



## Prepolymer HC-5291

**1. Characters:** High performance products based on MDI. The advantages of the product are high mechanical strength, high resilience, good wear resistance and easy for processing.

**2. Applications:** It is mainly used to produce polyurethane elastomer products with wear resistance, tensile tear resistance and resilience requirements, such as rubber roller, carrier wheel, chopping board, scraper, etc.

### 3.Product Index:

HC-5291	Unit	Testing Data	Testing Standard
Appearance (20°C)	—	Waxy solid	
NCO%	%	8.5±0.3	HG/T 2409
Viscosity ( at 80°C)	mPa·s	1500±300	GB/T 12009.3

This prepolymer should be stored in a low temperature and dry place to avoid moisture, high temperature, etc.

The shelf life of unopened prepolymer is six months.

### 4. Casting Processing Way:

Item	Unit	HC-5291
Pre-heating temp.	°C	70±5
Pre-heating time	Hour	6~8
Chain Extender	-	BDO
R value	Isocyanates/Chain Extenders	1.02~1.05
Mix prepolymers temp.	°C	75~85
Mix chain extender temp.	°C	25~40
Ratio	Prepolymer/Chain Extender	8.6~8.8
Casting mold temp.	°C	110~120
Oven temp.	°C	110~120
Pot life	Minute	8~10
Demold time	Hour	1~1.5
Post cure time (110°C)	Hour	18~24

*The above test results are based on a 100g sample molded in a rectangular flat plate.*

*The demolding time depends on the size and shape of the casting parts. If the product is large or the mold shape is complex, the post cure time should be appropriately extended.*



## 5. Properties of Finished Parts

Item	Unit	Testing Standard	HC-5291/BDO
Appearance (25°C)	—	—	Pale white elastomer
Hardness	Shore A	GB/T 531.1-2008	91±2
Density	g/cm <sup>3</sup> (25°C)	GB/T 533-2008	1.219
100%Modulus	MPa	GB/T 528-2009	6
300%Modulus	MPa	GB/T 528-2009	12.7
Strength at break	MPa	GB/T 528-2009	51.4
Elongation at break	%	GB/T 528-2009	588.6
Angle Tear Strength	kN/m	GB/T 529-2008	106.9
DIN Abrasion	mm <sup>3</sup>	GB/T 9867-2008	42.7
Resilience (Impact rebound)	%	GB/T 1681-2009	45

## 6. Processing way:

- (1) Pre-heat the prepolymer at 70~75°C for 6~8 hours until it is completely melted. Put prepolymer in clean and dry container, heat it at temperature 85~90°C, and degas under the vacuum degree -0.1MPa until no bubbles can be seen from the surface of the materials;
- (2) BDO will crystallize in a solid state below 18°C, need to be heated and melted, and the temperature is controlled at 25 ~ 40 °C, standby;
- (3) The temperature of the vacuumed prepolymer is controlled at 75~85 °C, and BDO is added. The proportion of the prepolymer is 100 parts, and 8.6~8.8 parts of BDO are added, and the mixture is stirred evenly. Pay attention to the operating time; the pigment can be added together with the chain extender;
- (4) The second degassing under vacuum can be carried out during the pot life, and the degassing time can be controlled to be less than 1 minute until there are no obvious bubble;
- (5) Pour the mixed material into the preheated mold coated with the special release agent for polyurethane. The temperature of the mold is controlled at 110~120 °C. Pay attention to avoid too many bubbles when pouring. After the bubbles float up, burn them with flames. The controlled gel point that needs to be molded with a vulcanizer is pressurized before the surface is not sticky but not completely hardened;
- (6) The demoulding time is 1~1.5 hours. Generally speaking, the larger the product, the longer the demoulding time. Please extend the demoulding time appropriately;
- (7) After demolding, the product should be placed in oven at 110 °C to continue post cured for 18 to 24 hours until the physical properties fully meet the requirements.



## 7. Notes:

1. Store the prepolymer to avoid moisture, high temperature and light protection; please use it up as soon as possible after opening the prepolymer, and seal it immediately after use; if possible, please fill it with N<sub>2</sub> and seal it;
2. The bonding of prepolymer and metal and other products requires surface treatment and primer coating, please consult the company's technical staff;
3. The prepolymer has a slight pungent odor, the environment should be ventilated as much as possible, and the operation should be protected to avoid spilling or pollution and avoid inhalation.

*All technical data and using suggestions provided by our company, and typical values based on our company's experimental conditions and working environment, non- product guidelines. Since we don't well know the users' processing control and the application of finished parts, so it is responsibility and more necessary for uesrs to test the processing way and properties of finished parts, so that to verify whether it is suitable for the user's own process and purpose.*