

IMPROVING ENVIRONMENTAL RESISTANCE AND MECHANICAL PERFORMANCE OF PU ADHESIVES

NORYL™ AP2001G™ POLYOL

SABIC's NORYL AP2001G Polyol enables polyurethane adhesive formulations that provide better resistance to environmental conditions, higher thermal stability, improvement in mechanical performance, and improvement in anti-sweat for wearable devices.



ACHIEVING UNIQUE ENVIRONMENTAL RESISTANCE CAPABILITY MAINTAINING SUBSTRATE ADHESION



Good resistance to high humidity, sweat



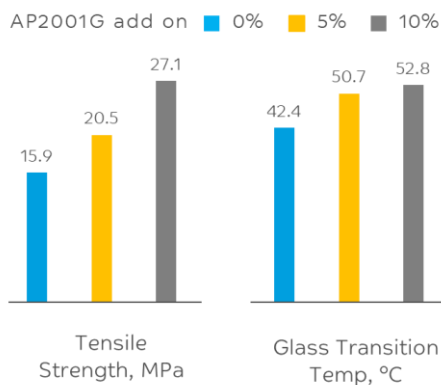
Good resistance to higher temperature



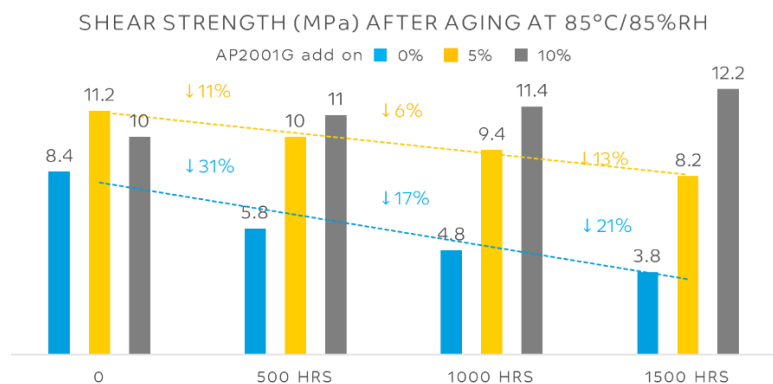
Good adhesion to the substrate



Improvement to mechanical strength and modulus



Lab studies on a model formulation showed improvements in the mechanical performance and glass transition temperature (T_g), suggesting improved thermal stability and allowing for higher loadings of thermally conductive additives.



Lap-shear adhesion strength of the model PU adhesive to Aluminum alloy shows improvement with NORLY™ AP2001G polyol addition with better retention after 85°C / 85% RH aging.

The model 2-part adhesive formulation used in these tests is shown below (NCO:OH = 1.05:1).

				AP2001G Add-on %		
2K	Components	Building blocks	Notes	0%	5%	10%
A	Isocyanate	MDI	Provide necessary physical and mechanical strength	41%	40%	38%
		PPG	Provide wetting ability	25%	23%	22%
B	Polyether polyol	NORLY AP2001G Polyol	Improve mechanical performance and improve aging under 85°C and 85%	0%	5%	10%
		Other Polyols and Polyesters	Provide bonding and flexibility	29%	27%	25%
	Chain extender & cross linker	Glycerol, Propylene glycol, Trimethylol Propane (TMP)	Provide chain extension and cross-linking	6%	5%	5%
	Catalyst	Borchi@Kat 315	Tin-free catalyst to accelerate the reaction	0.01%	0%	0%

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NORLY RESINS

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