

Introduction of KURARITY™ as modifier for paint applications

KURARITY business promotion dept.
Elastomer Division

kuraray Kurarity™

Advantages of KURARITY™ as modifier for paint applications

PMMA-*b*-PnBA-*b*-PMMA



KURARITY™ as “MAM” structure
-> Made by controlled living anionic polymerization

Features of KURARITY™

All acrylic structure

Elasticity (Softness)

Advantages as modifier

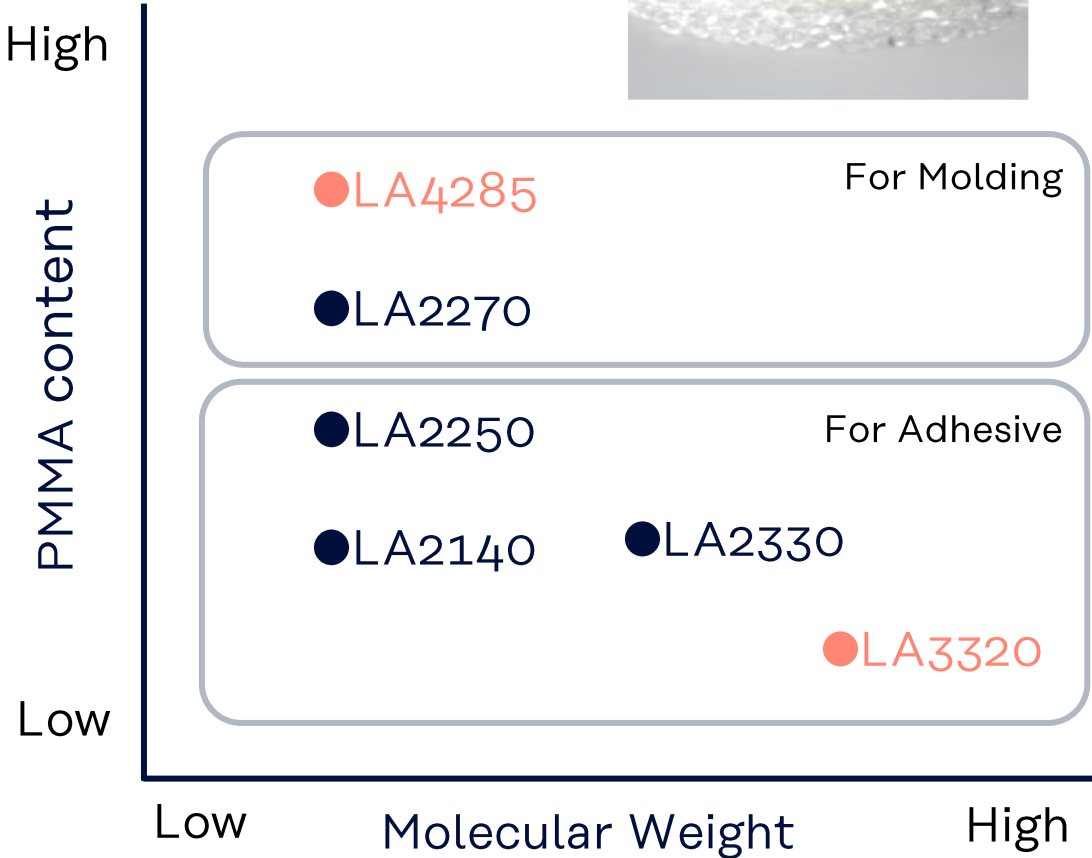
Good solubility

Good adhesion

Higher flexibility

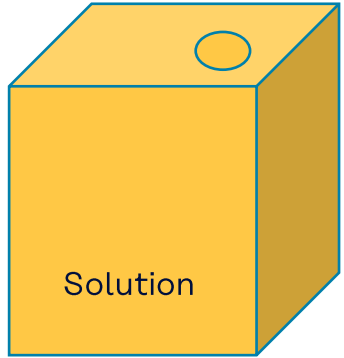
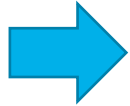
Comparison of KURARITY™ and conventional acrylic modifier

KURARITY™

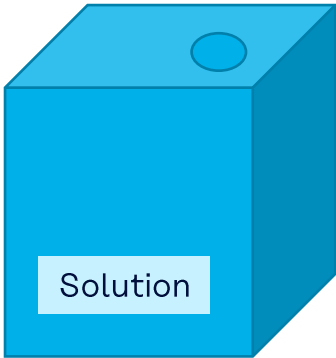


KURARITY™

- Test Grade = KURARITY™ LA3320 and LA4285
- Each grade was dissolved in a solvent before use.



