



DESCRIPTION

TAKELAC PP-6260 is a polyester polyol (OH terminated prepolymer), and can mix with two kinds of hardener, TAKENATE I-3000, which is an isocyanate (NCO) terminated aromatic hardener and TAKENATE I-5050, which is an isocyanate (NCO) terminated aliphatic hardener which will perform with recommended mixing ratio. It has good performance and it is mainly applicable in lamination from general purpose to Al foil job like Ny/LLDPE, PET/Al/LLDPE, PET/Al/CPP, PET/Ny/CPP, PET/Al/Ny/CPP, and etc.

CHARACTERISTICS

- a) Bis-phenol-A free
- b) Organotin compound free
- c) High performance for aluminium foil packaging
- d) Good chemical resistance
- e) Can be applied for high retort

PHYSIOLOGICAL PROPERTIES

TAKELAC PP-6260 / TAKENATE I-3000 and TAKELAC PP-6260 / TAKENATE I-5050 complies with the following regulations.

- a) Japan Adhesive Hygienic Association-Self-Imposed Control of Adhesive for Food Packaging
- b) Food Sanitation Law of Japan
- c) Food and Drug Administration 21 CFR 175. 105
- d) Food and Drug Administration 21 CFR 177. 1395 (TAKELAC PP-6260 / TAKENATE I-5050)
- e) Food and Drug Administration 21 CFR 177. 1390 (TAKELAC PP-6260 / TAKENATE I-5050)

TYPICAL PROPERTIES

Table 1. Typical Properties of TAKELAC PP-6260, TAKENATE I-3000 and TAKENATE I-5050

	TAKELAC PP-6260	TAKENATE I-3000	TAKENATE I-5050
Component	OH	Aromatic NCO	Aliphatic NCO
Appearance	Light Yellow Transparent or Hazy Liquid	Light Yellow Liquid	Light Yellow Liquid
Solvent	Ethyl Acetate	Ethyl Acetate	Ethyl Acetate
Solid content (%)	58.0 ~ 62.0	73.0 ~ 77.0	73.0 ~ 77.0
Viscosity at 25°C (mPa. s)	500 ~ 2,000	600 ~ 3,000	500 ~ 5,000
Mixing ratio (weight)	8	1	1

REMARKS

Some kinds of organic solvents are available for dilution like Toluene, MEK, Ethyl acetate, etc. but Ethyl acetate is recommended when the pouch is used for food packaging because of solvent retention.

TAKENATE I-3000 and TAKENATE I-5050 have active isocyanate functional group, so do not use solvents that contain activate hydrogen like alcohol, amine and all solvents that contain over 0.1% moisture.

It is suspected that mixing with other adhesives cause bad effect because of bad compatibility, so please do not mix with other adhesives.

