

JP-400 Epoxidized Polybutadiene (Development Grade)

Unique epoxidized Polybutadiene grade JP-400 has been developed with similar epoxidation grade as JP-100 while offering advantageous viscosity.

Properties of Polybutadiene Grades

Epoxidized Polybutadiene	M _n	Viscosity (Pa·s/45°C)	Epoxy-equivalent (g/eq.)	T _g (°C)
JP-400	3,500	5.5	230	-62
JP-100	1,300	22.0	210	-16

Solubility Behavior

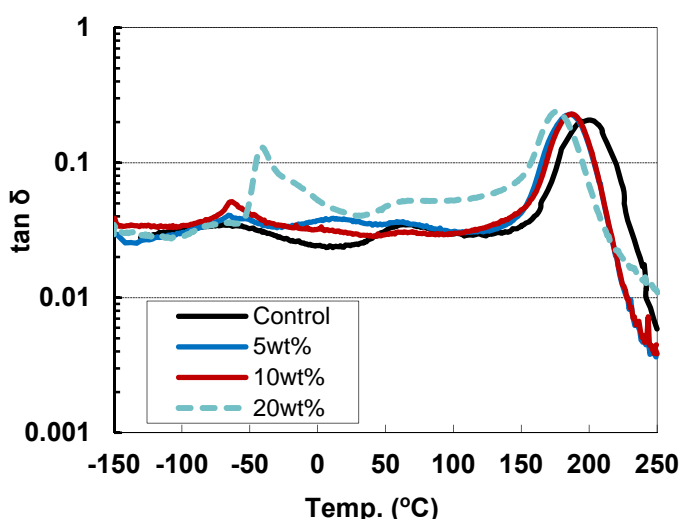
JP-400/JP-100 (w/w %)	2/8	5/5	8/2
Compatibility	Soluble	Soluble	Soluble

JP-400 and JP-100 show good compatibility after 24 hours of room temperature.

Properties of Epoxy-based sheets after heat curing

Epoxy-based sheets have been prepared by heat curing with 1 hours at 60°C followed by 4 hours at 150°C under nitrogen atmosphere.

Epoxidized Polybutadiene 10% (w/w)	Durometer Type D	Storage modulus at 25°C (MPa)	tan δ max. (°C)
JP-400	82	1750	187
JP-100	86	1950	199
Control	89	2350	201



Formulation (wt ratio)

BPA type epoxy resin (YD-128)	95, 90, 80
JP-400	5, 10, 20
2-Ethyl-4-methylimidazole	3

Figure: Temperature dependency of storage moduli of Epoxy-based sheets using JP-400.

Conclusion

Application of JP-400 decreased storage modulus by 25% after curing in comparison to none PB. Lower viscosity and T_g of JP-400 are contributing to improved storage moduli of epoxy sheet. JP-400 addition led to improved flexibility of epoxy-based sheet.