



# Mitsubishi DIANAL™ LP Series Acrylic Resin for Plastisol Ink



# Mitsubishi DIANAL™ LP Series

The Mitsubishi DIANAL™ LP series acrylic resin powders from Mitsubishi Chemical have a proprietary formulation that is ideal for production of textile printing inks.

- Resin for textile printing ink with non-phthalate plasticizer
- Superior washing resistance and elongation properties
- Excellent in balance of properties such as wash resistance, crocking resistance and pot life.

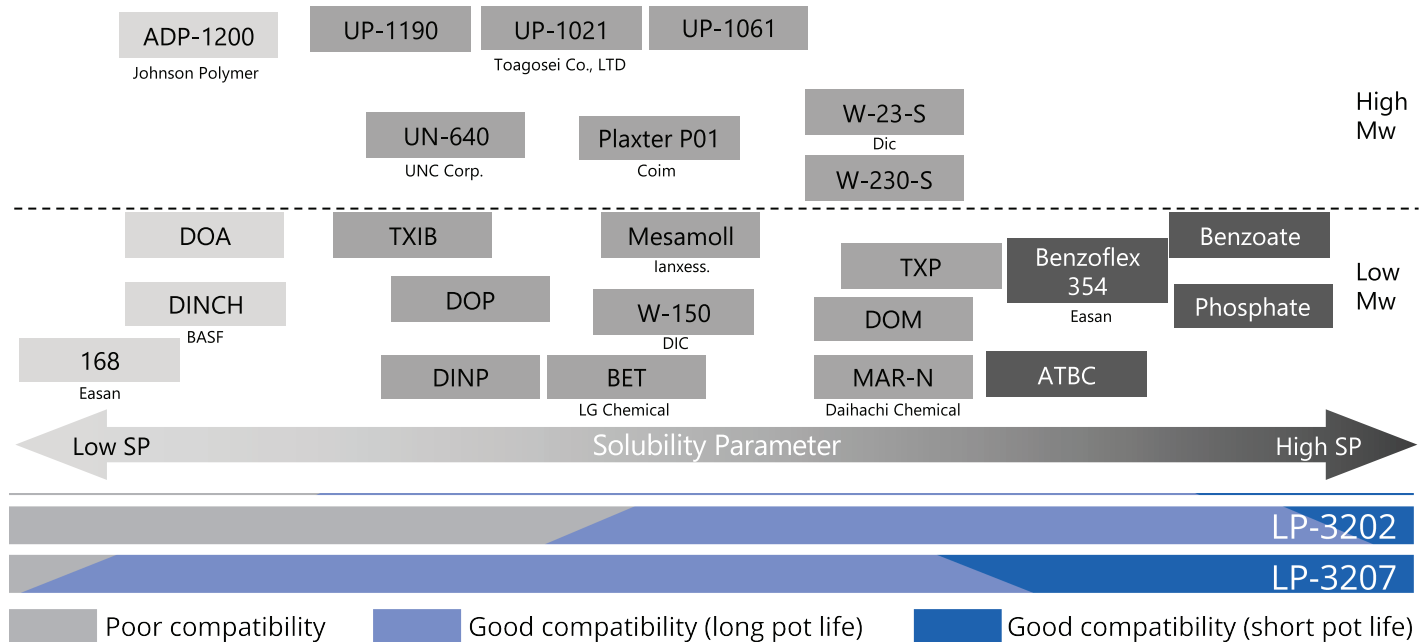


## Acrylic vs. PVC

	LP Series Acrylic	PVC
Halogen Contained	No	Yes
Gelling Properties	Faster	Slower
Thermal Stability	Stable	Requires Stabilizer
Density (g/cm <sup>3</sup> )	1.20	1.35
Recyclability	Easier	Needs Dehalogenation
UV/Weather Resistance	Good	OK
Modification	Variety (acid, hydroxyl, epoxy, etc.)	Only VAC*



