



**Gellner Industrial, LLC**

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**www.gellnerindustrial.com**

***water based industrial polymers***

## **KX-99 Technical Data sheet**

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### **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

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### **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.

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### **Starting Point Formulation "A" Two Component system**

#### **Part A**

Ottopol KX-99 -----	78.8
Water -----	12.5
Masurf FS-2000*-----	0.4

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

#### **Part B**

Dow Corning Z-6040** -----	4.7
Bayhydur 305*** -----	2.4

Mix components in the order listed for 30 minutes. Resulting viscosity will be 25-30 seconds #2 Zahn Cup. The Masurf FS-2000 is a fluorocarbon wetting agent and is quite effective with this system.

\*Mason Chemical Company (800)362-1855

\*\* Dow Corning (989) 496-6000

\*\*\* Bayer Material Science (412) 777-2000

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## 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 ----- 23.0  
Masurf FS-2000\*----- 0.4

#### Solvent Resistant Coating

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

#### Part B

Dow Corning Z-6040\*\* ----- 4.3

Mix components in the order listed for 30 minutes. Resulting viscosity will be 15-20 seconds #2 Zahn Cup. The Masurf FS-2000 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

\*\*Dow Corning (989) 496-6000

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### 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  
\*Keostrosol K 1530 Silica 30% Active ----- 14.7  
\*\*Masurf FS-2000 Fluorocarbon Surfactant----- 0.4

#### Part B

\*\*\*Dow Corning Z-6040 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-2000 is a fluorocarbon wetting agent and is quite effective with this system.

\*Chemiewerk Bad Köstritz GmbH +49 36605 81-0

\*\*Mason Chemical Company (800) 362-1855

\*\*\*Dow Corning (989) 496-6000

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## 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

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### **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..

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## Manufacturer of Water Based Acrylic Polymers

## Ottopol Product Guide

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Name	Solids	pH	Viscosity	Tg	Attributes
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**Anionic Polymers**

25-50E	49-51%	6.0-7.0	250-2,000 cps	43	Converts into low cost solution polymer for pigment grinding and high gloss flexo and gravure inks.
25-30	29-31%	8.0-9.0	2,000-4,000 cps	43	Ammonia cut version of 25-50E. Solution polymer with good adhesion to non-porous surfaces
M-30	29-31%	7.0-8.0	1,000-2,000 cps	43	DMEA cut version of 25-50E. Suitable for metallic and florescent inks.
G-35	29-31%	8.0-9.0	200-400 cps	48	Solution polymer with acid number of 200. Suitable as grinding vehicle and high gloss inks & varnishes.
S-30	44-46%	8.0-9.0	200-500 cps	-20	Emulsion with low Tg for adhesion to plastic films. Suitable for flexo or gravure
S-50	44-46%	8.0-9.0	200-500 cps	0	Emulsion polymer with good adhesion to non-porous surfaces.
S-75	44-46%	8.0-9.0	200-500 cps	25	Film forming emulsion polymer suitable for inks & coatings on paper and board
S-100	44-46%	8.0-9.0	200-500 cps	50	Non-film form emulsion polymer for glossy flexo and gravure inks
SX-30	44-46%	8.0-9.0	200-500 cps	-20	Self cross-linking emulsion for flexo or gravure printed films
SX-50	44-46%	8.0-9.0	200-500 cps	0	Self cross-linking emulsion with good adhesion to non-porous surfaces
SX-75	44-46%	8.0-9.0	200-500 cps	25	Self cross-linking emulsion with good gloss for flexo and gravure printing
SX-100	44-46%	8.0-9.0	200-500 cps	50	Self cross-linking emulsion, non-film forming for glossy flexo and gravure inks.

**Hydroxyl Functional Polymers that are Low Temperature Cure (220°F)**

522	44-46%	7.0-8.0	200-500 cps	105	Hard acrylic emulsion with Hydroxyl functionality, crosslinks with melamine and epoxy resins for excellent solvent resistance
510-28	27-29%	8.0-9.0	2,000-4,000 cps	32	Flexible solution with Hydroxyl functional acrylic, crosslinks with melamine and epoxy resins. Excellent salt fog resistance

**Cationic Polymers**

K-21-30	29-31%	5.0-6.0	200-400 cps	43	Solution polymer for alkali resistance and adhesion to non-porous substrates
K-362	29-31%	5.0-6.0	200-400 cps	43	Solution polymer for alkali resistance and adhesion to non-porous substrates
K-633	28-30%	5.0-6.0	200-400 cps	44	Solution polymer for alkali resistance and adhesion to non-porous substrates, improved solubility
K-23	41-43%	5.0-6.0	200-500 cps	26	Emulsion polymer for alkali resistance and adhesion to non-porous substrates
K-65	35-37%	5.0-6.0	200-800 cps	81	Hard emulsion polymer for alkali resistance
K-66	41-43%	5.0-6.0	200-500 cps	87	Hard emulsion polymer for alkali resistance
KX-99	29-31%	5.0-6.0	300-800 cps	32	Hydroxyl Functional Cationic Acrylic Solution, crosslinks at ambient or elevated temperature for solvent resistant coating