DILUTION

Figure 1. Solid content (%) vs Viscosity of PP-6260/I-3000 and PP-6260/I-5050

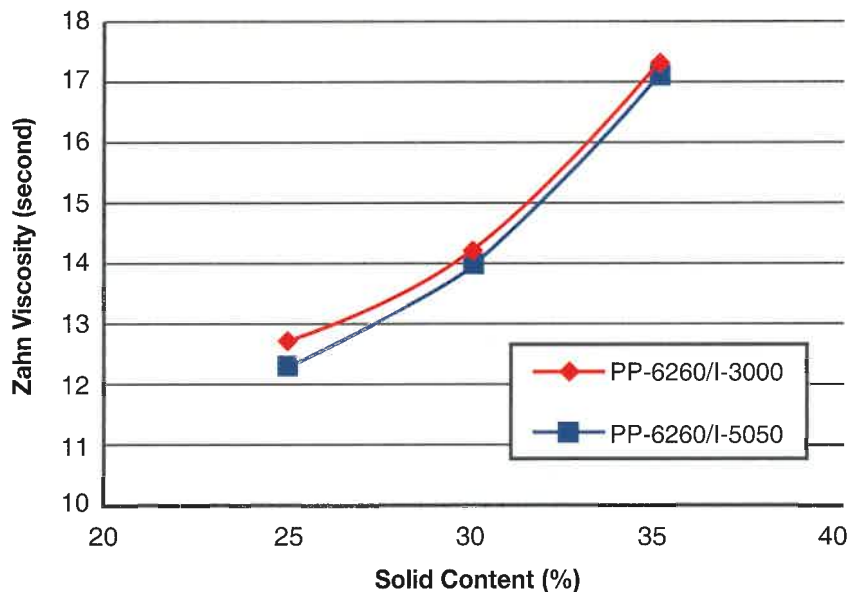


Table 2. Solid Content and Viscosity after mixing

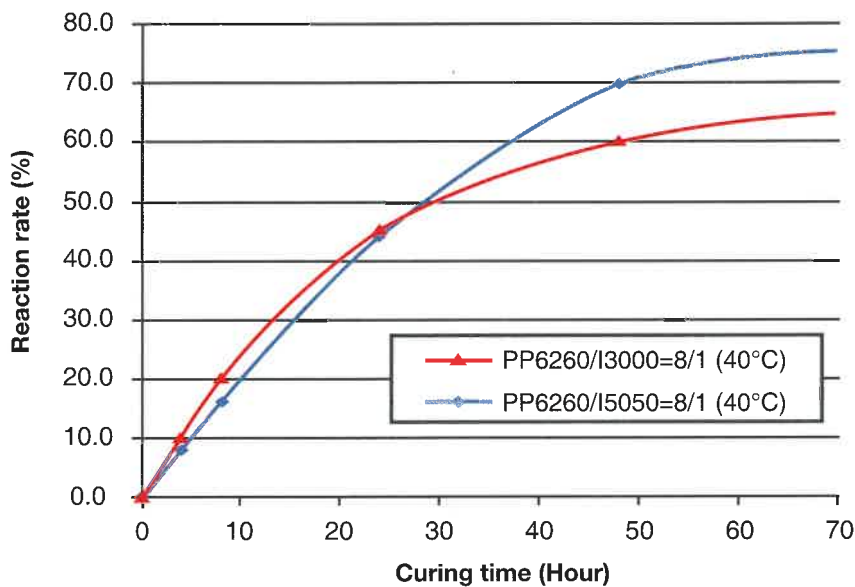
TAKELAC PP-6260 Weight (Kg)	TAKENATE I-3000 Weight (Kg)	Solvent Weight (Kg)	Solid Content (%)	Viscosity Zahn Cup No.3, (second/23°C)
8	1	13.2	25	12.7
8	1	9.5	30	14.2
8	1	6.9	35	17.3

TAKELAC PP-6260 Weight (Kg)	TAKENATE I-5050 Weight (Kg)	Solvent Weight (Kg)	Solid Content (%)	Viscosity Zahn Cup No.3, (second/23°C)
8	1	13.2	25	12.3
8	1	9.5	30	14.0
8	1	6.9	35	17.1

CURING

NCO decrease that was measured by FT-IR is shown below figure at dry condition by silica gel, at 40°C and 50°C.

Figure 3. Reaction rate of PP-6260/I-3000 and PP-6260/I-5050



Please remind the time until all part of film roll becomes the set temperature.

ADHESION PERFORMANCE

Typical adhesion performances are shown as follows,

Film Compositions:

1) PP-6260 / I-3000

- a) Ny*¹ (ink, plain) / LLDPE
- b) Ny*² / LLDPE
- c) Ny*¹ / CPP*¹
- d) PET / AI / CPP*¹
- e) PET / AI / LLDPE
- f) PET / VM-PET / LLDPE

2) PP-6260 / I-5050

- a) Ny*¹ (ink, plain) / LLDPE
- b) PET (ink, plain) / Ny*³ / CPP*²
- c) Ny*¹ (ink, plain) / AI / LLDPE
- d) PET / Ny*¹ / AI / CPP*²
- e) PET / AI / Ny*¹ / CPP*²

