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water based industrial polymers

KX-99 Technical Data sheet

Product Specifications

Description	Hydroxyl Functional Cationic Acrylic Solution Polymer		
Solids	29.0 -31.0%	Appearance	Clear Solution
pH	5.0 - 6.0	Specific Gravity	1.0442
Viscosity	300-800 cps	Weight/Gallon	8.71
Flash Point	Same as Water	Freeze Thaw Stability	5 Cycles
Glass Transition Temperature	32 Degrees C	USDA Status	Yes

Product Description

Ottopol KX-99 is a Hydroxyl Functional Cationic Acrylic Solution Polymer. This polymer will crosslink at room temperature with polyisocyanates and epoxy silanes. The fastest and most resistant coating can be formulated with the combination of a polyisocyanate and an epoxy silane. We recommend a maximum of 20% epoxy silane and 20% polyisocyanated based on solids. The ambient curing happens very quickly, in less than one hour the film will have water resistance. Allowing the film to cure for two hours will result in a film that has over 100 double rubs acetone resistance. Detergents and cleaners will not remove this film. Water resistance is excellent. The dried film will also resist staining.

Starting Point Formulation "A" Two Component system

Part A

Ottopol KX-99	78.8
Water	9.1
*Masurf FS-2800	0.4

In 2 hours ambient cure, the film will have over 100 double rubs acetone resistance

Part B

**AP Silane 51Epoxy Silane	7.0
***Bayhydur 305	4.7

Mix components in the order listed for 30 minutes. Resulting viscosity will be 25-30 seconds #2 Zahn Cup. The Masurf FS-2800 is a fluorocarbon wetting agent and is quite effective with this system.

*Mason Chemical Company (800)362-1855
** Advanced Polymer (201) 933-0600
*** Bayer Material Science (412) 777-2000

Polyisocyanate Free Formula

Ottopol KX-99 is a Hydroxyl Functional Cationic Acrylic Solution Polymer. This polymer will crosslink at room temperature with Dow Corning Epoxy Silane Z-6040. We recommend a maximum of 20% Silane based on resin solids. The ambient dried film will have excellent resistance to solvents, such as, MEK, Acetone and IPA. Detergents and cleaners will not remove this film. Water resistance is excellent. The dried film will also resist staining.

Starting Point Formulation "B" Two Component system

Part A
Ottopol KX-99 ---------- 72.3
Water ---------- 20.3
*Masurf FS-2800 ---------- 0.4

Part B
**AP Silane 51 Epoxy Silane ---------- 7.0

Solvent Resistant Coating
Resists MEK, Acetone & Isopropyl Alcohol
Ambient cure in 72 hours

Mix components in the order listed for 30 minutes. Resulting viscosity will be 15-20 seconds #2 Zahn Cup. The Masurf FS-2800 is a fluorocarbon wetting agent and is quite effective with this system. The pot life will be 72 hours.

*Mason Chemical Company (800)362-1855
** Advanced Polymer (201) 933-0600

Starting Point Formula "C" Two Component system

Accelerated Cure Rate Coating for Chemical Resistance in 14 Hours (Ambient Cure)
Polyisocyanate Free

Part A
Ottopol KX-99 ---------- 72.3
Water ----------8.3
*Bindzil CC401 Silica 37% Active ---------- 14.7
**Masurf FS-2800 Fluorocarbon Surfactant ----------0.4

Part B
*** AP Silane 51 Epoxy Silane ----------4.3

Mix components in the order listed for 30 minutes. Resulting viscosity will be 25-30 seconds #2 Zahn Cup. The Masurf FS-2800 is a fluorocarbon wetting agent and is quite effective with this system.

*Eka Chemicals (770) 578-0858
**Mason Chemical Company (800) 362-1855
*** Advanced Polymer (201) 933-0600

Performance and Attributes of Formulated Product

For concrete coatings the cured film resists the following:
Gasoline, Motor Oil, Anti-freeze, Brake Fluid and Alkaline Cleaners commonly used for concrete and Hot Tire Mark.

Heat Seal Test: 230 Celsius (446 F) @ 45 psi for one second face to face ---------- Pass
The crosslinked and cured film exhibits high heat resistance while remaining flexible and will not crack when applied to thin film surfaces such as Mylar. Folding the Mylar in half will not crack the film or have any loss of adhesion.

Hard Tough Mar Resistance Film:
Pencil Hardness ---------- Surpasses 6H
Konig (Pendulum) ---------- 163 seconds
Konig (Pendulum) addition of Silica to coating ---------- 173 seconds

Cure Rate to Achieve Chemical Resistance at Ambient Temperatures
Starting Point Formula "A" ---------- 2 Hours
Starting point formula "B" ---------- 72 Hours
Starting point formula "C" ---------- 14 Hours

Pot Life of Wet Sample
Starting Point Formula "A" ---------- 8 Hours
Starting point formula "B" ---------- 72 Hours
Starting point formula "C" ---------- 14 Hours

Chemical Resistance (Ambient Cure)
150 Double Rubs MEK ---------- Pass
150 Double Rubs Acetone ---------- Pass
150 Double Rubs Isopropyl Alcohol ---------- Pass

Differences Between the Polyisocyanate Free, the Polyisocyanate containing Formula.

The biggest difference is the cure cycle. Formula "A" will have solvent resistance in 2 hours, Formula "B" takes 72 hours and Formula "C" takes 14 hours. Formula "B" and "C" would be the safest and friendliest because the epoxy silane has FDA 177.1390 approval for direct contact with food as a component of a coating that sees over 350 Fahrenheit and contains no polyisocyanate. Our acrylic polymer KX-99 has no hazards, with the exception of a small percentage of Isopropyl Alcohol and Acetic Acid.