

SIGNIFICANT IMPROVEMENT IN WEAR- AND FADE-RESISTANCE

The challenge of wear-resistance and fade-resistance

SUCCESS STORY



SOLUTION

ASK Chemicals developed a completely new approach to wear-resistance technology, that fully met the requirements of the customer.

RESULTS

- 66% improvement in wear-resistance at 350°C.
- 40% improvement in wear-resistance at 150°C.
- Marked improvement in shear strength

Test	Unit	Sample Reference	
		Reference	New
Hardness	-	97	88
Shear Strength	N/cm ²	214	427
Retention	%	100	100
Density	gram/cm ²	2.12	2.17
Compressibility @ RT	%	1.24	1.71
Compressibility @ 400 °C	%	0.80	0.82

TECHNICAL PROFILE

The resin is essentially an unmodified phenolic resin that contains hexamine. The wear-resistant technology can be applied to any tailored specifications – improving friction in brake pads for a variety of vehicles.

The solution is highly versatile as the resin grades can be tailored to the required specifications, varying in flow, cure time, hexamine content and granulometry.

STARTING POINT & CHALLENGE

A common challenge in tribology is the control of wear and fade in a friction element, which must be carefully balanced with other characteristics such as NVH, density, shear strength and cost. One of the greatest challenges faced by the automotive industry is optimizing or achieving high(er) wear resistance in friction products.

It is a performance factor that is increasingly requested in several friction applications, for example in disc brake pads for SUVs or light commercial vehicles.

A braking system manufacturer located in South Africa approached ASK Chemicals to develop a powdered phenolic resin with the following attributes:

- Significant improvement in wear resistance, especially at high temperatures
- Significant improvement in fade resistance

BENEFITS AT A GLANCE

Technological

- Improved wear-resistance and fade-resistance
- Improved shear strength

Safety

- Consistent stopping power over the temperature range in application

Total costs of ownership

- Longer life of the friction element

 **Reziance**
Engineered resin solutions