Film maker	Ny* ¹	15µm	Unitika Emblem RT-IC
	Ny* ²	15µm	Unitika ONM
	Ny* ³	15µm	Unitika Emblem RT-BC
	PET	12µm	Toray P-60
	AI	9µm	Toyo Aluminium
	LLPDE	40µm	Tohcello TUX-HC
	CPP* ¹	60µm	Toray ZK-93
	CPP* ²	70µm	Tohcello RXC-11
	vmPET	12µm	Tohcello ML PET-C
	Ink	PU1 component white (Toyo Ink New LP Super R630)	

Coating weight	PET / Al / CPP Others	3.0g/m ² (laminated by machine) 3.3g/m ² (hand lamination)
Aging	PET / Al / CPP Others	40°C, 3 days 50°C, 3 days
Peeling Conditions	23°C × 50% RH, T-peel c.h.s. 300mm/min, 15mm width	

EVALUATION RESULTS (PP-6260 / I-3000)

a) Ny*¹ (ink, plain) / LLDPE

Table 3. Boiling test

		Before boil	After boil
T-peel strength (N/15mm)	Plain	10 PE Cut	7 Ny Cut
	Ink	9 PE Cut	8 PE Cut
Heat seal strength (N/15mm)	Plain	68 Film Cut	56 Film Cut
	Ink	68 Film Cut	55 Film Cut
Appearance	Plain	-	Good
	Ink	-	Good

Heat seal condition: 160°C X 0.1MPa X 0.6sec

Boil condition: 100°C X 30min

Content: Water/Salad oil = 9/1

b) Ny*² / LLDPE

Boil containing air (boil 30mins.); (pouch burst)

Pouch size : 140mm×140mm

Content: Water / Air = 200/140, 200/100cc

c) Ny*¹ / CPP*¹

Table 4. Retort test

	Before Retort	After Retort
T-peel strength (N/15mm)	13 CPP Exfoliation	8 Ny Cut
Heat seal strength (N/15mm)	45 CPP / CPP (AF)	34 CPP / CPP (AF)
Appearance	-	Good

Heat seal condition: 200°C X 0.1MPa X 0.6sec

Retort condition: 120°C X 30min (hot water type)

Content: Water

Exfoliation: Surface of thin layer of CPP peeled.

AF: Adherent Failure

d) PET / Al / CPP*1

Table 5. Retort test

		Before Retort	After Retort
T-peel strength (N/15mm)	PET/ Al	4 PET Exfoliation	6 PET Cut
	Al/ CPP	8.5 CPP	14.4 CPP Exfoliation
Heat seal strength (N/15mm)		55 CPP / CPP (AF)	52 CPP / CPP (AF)
Appearance		-	Good

Heat seal condition: 210°C X 0.15MPa X 1.0sec

Retort condition: 125°C X 30min

Content: Vinegar/Oil/Ketchup = 1/1/1

AF: Adherent Failure

e) PET / Al / LLDPE

Table 6. Evaluation result

T-peel strength (N/15mm)	PET/ Al	Plain	6 PET Cut
		Ink	5 Ink Transfer
	Al / LLDPE		7.5 PE Elongation
Heat seal strength (N/15mm)			50 Film Cut

Heat seal condition: 180°C X 0.1MPa X 0.6sec

f) PET / VM-PET / LLDPE

Table 7. Evaluation result

T-peel strength (N/15mm)	PET / VM-PET	VM Transfer
	VM-PET / LLDPE	4.5 PET Exfoliation
Heat seal strength (N/15mm)		30 Film Cut

Heat seal condition: 170°C X 0.1MPa X 0.6sec

EVALUATION RESULTS (PP-6260 / I-5050)

a) Ny*¹ (ink, plain) / LLDPE

Table 8. Boiling test

		Ink Area	Plain
T-peel strength (N/15mm)		8.5 Ny / LL	7.2 LL
Heat seal strength (N/15mm)		58 Cut	58 Cut
Boil 100°C, 30min. Water/Oil=10/1 (ml/ml)	Appearance	Good	Good
	T-peel strength (N/15mm)	7.0 Ny / LL	7.6 LL
	Heat seal strength (N/15mm)	56	58 Cut

