Prepolymer HC-5991

1. Characters：High performance products based on polyester polyols. The advantages of the product are high mechanical strength, good wear resistance, good oil resistance, long service life, fast demoulding, and easy for processing.

2. Applications：It is mainly used to produce polyurethane elastomer products with normal requirements for mining machinery parts and machinery parts.

3.Product Index:

HC-5991	Unit	Testing Data	Testing Standard
Appearance (20℃)	_	Waxy Solid	
NCO%	%	4.4±0.2	HG/T 2409
Viscosity (at 80℃)	mPa·s	2200±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 twelve months.

4. Casting Processing Way:

Item	Unit	HC-5991
Pre-heating temp.	℃	70±5
Pre-heating time	Hour	4~6
Chain Extender	-	MOCA
R value	Isocyanates/Chain Extenders	1.05~1.1
Mix prepolymers temp.	℃	75~80
Mix chain extender temp.	℃	110~120
Ratio	Prepolymer/Chain Extender	13.0~13.5
Casting mold temp.	℃	100
Oven temp.	℃	100
Pot life	Minute	7~10
Demold time	Minute	40~60
Post cure time (100℃)	Hour	12~16

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 Finshed Parts

Item	Unit	Testing Standard	HC-5991/MOCA
Appearance (25℃)	—	—	Light yellow elastomer
Hardness	Shore A	GB/T 531.1-2008	91±2
Density	g/cm3(25℃)	GB/T 533-2008	1.26
100%Modulus	MPa	GB/T 528-2009	4.3
300%Modulus	MPa	GB/T 528-2009	7.5
Strength at break	MPa	GB/T 528-2009	55.5
Elongation at break	%	GB/T 528-2009	676
Angle Tear Strength	kN/m	GB/T 529-2008	91.3
DIN Abrasion	mm^3	GB/T 9867-2008	48.5
Resilience (Impact rebound)	%	GB/T 1681-2009	28

6. Processing way:

(1) Pre-heat the prepolymer at 70~75℃ for 4~6 hours until it is completely melted. Put prepolymer in clean and dry container, heat it at temperature 85~90℃, and degas under the vacuum degree -0.1MPa until no bubbles can be seen from the surface of the materials;

(2) Weigh a quantitative amount of MOCA, heat it until it melts (the temperature is around 120°C), and use it for later use;

(3) The temperature of the vacuumed prepolymer is controlled at 75~85 ℃, and the melted MOCA is added. The proportion of the prepolymer is 100 parts, and 13.0~13.5parts of MOCA 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 2 minutes 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 100~110 °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 40~60 minutes. 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 100 ℃ to continue post cured for 12 to 16 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 N2 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.