

Adding value to your products - worldwide



KURARAY POVAL™, EXCEVAL™, ELVANOL™ and MOWIFLEX™ are the trademarks for polyvinyl alcohols made by Kuraray. Their key characteristics – outstanding film-forming properties and high binding strength – add real value to your products. Our polymers are water-soluble, highly reactive, crosslinkable and foamable. They have high pigment binding capacity, protective colloid characteristics and thickening effects. The physical and chemical properties of KURARAY POVAL™ make it ideal for a wide variety of applications, ranging from adhesives through paper and ceramics to packaging

films. Many of our polymers are food contact-approved and thus suitable for food applications. Ecologically KURARAY POVAL™ is advantageous due to its biodegradability and the fact that combustion does not generate residues. It is available in various particle sizes from granules to fine powders. Kuraray produces its wide range of KURARAY POVAL™ grades in Japan, Singapore, Germany and the USA. Kuraray's global production and service network make us your partner of choice for innovative high-quality PVOH resins. **KURARAY - Here to Innovate.**

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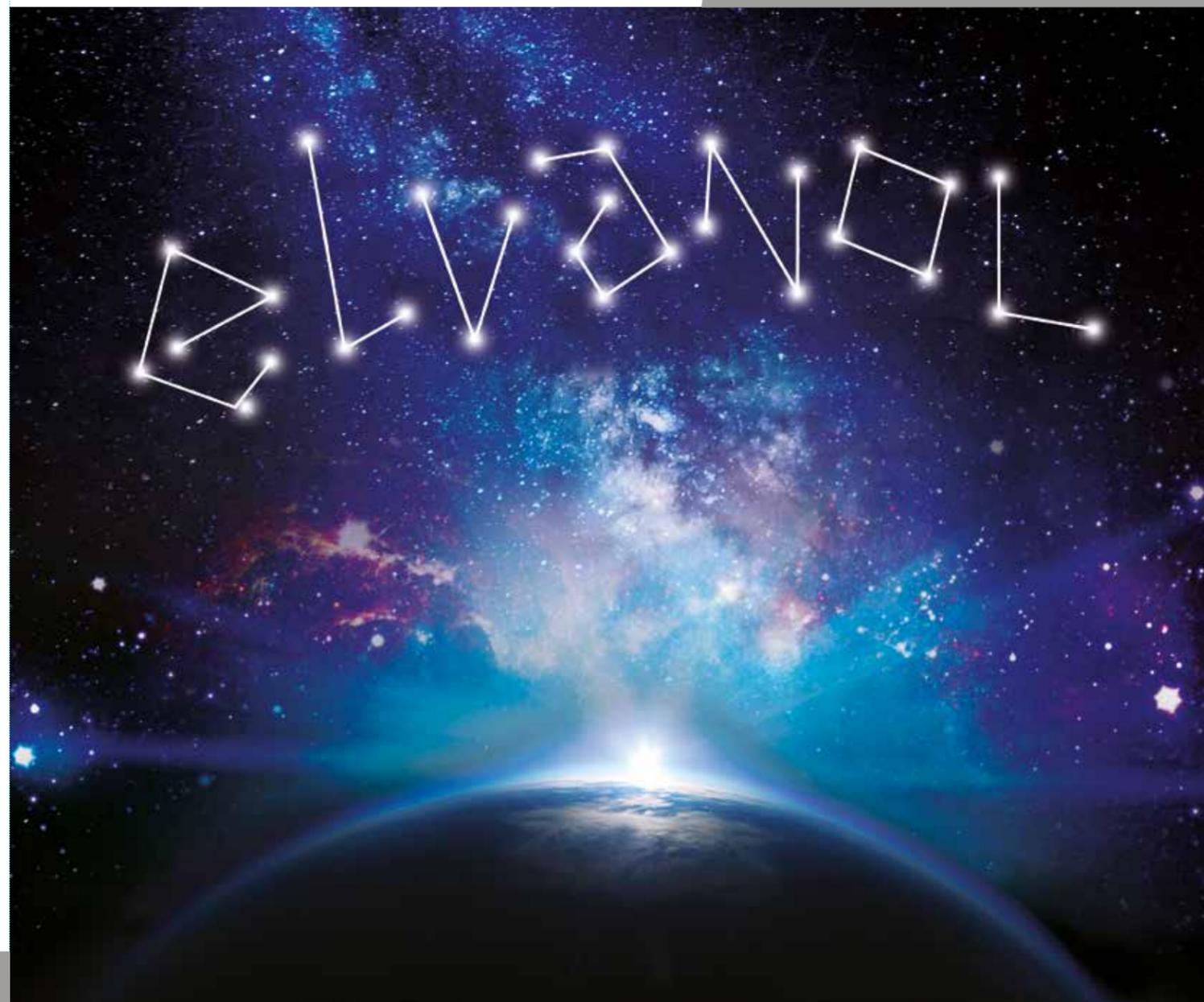
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## Unlimited Possibilities with Polyvinyl Alcohol



POROUS  
POWDER

EXCELLENT  
DISSOLUTION  
RATE

LESS  
FOAMING

COPOLYMERS  
IMPROVED  
SOLUBILITY  
AT ALKALINE  
SOLUTION

BETTER  
COMPATIBILITY IN  
"POWDER-POWDER"  
BLEND

## ELVANOL™ 71-30

Elvanol™ 71-30 is a medium viscosity, fully hydrolyzed grade of polyvinyl alcohol. It is soluble in hot water but insoluble in cold water and common organic solvents.