Heat seal condition: 160°C X 0.10MPa X 0.6sec.

b) PET (ink, plain) / NY*³ / CPP*²

Table 9. Retort test

		Ink Area	Plain
T-peel strength (N/15mm)	PET / Ny	PET Cut	PET Cut
	Ny / CPP	11.5 CPP	
Heat seal strength (N/15mm)		46 CPP / CPP	50 CPP / CPP
Retort 120°C, 30min., 8rpm vinegar/oil/ketchup =1/1/1 (ml/ml/ml)	Appearance	Good	Good
	T-peel (N/15mm)	PET / Ny Ny / CPP	PET Cut
	Heat seal strength (N/15mm)	9.6 CPP Exfoliation	
		42 CPP / CPP	41 CPP / CPP

Heat seal condition: 200°C X 0.15MPa X 1.0sec.

c) Ny*¹ (ink, plain) / AI / LLDPE

Table 10. Evaluation test

		Ink Area	Plain
T-peel strength (N/15mm)	Ny / AI	5.0 Ny	4.5 Ny
	AI / LLDPE	6.9 LL	
Heat seal strength (N/15mm)		56	54

Heat seal condition: 170°C X 0.10MPa X 0.6sec.

d) PET / Ny*¹ / AI / CPP*²

Table 11. Evaluation test

		Ink Area	
T-peel strength (N/15mm)	PET / Ny	PET Cut	
	Ny / AI	4.9 AI	
	AI / CPP	13.2 CPP	
Heat seal strength (N/15mm)		58 CPP / CPP	
Retort 125°C,30min., 8rpm vinegar/oil/ketchup =1/1/1 (ml/ml/ml)	Appearance		Good
	T-peel strength (N/15mm)	PET / Ny	PET Cut
		Ny / AI	4.1 AI
		AI / CPP	9.4 CPP Exfoliation
Heat seal strength (N/15mm)		46 CPP / CPP	

Heat seal condition: 210°C X 0.15MPa X 1.0sec.

e) PET / AI / Ny*¹ / CPP*²

Table 12. Retort test

		Ink Area	
T-peel strength (N/15mm)	PET / AI	PET Cut	
	AI / Ny	4.8 Ny	
	Ny / CPP	14.4 CPP	
Heat seal strength (N/15mm)		59 CPP / CPP	
Retort 125°C,30min., 8rpm vinegar/oil/ketchup =1/1/1 (ml/ml/ml)	Appearance		Good
	T-peel strength (N/15mm)	PET / AI	PET Cut
		AI / Ny	5.2 AI
		Ny / CPP	7.0 CPP
Heat seal strength (N/15mm)		52 CPP / CPP	

Heat seal condition: 210°C X 0.15MPa X 1.0sec.



f) PET / Ny*¹ / AI / CPP*²

Table 13. Retort test and Content-Resistance

	Appearance	T-Peel Strength (N/15mm)
Before retort		13.2 CPP
After retort	Good	9.4 CPP Exfoliation
After 1 week storage	Good	-
After 2 week storage	Good	-

Retort conditions: 125°C, 30min., 8rpm

Content: vinegar / oil / ketchup = 1 / 1 / 1

Storage temperature: 50°C

NOTICE

Do not mix this product with other products other than recommended by the manufacturer. If necessary, please consult us for further information.

DISCLAIMER

The information provided herein, especially recommendations for the usage and the application of our products, is based upon the data at our R&D Centre of Mitsui Chemicals Inc., knowledge and experience. The conditions and mixing ratio listed in this specification are only as reference. Due to different equipment, materials, environment and varying working conditions that are beyond our control, we strictly recommend performing intensive trials to evaluate the suitability of our products pertaining to the required processes and applications. The manufacturer does not accept any liability on the subject of the above provided information or with regard to any verbal recommendation, except for cases where we are liable of gross negligence or false intention. Do not mix this product with other products other than recommended by the manufacturer. Please do not hesitate to consult us if you do need further information or discussion.

V2018/2019

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