well as gas content at same addition level as control PF shell moulding resin. Therefore resins based on our product are ideal binders for cores, which are surrounded by heavy metal sections.

Our team of technical experts is prepared to work with individual clients to customize formulations as required in order to achieve an optimum balance of performance and economics