## Recommended Plasticizers



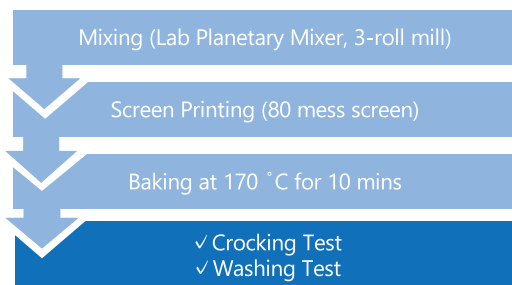
# Material Property Testing

Grade	Plasticizer	Viscosity Properties				Film Properties			Textile Properties	
		Initial Viscosity (mPa·s) 20rpm	4rpm	T.I.	Viscosity Increase (%)	Tensile Strength (Mpa)	Elongation (%)	Initial Modulus (Mpa)	Crocking Resistance (Level)	Washing Resistance (Level)
LP-3202	Mesamoll	32000	72000	2.3	35	2.3	372	5.1	3-4	1
LP-3207	DINCH	38400	56000	1.5	108	2.3	312	2.0	2	4

5: good, 1: poor

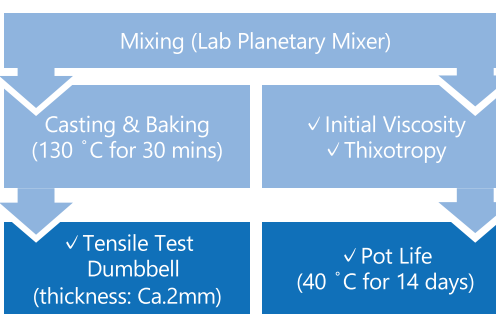
## Textile Properties

Item	Wt. Parts
Mitsubishi DIANAL LP	100
Plasticizer	120
TiO <sub>2</sub>	50
Phthalocyanine Copper (II)	3.3

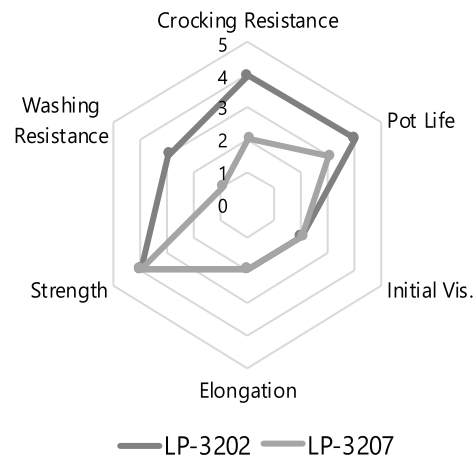


## Film & Viscosity Properties

Item	Wt. Parts
Mitsubishi DIANAL LP	100
Plasticizer	100



Testing Detail		Equipment
Initial Viscosity	Viscosity of 20rpm and 4rpm at room temperature	BH type viscometer (No. 7 rotor) Brookfield
Pot life	Viscosity change after 14 days (at 20rpm) Storage temperature: 40 °C	
T.I. (Thixotropic index)	Ratio of viscosity of 4rpm and 20rpm at room temperature	
Tensile test	Test pieces: Dumbbell, Film thickness: 2mm Baking condition: 130 °C for 30mins Tensile speed: 50mm/min	Autograph AG-5KNNIS Shimadzu Corporation
Crocking test	Loading weight: 9N, Tune: 10 tunes/10sec Mode: Dry	AATCC Crock meter CM-5 ATLAS
Washing Test	Washing mode: Normal/Cottons Temperature: 60°C, Rotation speed: 1000rpm Washing time: 60mins Detergent: 30g, Load: Total 2kg (Cotton T-shirts) Drying time: 50mins	Washing Machine PW5065 Vented dryer PT7136 Miele



Level	Initial vis. (20rpm)	Increase in Viscosity	Crocking Resistance	Washing Resistance	Elongation	Strength
	mPa·s	%	level	time	%	MPa
1	40001~	301~	1~1-2	~2	~200	~0.9
2	30001~40000	201~300	2~2-3	3	201~300	1.0~1.4
3	25001~30000	101~200	3	4	301~400	1.5~2.0
4	15001~25000	11~100	3-4	5	401~450	2.1~2.5
5	~15000	1~10	4-5	6~	451~	2.6~

5: good, 1: poor

