Recycled-PET Derived Aqueous Polyester Resins

Developed product

GX-1486 · GX-1487 · GX-1488 · GX-1489 · GX-1566 · GX-1568

- Water-based polyester coating formulated using recycled PET as the resin raw material. **Recycled PET content: 50–60 wt%** of the resin raw materials (recycled from PET bottles).
- Environmentally friendly, **low VOC waterborne coating**.
- Forms a coating film with excellent clarity.
- Resin film is suitable for both in-line and off-line film coating processes.
- Applications: automotive interior components, floor carpeting.

General properties

General properties	GX-1486	GX-1487	GX-1488	GX-1489	GX-1566	GX-1568
Recycled-PET content	60wt%	60wt%	50wt%	50wt%	50wt%	55wt%
Solid content	25%	22%	25%	25%	25%	25%
Solvent	Water: 75%	Water: 68% PnP※: 10%	Water: 75%	Water: 70% PnP※: 5%	Water: 65% ETB※: 10%	Water: 65% ETB※: 10%
Appearance	Light yellow liquid	Light yellow liquid	Light yellow liquid	Light yellow liquid	White liquid	Light blue white liquid
Viscosity (mPa·s/20℃)	20	30	10	10	50	90
pH (10% aq)	4.0 ～ 7.0	4.0 ～ 7.0	6.0 ～ 9.0	6.0 ～ 9.0	4.0 ～ 7.0	4.0 ～ 7.0
Tg	65℃	58℃	70℃	64℃	0℃	13℃
Acid value (mgKOH/g)	<10	<10	50 ～ 80	40 ～ 70	<10	<10
Feature	Non solvent	Water-resistance	Non solvent High acid value	Water-resistance High acid value	Water-resistance Low Tg	Water-resistance Low Tg

※ PnP: Propylene glycol monopropyl ether (CAS No.: 1569-01-3)　※ ETB: Ethylene glycol mono-t-butyl ether (CAS No.: 7580-85-0)

Film properties

Film properties		GX-1486	GX-1487	GX-1488	GX-1489	GX-1566	GX-1568
Transparency (Dry thickness about 3μm) T.T / Hz		T.T 88.3% Hz 2.1%	T.T 88.3% Hz 2.1%	T.T 88.3% Hz 1.9%	T.T 88.3% Hz 1.9%	T.T 88.6% Hz 1.9%	T.T 88.6% Hz 1.9%
		Untreated biaxial stretched PET : T.T 87.3% / Hz 2.2%					
Biaxial stretchability		○	○	○	○	○	○
Adhesion to PET		○	○	○	○	○	○
Water resistance (25℃)		○	○	○(○※)	○(○※)	○	○
Hot water resistance (80℃)		△	△	△(○※)	△(○※)	△	△
Solvent resistance	Ethanol	○	○	○(○※)	○(○※)	○	○
	Isopropyl alcohol	○	○	○(○※)	○(○※)	○	○
	Hexane	○	○	○(○※)	○(○※)	○	○
	Toluene	△	×	△(○※)	△(○※)	△	△
	Ethyl acetate	△	×	×(△※)	×(△※)	×	×
	Methyl ethyl ketone	△	×	×(×※)	×(×※)	×	×

Results　○: No change　△: Whitening　×: Dissolution　※ Using aqueous cross-linking agent (oxazoline type.)

- Coating condition (base material: PET film): drying condition 120℃×5min, dry thickness about 3μm.
- Water resistance　: Appearance change in 24 hours of immersion in water at 25℃.
- Hot water resistance: Appearance change in 30 minutes of immersion in hot water at 80℃.
- Solvent resistance: Appearance change after rubbing (5 round trips) with a cotton swab, soaked in solvents.