

# **CHEMICAL RAW MATERIAL**

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We manufacture polyurethane raw material including polycarbonate-diol, polyoxyalkylene amines, aromatic/aliphatic polyester polyol, polyether polyol, etc.

## POLYCARBONATE-DIOL (PCDL)

About PCDL

Polycarbonatediol (PCDL) is one of polyols used in the new generation synthesized polycarbonate-based polyurethane. Polyurethane produced from PCDL is superior to the ones from polyether-diols or polyester-diol in mechanical performance, heat resistance, oil resistance, hydrolytic resistance, oxidizing resistance, abrasion resistance, chemical resistance and weather resistance. PCDL performs pretty excellent with respect to hydrolytic resistance and aging resistance, its outstanding synthetic properties enables it to be used extensively in each area of polyurethane.

#### Options

Model	Molecular weight	Hydroxyl Value	Acid Value	Appearance
JSB 10	1000	100-120 K0H mg/g	<b>0.1</b> K0H mg/g	White waxy solid
JSB 20	2000	51-61 K0H mg/g	<b>0.1</b> K0H mg/g	White waxy solid
JSH 10	1000	100-120 K0H mg/g	<b>0.1</b> K0H mg/g	White waxy solid
JSH 20	2000	51-61 K0H mg/g	<b>0.1</b> K0H mg/g	White waxy solid

Properties(compared with other polyols)

#### 1.Fundamental properties

Items	PCDL	PTMG	PMA	PCL
Heat stability	Excellent	Poor	Good	Good
Weather stability	Excellent	Poor	Good	Good
Softness	Good	Excellent	Good	Good
Hydrolysis resistance	Excellent	Good	Poor	Fair
Fungi resistance	Excellent	Excellent	Poor	Poor
Oleic acid resistance	Good	Poor	Fair	Fair~Poor
Ethanol resistance	Good	Poor	Fair	Poor

PCDL: Polycarbonatediol

PTMG: Polytetoramethylene glycol (polyether polyol)

PMA: Poly1, 6-hexamethylene adipate (polyester polyol)

PCL: Polycaprolactone polyol (polyester polyol)

#### 2. Comparison in thermoplastic urethanes formulation

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Polyol Types	RAVECARB 102	PCL	PTMEG		
Mechanical properties					
100% modulus (N/MM2)	8	5	4		
Tensile strength(N/MM2)	57	57			
Elongation (%)	400	500	640		
Tensile Strength Retention, heate	ed at 120 for:				
early days	100	100	100		
15 days	99	95	5		
30 days	96	89	-		
60 days	87	79	-		
90 days	78	59	-		
Tensile Strength Retention, immerged in 85 water for :					
early days	100	100	100		
20 days	98	60	98		
40 days	92	20	95		
60 days	92	0	75		
80 days	92	-	50		
100 days	92	-	3		

(Test standard: molecular weight:1000; Thickness:2mm)

# POLYOXYALKYLENE AMINES

**Polyoxyalkylene amines** is a kind of polyoxyalkylene compound edge sealed by amino-group, mainly used in polyurea spray elastomer, RIM product, epoxy resin curing agent and fuel additive.

Features

Polyoxyalkylene amine has much superiority. Compare with other amine group curing agents, polyoxyalkylene amines has :

\*low viscosity, low toxicity, light color, suitable reaction activity, easy soluble in many organic chemicals

\* Thus polyurea spray elastomer made from polyoxyalkylene amines has great strength, excellent extension, extraordinary properties of abrasion resistant, and anticorrosion and extended durability. So that they can be widely used in waterproof, antisepsis, abrasion resistant coating of concrete and steel construction surfaces, also provides protection and decoration for some other occasions.

Usages

In addition to its applications in Polyurea spray elastomer, it can also be used in paint, sealant, textile auxiliary, building materials, composite materials and adhesive, etc.

Properties

		Appearance	Total Amine	Viscosity	Water
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		(meq/g)	(25 ,mPa.s)	(%)
D2000	Colorless or light yellow	0.95~1.05	247	<0.2
D400	Colorless or light yellow	4.1~4.7	21	<0.2
D230	Colorless or light yellow	8.1~8.6	9	<0.2
T5000	Colorless or light yellow	0.50~0.59	819	<0.2
T403	Colorless or light yellow	6.1~6.8	70	<0.2

## **AROMATIC POLYESTER POLYOL**

Aromatic polyester polyol application in Polyurethane foam system can largely improve the cell structure, heat-resistance and tenacity of the foam.

### Usages

PU panels

The existence of benzene ring in the molar structure of Aromatic polyester polyol can provide the PU panel material with much better heat-insulation and flame proofing properties.

## Heat-insulation applications

In Refrigerator PU system, Aromatic polyester polyol can help solve the problem that adhesion of PU foam to Refrigerator base parts lowers in winter, as it can improve the tenacity and bonding strength of PU foam system. Thus the quality of Refrigerator will be improved.

In water heaters, Aromatic polyester polyol can improve the sound-insulation, heat-insulation and flameproof properties.

Others

By adding 20%~60% Aromatic polyester polyol to other PUR foam, the cured products can have much better tenacity, heat-insulation properties, and the cell structure will be fine and uniform.

It can also be used in flexible PU foam, elastomer, semi-rigid PU foam, coating, and adhesive to better their properties.

## Application Instruction

By mixing Aromatic polyester polyol and polyether at different ratio, the use of Levelling foamer will be reduced relatively. And the application method is the same with that of rigid polyurethane foam system.

#### Options

	hydroxyl value mgKOH/g	acid value mgKOH/g	water content, %	Typical Applications
	value, ingreen/g	value, ingreen/g	70	
JSPS2100	200±20	≤2.0	≤0.15	Rigid PU foam , C.A.S.E
JSPS2400	250±20	≤2.0	≤0.15	Rigid PU foam , C.A.S.E

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JSPS3100	310±20	≤2.0	≤0.15	Rigid PU foam
JSPS3150	310±20	≤2.0	≤0.15	Rigid PU foam
JSPS3160	300±20	≤2.0	≤0.15	Rigid PU foam
JSPS3360	360±20	≤2.0	≤0.15	Rigid PU foam
JSPS3361	360±20	≤2.0	≤0.15	Rigid PU foam
JSPS3362	360±20	≤2.0	≤0.15	Rigid PU foam
JSPS3400	410±30	≤2.0	≤0.15	Rigid PU foam
JSPS3500	480±30	≤2.0	≤0.15	Rigid PU foam
JSPS3368	350±30	≤2.0	≤0.15	EPS adhesives especially
JSPS3168	300±20	≤2.0	≤0.15	EPS adhesives especially