Contents

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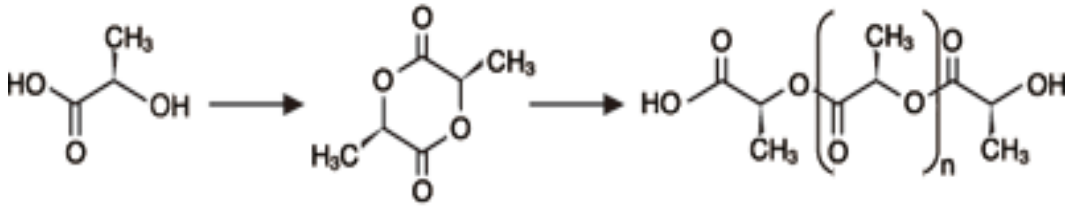
Materials Innovation

2. Challenges of PLA (Poly lactic acid) based bio resins

(1) Structure of PLA & synthetic route



Lactic acid → Lactide → Polylactic acid

☆Polyester like structure
☆Tg=55～65℃
Tm=150～165℃

(2) Performance comparison of PLA & other resins

Property	Unit	PET	PLA	HIPS
Specific gravity	g/cm^3	1.34	1.26	1.05
Tg	℃	70	60	100
Tm	℃	250	160	–
Tensile strength	Mpa	60	55	30
Tensile elongation	%	300	3	20
Flexural modulus	MPa	2500	3500	2500
Izod Impact	KJ/m^2	3	3	10

Compared to PET

◆Lower flexibility (brittle)
◆Easily hydrolyzed & lacks durability

Compared to HIPS

◆Lower Tg
◆Lower flexibility
◆Higher Specific gravity

Challenges: improving flexibility (improving brittleness) & enhancing heat resistance

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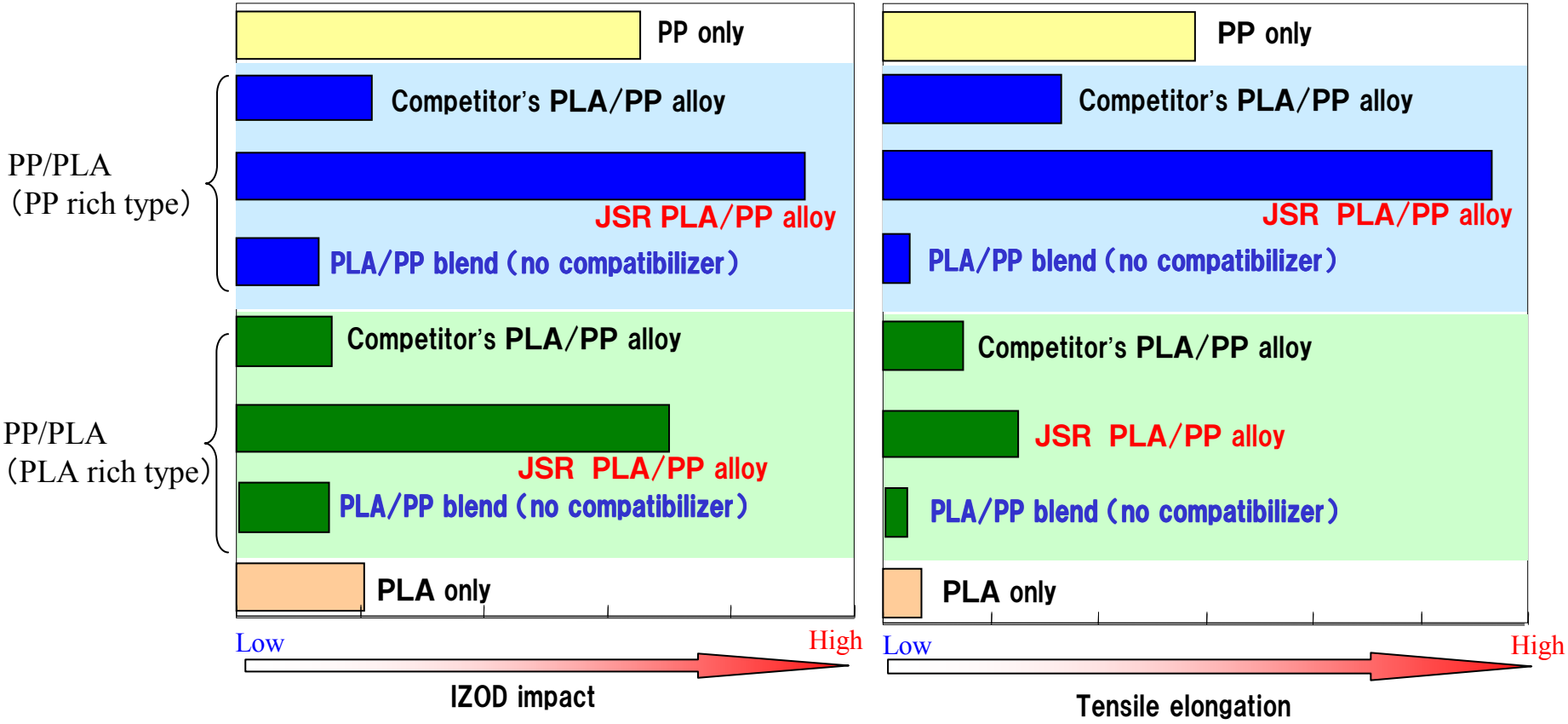
4. Features of JSR's PP/PLA bioplastic alloy

Feature

Materials Innovation

ex. PLA/PP alloy



JSR's PLA/PP alloy "BIOLLOY™"

provides with excellent Impact strength (toughness)

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5 Physical Properties of Modiper® A Series

Code	Melt Flow Rate (g/10min.)1)	Tensile Strength (Mpa)	Elongation At Break (%)	Tensile Modulus (Mpa)	Izod Impact Strength (notched) (kg·cm/cm)	Vicat Softning Temperature (℃)
A 1100	1.2	20	55	235	26	98
A 4100	0.7	16	75	145	no break	83
A 4300	0.1	-	-	-	-	-
A 5300	0.1	-	-	-	-	-
A 1401	0.9	19	40	215	no break	99
A 3400	6.0 2)	34	10	520	2	146
A 4400	0.3	16	75	140	no break	87
A 5400	1.3	12	210	35	no break	52
A 8400					no break	
A 6600	2.0	-	-	-	-	-

* Above figures are typical value, not specified.

1) 190℃, 2.16kgf
2) 230℃, 2.16kgf
3) 220℃, 10kgf

6 Shipping

Modiper® A Series is available 20 kg. net in moistureproof reinforced paper bag.