



Phenolic Resin as Supersizer in Coated Abrasives

The Benefits of Supersizer in Coated Abrasives

Phenolic resins (PF resins) are commonly-used bonding agents for standard and high quality coated abrasives. After drying and curing, they achieve a dense crosslinked structure becoming water insoluble and “thermosetting”. Additionally, they have very high bonding strength.

The advantages of PF resins are:

- High strength and toughness
- Water insolubility and chemical resistance
- Temperature resistance
- Viscosity is easily adjustable by addition of water
- Good grain adhesion
- Limited shrinkage while drying
- Good compatibility with mineral fillers
- Easy handling in highly-engineered production lines

Supersizer refers to the application of an additional size coat that is purpose-designed for the substrate, with the aim of enhancing stock removal.

These substrates can vary from soft metals (aluminium, copper) to medium-hardness metals (mild steel) to hard metals (stainless steel).

Accordingly, the manufacturer of these specialized coated abrasives would design a supersizer fit for the following purposes

- Anti-loading
- Cooling
- Corrosion
- Lubrication

ASK Chemicals offers RI-1185 as a premium phenolic resin for supersizers.



Formulatory Guidelines

RI-1185 is ideal for use in supersizer mixes for, but not limited to

- Belts
- Flap discs
- Flap wheels

RI-1185 is best used in conjunction with about 60% of the following types of additives

- Halide-containing grinding aids
- Dehydrating fillers
- Anti-block agents
- Anti-static agents
- Lubricants
- Free-radical scavengers

Phenolic Resins for Supersizer

ASK Chemicals offers RI-1185 as depicted in the following table

Grade	Viscosity (cP)	Solids (%)	H ₂ O Tol. (%)
RI-1185	500-900	78-82	60-1,000

The storage life is three months at 10°C.

RI-1185 Characteristics

RI-1185 is a water-based phenolic resol resin with excellent compatibility with a range of corrosive, antiloading and cooling additives, leading to stable mixes without any air entrapment.

Typical Formulations

Cooling supersizer for mild steel

RI-1185	40
Water	10
Pigment dye	2
Cryolite	5
Aluminium trihydrate	43
Zinc stearate	10

Corrosive supersizer for stainless steel

RI-1185	40
Water	10
Pigment dye	2
KBF ₄	48
Zinc stearate	10

Application Recommendations

After partial post-curing of the size coat, and optional flexing, the supersizer is applied.

The wet coating is normally applied at a thickness of approximately 260 – 320 g/m² over the grit size range of P100 to P30.

Curing Schedule

The supersize coating is cured by employing the following oven program:

Temperature	Time
90°C	18 minutes
95°C	36 minutes
100°C	18 minutes
105°C	18 minutes

Post-curing is achieved by curing for six hours at 120°C.

What this means for you

Supersizer has proven in independent testing to improve stock removal by up to 100%. Therefore, RI-1185 resin will enhance the value of high-performance coated abrasives.