

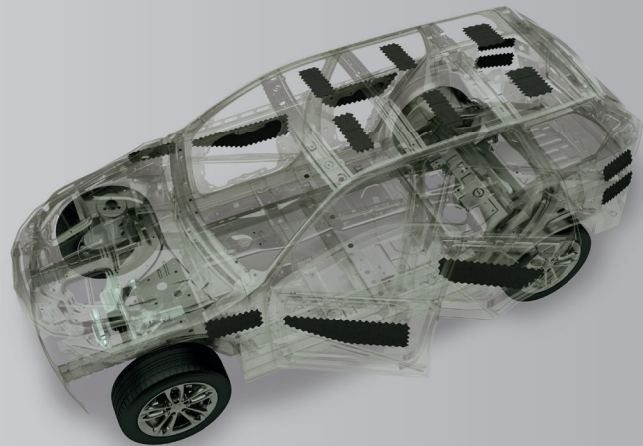


## BEST PRACTICE

### Overcome Oil-Canning Performance and Lightweighting Challenges with Henkel Stiffening Solutions

#### CHALLENGE

A leading regional truck and bus manufacturer was challenged to enhance door oil-canning performance and reduce door weight in its cab-over truck design.



## SOLUTION

In the quest to offer drivers a car-like experience in a cab-over design work truck, the OEM invited Henkel to assist in reviewing its door design. The task was to identify and address oil-canning issues and pave the way to future lightweighting opportunities. Henkel engineers went to work using Finite Element Analysis (FEA) modeling to evaluate possible panel reinforcement solutions as well as the potential application areas on the cabin door. Armed with this information, they were also able to suggest methods for optimizing the door design.

The primary outcome was recommending a Henkel stiffener pad formulation in the most efficient and effective design and size – optimally positioned within the door panel. Applying a force of 155 N before and after applying the patch, door stiffness was increased by 60 percent, resulting in a weight savings of up to 1.1 kg per door compared to the previous design.

## BENEFITS

- Optimized design through engineering partnership
- Enhanced overall panel stiffness
- Offered a corollary lightweighting opportunity at the door panels
- Implemented an efficient solution in existing architecture without requiring significant design changes

## PORTFOLIO OF PANEL REINFORCEMENT SOLUTIONS

TYPE OF REINFORCEMENT PRODUCT	PRODUCT NAME	CHEMISTRY BASIS	EXPANSION RATE	CURE SCHEDULE	DENSITY [g/cm <sup>3</sup> ]	SPECIAL CHARACTERISTICS
Patch	EP 7850	Epoxy	260%	160°C ~ 190°C 15-60 min.	0.37	Very high stiffening power, lower thickness patches
Patch	EP 2800	Epoxy-rubber blend	290%	160°C ~ 190°C 15-60 min.	0.36	High stiffening power patches
Patch	RB 5200	Rubber	200%	165°C 10 min.	0.54	Very low readthrough, damping properties
Patch	EP 16005	Epoxy	0%	160°C ~ 170°C 20 min.	1.94	Magnetic
Sprayable	RB 5185	Rubber	35%-100%	150°C ~ 190°C 10-30 min.	0.77-0.93	Jet stream, flat stream, swirl
Sprayable	EP 5041	Epoxy	35%-40%	140°C @ 30 min.+ 160°C @ 30 min.	1.03	Jet stream, flat stream, swirl, shovel spray

## GET IN TOUCH WITH US

For more information on our panel reinforcement and rigidity solutions, as well as our other services along the automotive value chain, visit:

[www.henkel-adhesives.com](http://www.henkel-adhesives.com)

Or contact us directly at:

[aaoglobalmarketing@henkel.com](mailto:aaoglobalmarketing@henkel.com)