Acrylic modifier for paint application



- Comparable example:
We used acrylic polymer solution
T_g = 50 deg.C
50 wt% Butyl acetate solution

Formulations of paint solutions

- Evaluation of modifiers / the acrylic resin in base material = 0.4 / 1.0 (wt/wt)

		Ex.1	Ex.2	Ex.3
Base Material 13.5 wt% butyl acetate /diethylene glycol monobutyl ether=9/1 solution	Blue Master Batch solution *1	200	200	200
Modifiers 30 wt% butyl acetate /diethylene glycol monobutyl ether=9/1 solution	KURARITY™ LA3320 solution*2	35		
	KURARITY™ LA4285 solution*2		35	
	Acrylic polymer solution (Tg = 50 deg.C)*3			35

*1 :A butyl acetate solution of an acrylic resin (39 wt%) including a blue pigment was diluted with a mixed solvent of butyl acetate / diethylene glycol monobutyl ether.

*2 : Dissolved in a mixed solvent of butyl acetate and diethylene glycol monobutyl ether = 9/1

*3 : Diluted with a mixed solvent of butyl acetate / diethylene glycol monobutyl ether.

Properties of coating film (25 μm thickness)

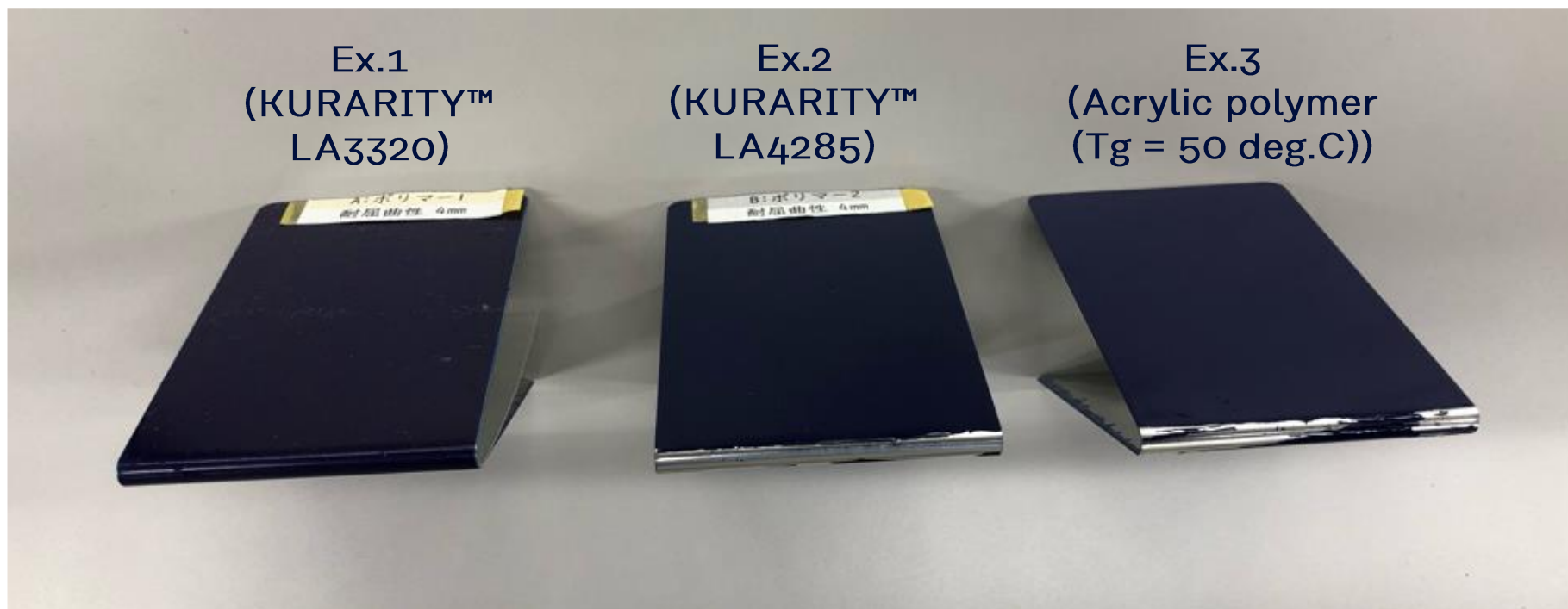
- Spray coated on ABS at the 25 μm thickness using the paint solution described above

Modifiers	Ex.1	Ex.2	Ex.3
	KURARITY™ LA3320	KURARITY™ LA4285	Acrylic polymer (Tg = 50 deg.C)
Flexibility (Cylindrical mandrel method)	2 mm pass	10 mm failure	10 mm failure
Cupping resistance	More than 10 mm	0.7 mm	0.6 mm
Adhesion (cross cut method)*	0	1	2
Pencil Hardness	Less than 6B	B	B
Gross	47	49	70

* 0 : no peeling, 1 : peeling no more than 5%, 2 : peeling above 5 % but no more than 15 %.

