



K-POL[®]

Specialty Diol
For 2K PU Systems

K-POL® Specialty Diol

K-POL 8211 is a unique, 100% active, aliphatic and saturated diol recommended for 2-component polyurethane coatings, elastomers and coatings formulated with amino crosslinking resins. It provides hard films with good flexibility. K-POL 8211 will provide lower VOC systems with improved toughness, high modulus and good exterior durability, plus excellent performance in thin film coatings.

K-POL 8211 can be used in a variety of applications including industrial maintenance, automotive OEM/ refinish, general industrial, urethane elastomers, adhesives and sealants.

This brochure will focus on K-POL 8211 performance in polyurethane floor coatings.

K-POL Performance - Polyurethane Floor Coating Study

Polyurethane floor coatings require good abrasion resistance, hardness, chemical resistance and stain resistance. They also require good mechanical properties like tensile strength, hardness, flexibility and tear resistance. A challenge for polyurethane coating formulators is to develop systems that meet these requirements with resin systems that have low viscosities without the use of volatile solvents.

Benefits of the addition of K-POL 8211 in a solventless 2K PU formulation include:

- ✓ Higher hardness
- ✓ Excellent flexibility
- ✓ Improved durability
- ✓ Higher modulus

Solventless Aromatic Clearcoat Study

The K-POL 8211 modified casting had significantly higher tensile stress, elastic modulus and hardness compared to the control. The combination of higher elastic modulus (stiffness) and higher stress (toughness) with similar strain (elongation) indicate the modified casting is stronger and more robust than the control casting.

Mechanical Properties

Properties	Control	8211
Stress at max, psi	474	762
Modulus, psi	637	1,266
Shore A	73	88
Shore D	25	42



Dog-bone sample used to test on Instron

Die C Tear Resistance (Instron)

K-POL® 8211 displayed tear strength that was double of the control system and about 5x the tear strength of the polycaprolactone diol PCL modified system.

Properties	Break Load, pli*
Control	222
K-POL 8211, 10%	451
PCL Diol	86

*pli = pounds per linear inch

Hot Tire Pickup

3 mm castings over concrete were tested by placing heated tire sections onto the surface with an applied load and storing the sample at 60°C for one hour.

All of the films had good resistance to hot tire pick up. None of the coatings adhered to the tire section. However, black tire marking and coating compression was more evident on the control film.

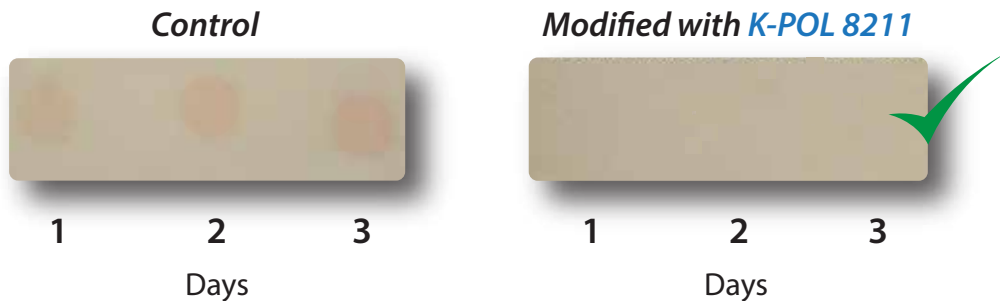
FILM PROPERTIES	Control	10% PCL* diol	K-POL 8211
Black Tire Marking	3	1	1
Coating Compression	1	0	0
Coating Integrity/ Film Lifting	0	0	0

*PCL= polycaprolactone

0 = no effect 5 = severe damage

The following automobile transmission fluid stain test was conducted over a 3 day period. The transmission fluid was applied onto the surface of the castings as 3 drops with a diameter of approximately 7 mm. The drop was wiped off after 1, 2 and 3 days of exposure. Castings formulated with 10% K-POL 8211 did not stain.

Transmission Fluid, 3 Day Spot Test



Gasoline Soak, 30 Hours

Disks cut from 3mm castings were immersed in gasoline for 30 hours. The gasoline caused severe damage to the control disk while the integrity of the K-POL modified disk was maintained.



Notes:

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