

Best Practice

# IMPROVE NCAP SAFETY RATINGS THROUGH BEST-IN-CLASS RIGIDITY WITH HENKEL STRUCTURAL ADHESIVES

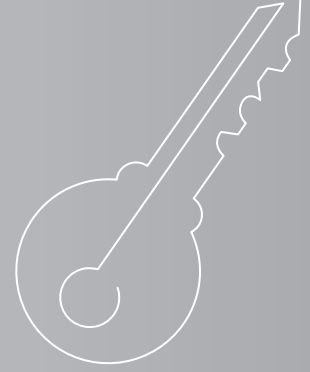
## CHALLENGE

In the highly competitive 4x4 off-road segment, a leading OEM was challenged to achieve best-in-class torsional rigidity to earn advanced safety ratings without increasing vehicle weight.



## SOLUTION

To help the customer achieve optimal torsional rigidity without increasing vehicle weight, Henkel looked to its next generation of structural adhesives – Teroson EP 4560 and Teroson EP 5016. Both deliver high crash resistance while allowing for increased manufacturing flexibility and efficiency. Teroson EP 4560 was applied to areas needing localized joint stiffness, or those where spot-welding creates difficulties. In the event of a crash, strong joints enable the parts to be deformed as intended and consume significant energy by plastic deformation. For main crash zones like the front rail crash member joinery and the firewall dashboard in the front structure, Henkel relied on Teroson EP 5016. This approach also enabled the manufacturer to use thinner metal – reducing vehicle weight – while also delivering increased all-wheel drive performance.



## BENEFITS

- Improved NCAP safety ratings from 1 star to 4 star-rating for a 4x4 SUV model
- Delivered best-in-class durability and crashworthiness
- In the case of a crash, the weld-plus-adhesive-bonded rail member crumples without splitting at the seam, absorbing more energy for better protection of car occupants
- Enhanced torsional rigidity and up to 10% improved ride-handling and body stability
- Superior ride quality

## PORTFOLIO OF HIGH CRASH-RESISTANT STRUCTURAL ADHESIVE

Henkel Product	E-Modulus (ISO 527-1)	LSS (ISO 4587, 2 mm/DCo4)	Impact Peel Strength (ISO 11343, 1mm/DCo4)	Special Properties
<b>TEROSON</b>	(ISO 527-1)	(ISO 4587, 2 mm/DCo4)	(ISO 11343, 1mm/DCo4)	
<b>EP 5014</b>	1500 MPa	38 MPa	36 N/mm	Medium viscosity
<b>EP 5016 C</b>	1600 MPa	30 MPa	35 N/mm	Medium viscosity
<b>EP 5018</b>	1600 MPa	34 MPa	40 N/mm	Excellent impact peel resistance and medium viscosity
<b>EP 5089</b>	1700 MPa	32 MPa	32 N/mm	Medium viscosity
<b>EP 5089 EU</b>	2000 MPa	28 MPa	32 N/mm	High viscosity and wash-off resistance
<b>EP 5090</b>	2400 MPa	32 MPa	34 N/mm	Medium viscosity and excellent humidity resistance
<b>EP 5091</b>	2000 MPa	28 MPa	34 N/mm	Medium viscosity, special wash-off resistance and excellent humidity resistance
<b>EP 5092</b>	1800 MPa	28 MPa	34 N/mm	Medium viscosity and excellent wash-off resistance
<b>EP 5095</b>	1600 MPa	30 MPa	33 N/mm	Medium viscosity, non-heated follower plate application, high wash-off resistance
<b>EP 5150</b>	1800 MPa	30 MPa	42 N/mm	Excellent stress durability, excellent impact peel resistance with low to medium viscosity

## GET IN TOUCH WITH US

For more information on our Structural Adhesives, visit:

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

Or contact us directly at:

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