

# ZEONEX<sup>®</sup>

## Cyclo Olefin Polymer (COP)

High Performance Thermoplastics for Pharmaceutical Packaging



ZEON CORPORATION



**ZEONEX<sup>®</sup>** Cyclo Olefin Polymer (COP) is a high performance thermoplastic that overcomes limitations of traditional packaging materials with its enhanced barrier, transparency, purity and strength properties.

ZEONEX<sup>®</sup> is ideal for use in the form of **Pre-filled Syringes, Vials, Ampoules, IV Bags, Barrier Films, Blister Packs** and other pharmaceutical packaging applications.



#### **High Break Resistance**

Higher impact strength ensures that breakage during handling and transport is minimized. Tensile elongation at cryogenic temperatures make ZEONEX<sup>®</sup> suitable for Lyophilization.

#### **Low Protein Adsorption**

ZEONEX<sup>®</sup>'s low surface energy and hydrophobic nature contribute to very low protein binding, making it the ideal packaging material for protein/peptide based drugs. Low surface energy also ensures low wetting and higher drainability, thus reducing the need for overfills.

#### **High Transparency**

ZEONEX<sup>®</sup>'s high "glass-like" light transmittance and low haze enable easy viewing of the contents creating a favorable first impression to the end-user.

#### **High Moisture Barrier**

Extremely low moisture permeability increases drug shelf life by enabling prolonged storage of moisture sensitive materials.

#### **Drug Compatibility (Chemical Inertness and Resistance)**

ZEONEX<sup>®</sup> offers good resistance against acids, alkalis and alcohols. ZEONEX<sup>®</sup> also has high resistance to organic solvents and a wide range of pH.

#### **High Purity**

ZEONEX<sup>®</sup> medical grades are extremely pure resin containing less-than-detectable residual metals and no process aides. Compared to conventional barrier polymers, materials packaged using ZEONEX<sup>®</sup> have reduced risk to be

compromised by off-gassing or extractables.

#### **No Delamination**

Extended exposure to high pH levels does not cause delamination in ZEONEX<sup>®</sup> packaging. ZEONEX<sup>®</sup> is an ideal alternate to glass in applications where delamination is a concern.



### Sterilization Compatibility

ZEONEX® applications can be sterilized using EtO, Gamma, EB and Steam., offering users the flexibility to use ZEONEX® in a wide range of product packaging.

### Non Halogen

ZEONEX® does not contain halogens. It is easily disposable by incineration and simultaneously reduces the environmental footprint of your product.

### Excellent Molding Properties

ZEONEX®'s flow and transcription properties make it molding friendly and allows customized designs to meet end user needs. ZEONEX® can be used for molding large size syringes and cartridges.

### Low-Temperature Heat Sealing

ZEONEX® is designed to enable low-temperature heat sealing. Due to its lower glass-transition temperature (Tg), ZEONEX® 5000 has a larger processing window for heat sealing.

### Light Weight

ZEONEX® is up to 2.5 times lighter than glass, easing handling and bringing down transportation cost

### FDA DMF Nos.

ZEONEX® 5000 : 27657  
 ZEONEX® 690R : 14084  
 ZEONEX® 790R : 17236  
 ZEONOR® 1020R : 13885

## ZEONEX® Medical Grades

Properties	unit	Method	ZEONEX® 5000	ZEONOR® 1020R	ZEONEX® 690R	ZEONEX® 790R
Light transmittance (3mmt)	%	Zeon Method	92	91	92	91
Glass Transition Temperature	°C	Zeon Method	68	102	136	162
Elongation at break (23°C)	%	ISO 527	120	90	20	10
WVTR*	g/(m <sup>2</sup> ·24h)	JIS K7129	0.8	1.0	1.0	1.1

\*WVTR - Water vapor transmission rate 40°C, 90%RH (100 μm)

Data represents experimental results and does not guarantee specific performance levels under actual usage

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