### Advantages:

- (1) Widely used in the paper industry at the size press and calender stack, and in adhesives tackified with boric acid.
- (2) Suitable for wide range of adhesive and paper applications such as grease proof coating, UF glue and etc due to its excellent binder characteristic. The medium viscosity gives flexibility in formulating water based adhesives with boric acid with or without clay and/or starch.
- (3) Excellent film forming characteristic with hot water solubility, resistance to oils, grease and solvents, as well as low oxygen and water vapor transmission rates.

## ELVANOL™ 90-50

Elvanol™ 90-50 is a fully hydrolyzed polyvinyl alcohol (PVOH) designed to provide high film strength and binding power in relatively low viscosity systems.

### Advantages:

- (1) Permits higher solids solutions at a given viscosity and temperature, or lower solution viscosities at the same solids content and temperature as compared with Elvanol™ 71-30.
- (2) Suggested to be used wherever higher viscosity, fully hydrolyzed polyvinyl alcohols are desired, but a lower solution viscosity is needed, particularly useful as a pigment binder for ceiling tile primers.
- (3) Elvanol™ 90-50 has viscosity similar to starches used in metering size presses at line speeds in excess of 1500 meters per minute.

## ELVANOL™ T-25

Elvanol™ T-25 is a unique non-foaming copolymer polyvinyl alcohol (PVOH) developed especially for use as a warp size for polyester/cotton blends and other spun yarns, alone or in combination with starch.

### Advantages:

- (1) Excellent weaving performance with few loom stops.
- (2) High weaving efficiency even at low humidity.
- (3) Lower add-on required with starch formulas, resulting in less shedding on the loom and less frequent cleaning of drop wires, heddles, and reeds.
- (4) Non-corrosive and not subject to spoilage.
- (5) Dissolves readily in hot water, without the need for costly enzymes.
- (6) Low BOD and COD compared to many other sizes.
- (7) Economically recoverable and reusable.
- (8) Favorable cost performance.

## ELVANOL™ T-66

With lower viscosity than Elvanol™ T-25, Elvanol™ T-66 was developed specifically to meet the demands of the new medium to high pressure slashers, in terms of better runnability and higher-solids formulations, and to increase the productivity of PVOH Recovery Systems based on ultrafiltration, by huge improvement in desizeability and flux rates.

### Advantages:

- (1) Easier to run on the slasher than Elvanol™ T-25 when higher solids are required in the size box.
- (2) Ideally suited for sizing warps of weaving on high speed and shuttleless looms, permitting the use of "100% PVOH" formulas for maximum weaving efficiency (easy yarn splitting) and minimum shedding.
- (3) Easier to desize than Elvanol™ T-25 at lower temperature and water flow rate.
- (4) Solutions of recovered T-66 have low viscosity and they are easier to pump.

## ELVANOL™ 80-18

Elvanol™ 80-18 is a medium viscosity fully hydrolyzed copolymer polyvinyl alcohol.

### Advantages:

- (1) It is the easiest to be desized in alkaline solution.
- (2) Gives good film strength for textile sizing while being easier to split in the leasing section.
- (3) Low foaming.
- (4) High solid coatings and sizings.
- (5) Highly compatible with starch.

## ELVANOL™ 85-82

Elvanol™ 85-82 is a unique, medium viscosity copolymer polyvinyl alcohol.

### Advantages:

- (1) Less tendency to increase in viscosity during storage, even below room temperature and at higher solids concentrations.
- (2) More resistant to temperature changes.
- (3) High film strength.
- (4) Oil, grease and solvent resistance.
- (5) Suitable to be used for compounded adhesives.

## ELVANOL™ 75-15

Elvanol™ 75-15 is a unique, medium low viscosity, fully hydrolyzed copolymer polyvinyl alcohol.

### Advantages:

- (1) Superior barrier for grease-proof packaging.
- (2) High solid coatings and sizings.
- (3) Highly compatible with starch.

SPECIFICATIONS	ELVANOL™ 71-30	ELVANOL™ 90-50	ELVANOL™ T-25	ELVANOL™ T-66	ELVANOL™ 80-18	ELVANOL™ 85-82	ELVANOL™ 75-15
Viscosity (4wt% aqueous, cps) <sup>1</sup>	27.0 - 33.0	11.6 - 15.4	24.0 - 32.0	11.6 - 15.4	17.0 - 23.0	24.0 - 32.0	11.6 - 15.4
Hydrolysis <sup>2</sup>	99.5	99.5	99.5	99.5	99.5	99.5	99.5
pH	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0
Ash (wt%, as sodium oxide) <sup>3</sup>	0.7% max.	0.7% max.	0.7% max.	0.7% max.	0.7% max.	0.7% max.	0.7% max.
Volatiles (wt%)	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Residual Methanol (wt%)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

<sup>1</sup> Viscosity in mPa.s (cP) of a 4% solids aqueous solution at 20° C (68° F)

<sup>2</sup> Mole percent hydrolysis of acetate groups, dry basis

<sup>3</sup> Dry basis, calculated as % Na<sub>2</sub>O