

Naphthalene-based polyester polyol

Corporate
Website
Product
information



Developed product

GX-1536-100 • GX-1544-100

- ◆ Polyester polyol with **naphthalene rings**.
- ◆ Under heating conditions, soluble in solvents such as MEK and DMF.
- ◆ Used as a raw material for polyurethane resins, **it can improve the solvent resistance, abrasion resistance, and PET adhesion of polyurethane resins.**

General properties

		GX-1536-100	GX-1544-100
OH value (mgKOH/g)		37	75
Acid value (mgKOH/g)		<1.0	<1.0
Molecular weight (Mn) ※1		3000	1500
Hydroxyl functionality		2	2
Appearance		Colorless to yellow transparent solid (Flake)	Colorless to yellow transparent solid (Flake)
Tg		61°C	62°C
Feature		Amorphous	Amorphous
※2 Solvent solubility	MEK	○	○
	DMF	○	○
	EtOAc	○	○
	THF	○	○

※1 Mn: Calculated from OH value. ※2 Solvent solubility: 60° C for THF, 70° C for others at 50% solid content.

Polyurethane polymerization properties / Polyurethane resin properties

Polymerization conditions: Polymerization using TDI(1.1eq) in DMF at 80° C for 6 hours (No catalyst).

Polyol		GX-1536-100	GX-1544-100	PPG ※1	PTMG ※2
Polyurethane polymerization properties	Mw	21000	37000	22000	159000
	Mn	12000	15000	11000	80000
	Mw/Mn	1.8	2.5	2.0	2.0

		GX-1536-100	GX-1544-100	PPG ※1	PTMG ※2
Properties of the PU film	Solvent resistance	Methanol	○	×	×
		Ethanol	○	×	×
		IPA	○	×	×
		Acetone	△	×	×
		MEK	△	×	×
		EtOAc	△	×	×
		Toluene	○	×	×
		Hexane	○	○	○
	Pencil hardness	2H	F	<6B	<6B
	Abrasion resistance	5	4	1	1
PET adhesion		○	○	×	△

※1 PPG: Polypropylene Glycol 1000 (Diol Type, CAS No.: 25322-69-4) ※2 PTMG: Poly(tetramethylene ether) Glycol 1000 (CAS No.: 25190-06-1)

• Coating condition (base material: PET film): drying condition 120°C×5 min, dry thickness about 3μm.

• Solvent resistance: Appearance change after rubbing (5 round trips) with a cotton swab, soaked in solvents. Results ○: no change, △: whitening, ×: dissolution

• Pencil hardness: Evaluate the surface of the coating film based on the JIS K5600 scratch hardness (pencil method).

• Abrasion resistance: Using a Gakushin-type friction tester, visually inspect the appearance of the coating film after rubbing the surface with copy paper under a load of 500 g for 5 cycles.

5: Little to no change observed on the surface of the coating film. 4: Some scratches are observed on the surface of the coating film.

3: Significant scratches are observed on the majority of the surface of the coating film.

2: Significant scratches are observed on the majority of the surface, with partial delamination of the coating film. 1: The majority of the surface of the coating film is delaminated.

• PET adhesion: Apply Nichiban's self-adhesive cellulose tape to the surface of the coating film, then peel it off sharply and visually inspect the appearance of the coating film.

○: No peeling observed on the coating film. △: Peeling is observed in some parts of the coating film, or partial transfer of the coating film is observed on the tape.

×: Peeling is observed on the majority of the coating film, or significant transfer of the coating film is observed on the tape.

