

Diol	M.W.	Appearance @25°C	Viscosity [mPa·s] @25°C	Melting point (°C)	Functional Num.	Applications			
						Polyol	Chain Extender	UV monomer	Polyester
MPD 3-methyl-1,5-pentanediol	118	Liquid	173 @20°C	<-50	2	✓	✓	✓	✓
ND 1,9-Nonanediol	160	Solid	33 @60°C	46	2	✓	✓	✓	✓

Polyester Polyol	M.W.	Appearance @25°C	Viscosity [mPa·s] @25°C	Tg (°C)	Functional Num.	Applications					
						Ink	Coating	PUD	Adhesive	TPU	Synthetic Leather
Adipate type											
P-510	500	Liquid	540	-76.7	2		✓		✓		
P-1010	1000	Liquid	1,500	-70.6	2	✓	✓	✓	✓	✓	
P-2010	2000	Liquid	5,700	-66.6	2	✓	✓	✓	✓	✓	✓
P-3010	3000	Liquid	13,800	-64.9	2	✓	✓	✓	✓	✓	✓
P-4010	4000	Liquid	28,000	-64.4	2	✓				✓	
P-5010	5000	Liquid	47,000	-63.8	2	✓					
P-6010	6000	Liquid	68,000	-64.3	2		✓		✓		
3 functional type											
F-510	500	Liquid	2,200	-65.5	3		✓			✓	
F-1010	1000	Liquid	1,700	-62.5	3		✓			✓	
F-2010	2000	Liquid	7,200	-62.7	3		✓			✓	
F-3010	3000	Liquid	15,000	-62.7	3		✓			✓	
Tere-phthalate + Adipate type											
P-2011	2000	Liquid	40,000	-43.1	2		✓	✓	✓		✓
Tere-phthalate type											
P-520	500	Paste	13,300	-51.6	2		✓	✓	✓		✓
P-1020	1000	Wax	8,700 @60°C	-24.7	2		✓	✓	✓		✓
P-2020*	2000	Wax	73,000 @60°C	-9.6	2		✓	✓	✓		✓
Iso-phthalate + Adipate type											
P-1012	1000	Liquid	14,000	-51.0	2		✓	✓	✓		✓
P-2012	2000	Liquid	42,000	-42.0	2		✓	✓	✓		✓
Iso-phthalate type											
P-530	500	Liquid	26,000	-44.3	2		✓	✓	✓		✓
P-2030	2000	Liquid	105,000 @60°C	-6.7	2		✓		✓		✓
Sabacate type											
P-2050	2000	Liquid	5,200	-60.9	2	✓	✓	✓	✓	✓	✓

Polycarbonate Polyol	M.W.	Appearance @25°C	Viscosity [mPa·s] @25°C	Tg (°C)	Functional Num.	Ink	Coating	PUD	Adhesive	TPU	Synthetic Leather
C-590	500	Liquid	170 @60°C	-70.2	2	✓	✓	✓	✓	✓	✓
C-1090	1000	Liquid	1,800 @60°C	-53.2	2		✓	✓	✓	✓	✓
C-2090	2000	Liquid	4,600 @60°C	-45.3	2		✓	✓	✓	✓	✓
C-3090	3000	Liquid	15,700 @60°C	-42.0	2			✓			✓

* Available on request

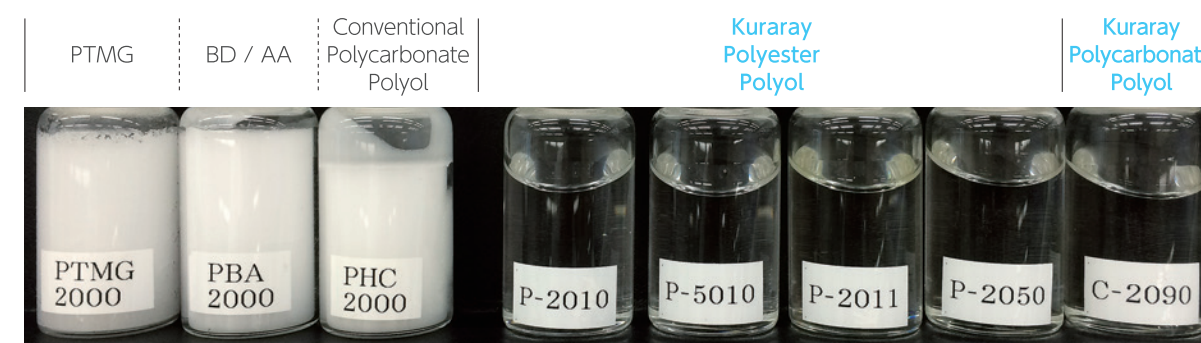
- AA : Adipic Acid
- TPA : Terephthalic acid
- IPA : Isophthalic acid
- SA : Sebacic acid
- TMP : Trimethylol propane
- HD : 1,6-Hexanediol
- BD : 1,4-Butanediol

Characteristics of Polyurethanes with different polyols

	polyether polyol		Conventional Polyester polyol	Kuraray Polyester polyol				Conventional Polycarbonate Polyol	Kuraray Polycarbonate polyol
	PPG	PTMG	BD/AA	Adipate	Sebacate	Tere-phthalate +Adipate	Tere-phthalate		
Cold resistance	++	++	-	+	+	-	---	-	-
Softness	++	+	+	++	++	+	---	-	+
Water resistance	+	+	---	+	++	+	++	++	++
Acid resistance	+	+	---	+	++	++	++	++	++
Alkali resistance	+	+	---	+	++	+	++	++	++
Transparency	+	+	---	++	++	++	++	---	++
Solvent resistance	---	---	+	-	+	+	++	+	+
Heat resistance	---	---	++	+	+	+	++	++	+
UV resistance	---	---	++	++	++	+	+	++	++
Adhesiveness	---	---	+	++	+	++	++	-	+

++ Excellent
+ Good
- Poor
-- Very poor

Appearance of polyols



Registration

	REACH (Europe)	TSCA (US)	ENCS (Japan)	IECSC (China)	ECN (Taiwan)	ECL (Korea)	NDSL (Canada)	EFSA*4 (Europe)
MPD	Listed*1	Listed	Listed	Listed	Listed	Listed	Listed	Listed
ND	Listed*2	Listed	Listed	Listed	Listed	Listed	Listed	-
P-xx10	Polymer*3	Listed	Listed	Listed	Listed	Listed	Listed	Listed*5
P-xx11	Polymer*3	Listed	Listed	Listed	Listed	Listed	-	Listed*5
P-xx12	Polymer*3	Listed	Listed	Listed	Listed	-	-	Listed*5
P-xx20	Polymer*3	Listed	Listed	Listed	Listed	-	-	Listed*5
P-xx30	Polymer*3	-	Listed	Listed	Listed	-	-	Listed*5
P-xx50	Polymer*3	-	Listed	Listed	Listed	-	-	Listed*5
F-xx10	Polymer*3	Listed	Listed	Listed	Listed	Listed	-	Listed*5
N-2010	Polymer*3	-	Listed	Listed	Listed	Listed	-	-
C-xx90, C-xx50	Polymer*3	Listed	Listed	Listed	Listed	Listed	-	-

*1 : Registered by Kuraray. Kuraray Europe GmbH is appointed as OR.

*2 : Pre-registered by Kuraray Europe GmbH as an importer

*3 : All monomers are registered/pre-registered on REACH

*4 : EFSA : European Food Safety Authority

(EU) No 10/2011 Plastic materials and articles intended to come into contact with food

*5 : All monomers are listed on EFSA positive list

