

# REACTIVE POLYURETHANE HOTMELT ADHESIVES

## Description

Reactive PUR hotmelt adhesives are moisture-curable prepolymer systems, which are preferred when high bonding strength and high heat resistance, as well as mechanical and chemical resistance are required at low mileage.

In PUR hotmelt adhesives, the initial tack and peel (green strength) is a result of the crystallization and segment forming of the polyols in the prepolymers. The end strength is determined by the chemical reaction of isocyanates.

NOVARES® resins modify the green strength of a reactive PUR hotmelt adhesive through:

- Optimization of open time and set time
- Improvement of initial tack and peel
- Adjustment of compounding viscosity
- Increase of water resistance due to the hydrophobic character of the NOVARES resins



As the major component in a PUR hotmelt, polyols have an essential impact on the final formulations. The compatibility of hydrocarbon resins with the polyols can influence the morphology and crystallinity of polyols and consequently shifts the application properties. Due to the high polarity of polyols, phenolic-modified NOVARES resins and low softening point resins show high compatibility, while low-polar resins tend to have lower compatibility.

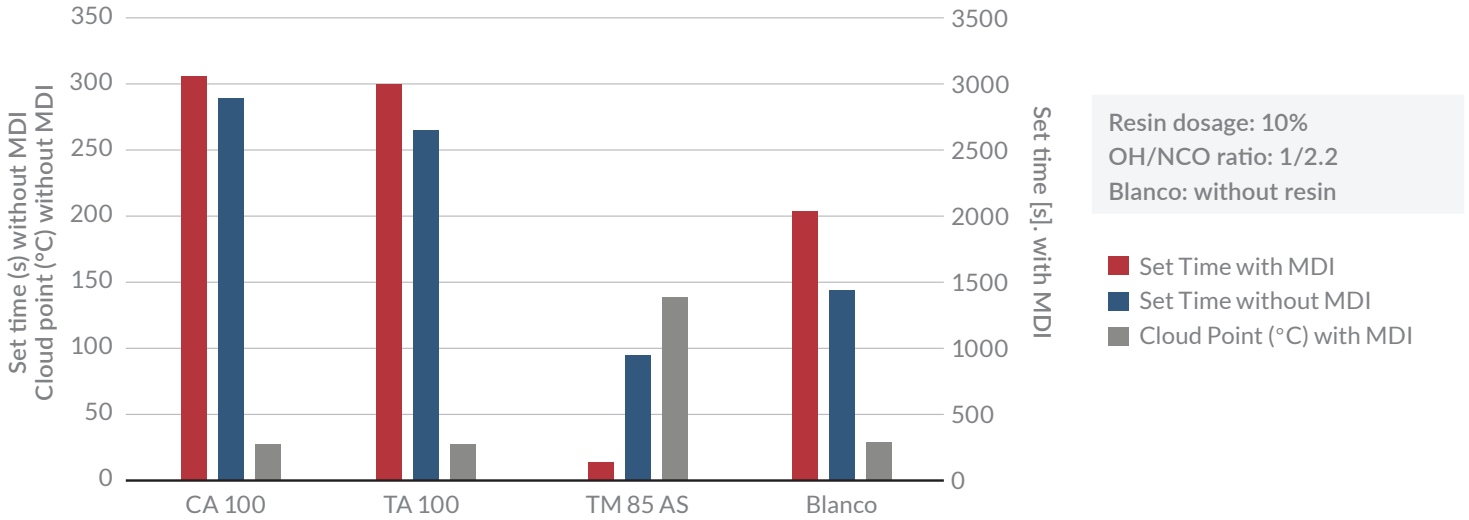
## Results

Cloud points of the polyol blend Dynacoll 7360, Dynacoll 7130, Dynacoll 7250 (2:3:1) with 20% NOVARES resin

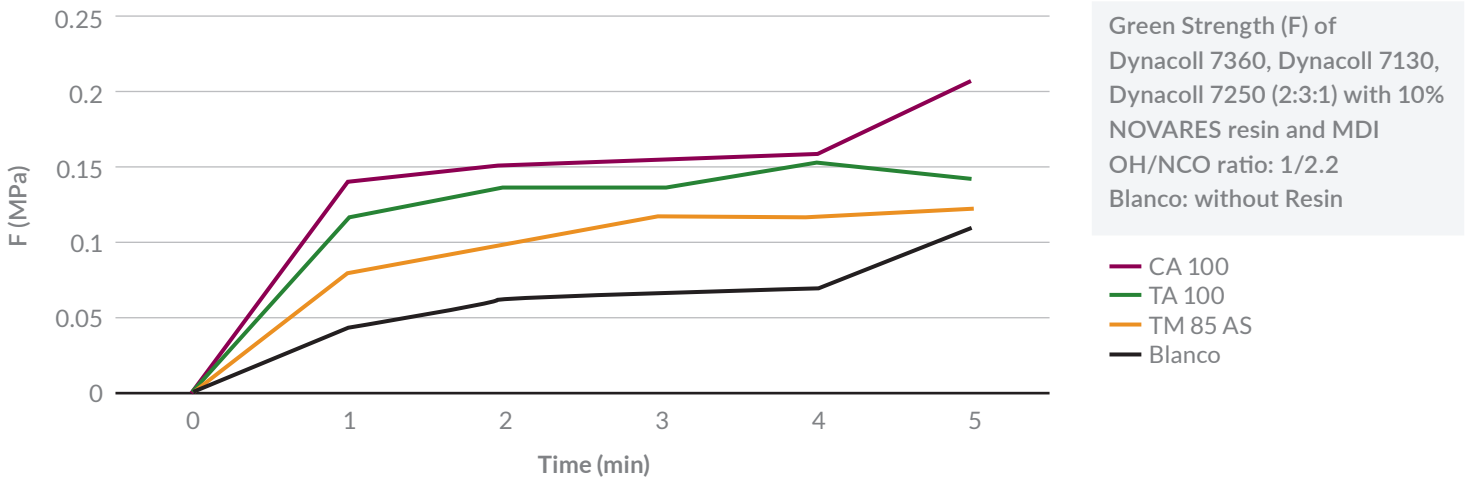
NOVARES	CA 100	TA 100	C 30	TV 100	TM 85 AS
Cloud Point	< 30 °C	< 30 °C	< 30 °C	145 °C	220 °C
Resin Type	High-polar phenolic indene	High-polar phenolic C9	Polar low molecular indene	Special C9	Pure monomer

Pretrials with unreacted polyols blended with a resin cannot replace the tests in an isocyanate cross-linked recipe. But it might serve as indication of the green properties of a formulation. For example, the set time in unreacted polyols shows a correlation to that in the PUR formulation.

Impact of resins on set times and cloud points of polyol blend before and after cross-linking by MDI



Impact of the polarities of resins on the green strength of a PUR hotmelt adhesive



NOVARES Resins for PUR Hotmelt Adhesives:

Adhesive	Recommended NOVARES Resins
PUR HM	TN 100, CA 100, TK 100, TM 90 S, TM 85 AS, TM 20 AS



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