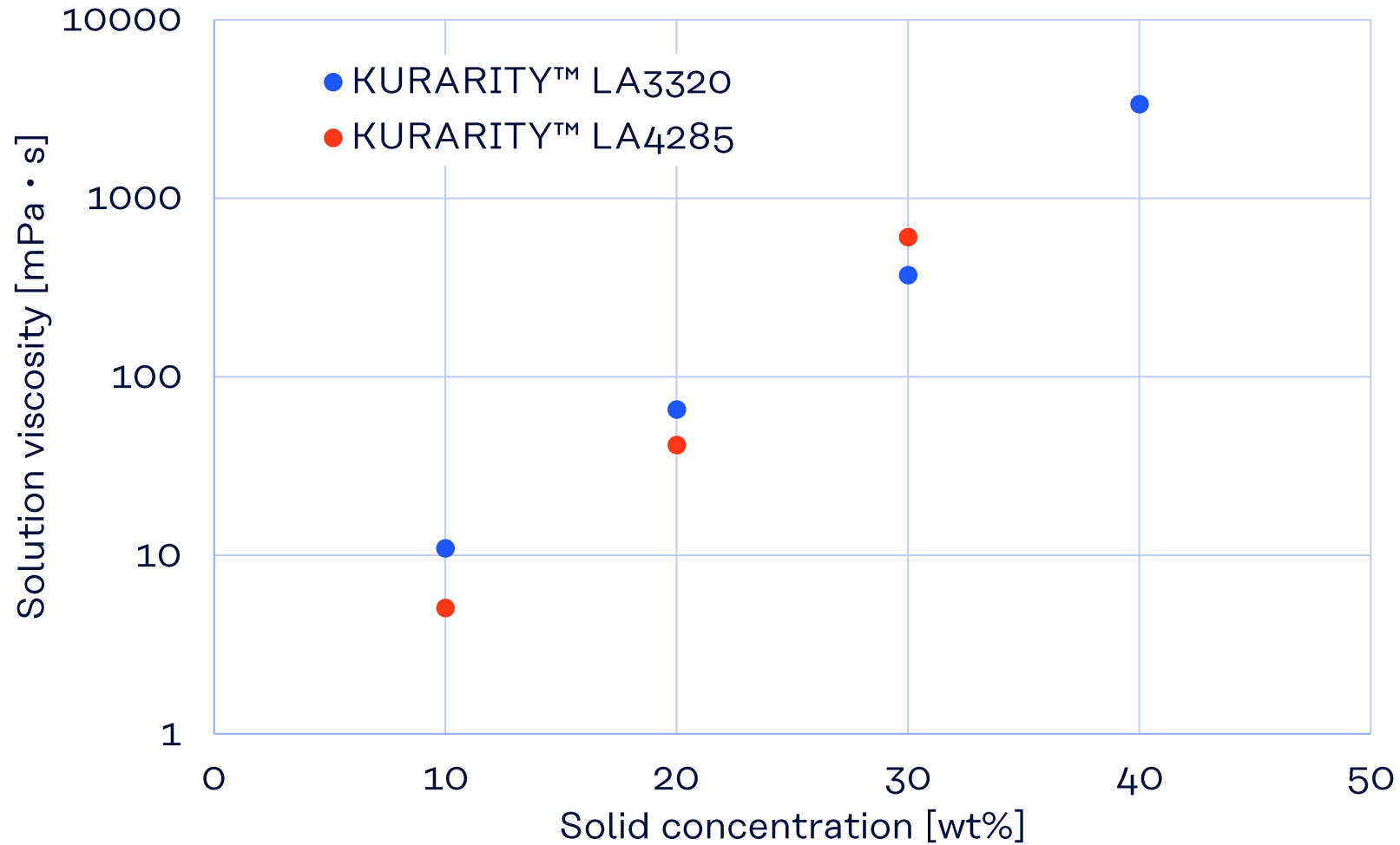
- ✓ Compared with conventional acrylic modifier,
our new solution, especially KURARITY™ LA3320 is;
(++) Excellent Flexibility
(+) better adhesion

Flexibility (Cylindrical mandrel method using 0.4mm)



- ✓ Coating with KURARITY™ LA3320 modifier was not broken in the cylindrical mandrel method

Viscosity of KURARITY™ butyl acetate solution



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Precautions should be taken in handling and storage. Please refer to the appropriate Safety Data Sheet for further safety information. In using KURARITY™, please confirm related laws and regulations, and examine its safety and suitability for the application.

For medical, health care and food contact applications, please contact your Kuraray representative for specific recommendations. Even so, users must conduct their own assessment, revisions, registrations as well rely in their own technical and legal judgment to establish the safety and efficacy of their compound and/or end product with KURARITY™ for any application. KURARITY™ should not be used in any devices or materials intended for implantation in the human body. Nothing contained herein constitutes a license to practice under any patent and it should not be construed as an inducement to infringe any patent and the user is advised to take appropriate steps to be sure that any proposed use of the product will not result in patent infringement.

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