

# PEO

Polyethylene oxide with molecular weights ranging from 100,000 to 10 million, produced through the polymerization of ethylene oxide.



## PEO Aqueous Solution

### Reduction in Frictional Resistance

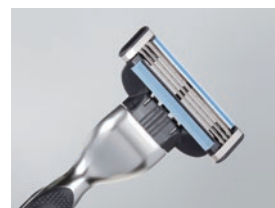
Diluted aqueous solutions of PEO reduce frictional resistance.



## PEO Resin

### The thermoplastic nature enables molding

Having a melting point near 70°C makes it highly suitable for molding processes such as extrusion molding and calendering.



## PEO Aqueous Solution

### Moderate Wet Adhesion

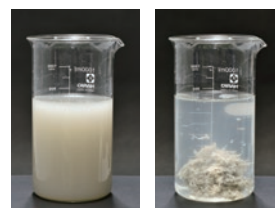
PEO's moderate wet adhesion allows for easy peeling after drying, making it suitable for use in tail sealing adhesives for toilet paper, paper towel rolls, etc.



## PEO Aqueous Solution

### Coagulation and Sedimentation Effects

In particular, high molecular weight PEO in aqueous solutions forms associated molecules and exhibits coagulation effects when combined with highly polar compounds like urea, acrylic resin, and phenol resin, as well as minerals such as talc.



Without PEO

With PEO

## PEO Aqueous Solution

### Improved Viscosity Effect

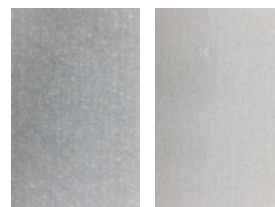
It shows unique viscosity improvement at low density and can enhance foam quality.



## PEO Aqueous Solution

### Pulp Dispersion Effects

High molecular weight PEO acts to disperse pulp. (In the case of wet papermaking, it aids in dispersing both cellulose fibers and chemical fibers.)



Without PEO

With PEO

## Grades and Physical Properties Chart

Industrial Grade	Viscometric-Average Molecular Weight	0.5% Viscosity (mPa·s)	5.0% Viscosity (mPa·s)	For concrete	For ceramic	For adhesives
PEO-29	8,000,000 - 10,000,000	800 - 1,000	-	✓		
PEO-27	6,000,000 - 8,000,000	600 - 800	-	✓		
PEO-18	4,300,000 - 4,800,000	250 - 430	-	✓	✓	
PEO-15	3,300,000 - 3,800,000	130 - 250	-	✓	✓	
PEO-8	1,700,000 - 2,200,000	20 - 70	-		✓	✓
PEO-4	1,100,000 - 1,500,000	-	4,000 - 7,000			✓
PEO-3	600,000 - 1,100,000	-	2,500 - 5,500			✓
PEO-2	400,000 - 600,000	-	200 - 2,500			✓
PEO-1	150,000 - 400,000	-	50 - 200			✓
PEO-1L	100,000 - 150,000	-	35 - 50			✓

Cosmetics Grade	INCI	0.5% Viscosity (mPa·s)	5.0% Viscosity (mPa·s)	Shampoo	Skin Smoother
PEO-27P	PEG-160M	600 - 800	-		
PEO-18P	PEG-115M	250 - 430	-		✓
PEO-15P	PEG-90M	130 - 250	-		✓
PEO-8P	PEG-45M	20 - 70	-		✓
PEO-3P	PEG-14M	-	2,500 - 5,500	✓	✓
PEO-1P	PEG-5M	-	50 - 200		✓

Paper Manufacturing Grade	Viscometric-Average Molecular Weight	0.5% Aqueous Solution Viscosity (mPa·s)	Operability	Consumption per Unit of Production Better
PEO-PFZ blue	6,000,000 - 9,000,000	600 - 900	↓ Better	↑ Better
PEO-PFZ red	4,500,000 - 5,000,000	350 - 450		
PEO-PFZ	3,500,000 - 4,000,000	230 - 290		

## Application Examples

### Concrete Fluidizer



### Ceramic Additive



### Adhesives & Glues



### Sizing



### Notes

- ✓ The values in this catalog are based on in-house analysis and testing and are not guaranteed.
- ✓ The information in this catalog is subject to change without notice.
- ✓ For product safety information, please refer to the Safety Data Sheet (SDS).
- ✓ Feel free to contact us using the information below for any of the following reasons.
  - Something in the information is unclear
  - You want to reprint the information
  - You want to have more detailed data for a product

### Functional Materials Division