



## IMPROVEMENT SCENARIO: PEROXIDE-CURE ANTI-FLUTTER

**Achieve CO<sub>2</sub> emissions reductions at the supplier level by selecting greener anti-flutter curing.**

In comparison to traditional sulfur curing, Henkel's innovative and sustainable peroxide-cure anti-flutter technology reduces CO<sub>2</sub> emissions by more than 25%. Adjustable peroxide formulations allow OEMs to start their sustainability efforts at the beginning of the supply chain, while ensuring finished-product reliability and performance.



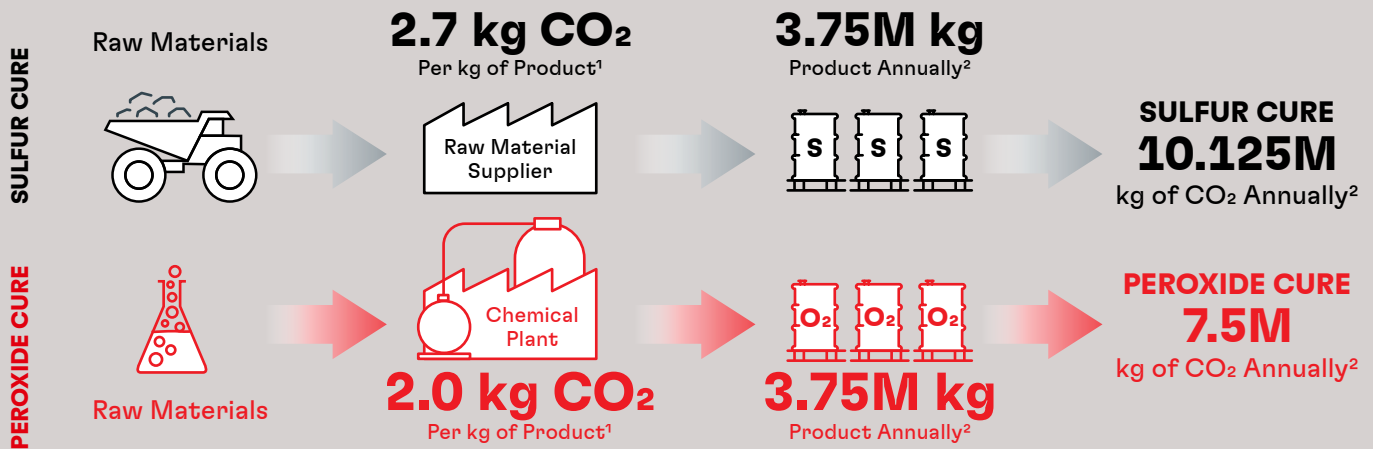
### CUSTOMER SITUATION

Following the transition to a tin-free e-coat, a global OEM continued using their existing sulfur-cured anti-flutter formulation but encountered corrosion concerns after aging. They reached out to Henkel for a time-sensitive and practical solution that would pose no sacrifice in quality or performance while also supporting their sustainability objectives.

### RECOMMENDED SOLUTION

To solve the corrosion concern while reducing CO<sub>2</sub> emissions and odor, Henkel offered a more environmentally friendly and sustainably sourced peroxide catalyst to replace the sulfur cure entirely. Lower-temperature peroxide curing sets the stage for customer e-coat oven temperature reductions, and Henkel peroxide cures can be easily fine-tuned to meet individual customer requirements.

## CO<sub>2</sub> REDUCTION SCENARIO: PEROXIDE VS. SULFUR CURE



1. Nominal; individual samples vary slightly.

2. Based on customer volume of 1.5 kg of sulfur-cured product vs. 1.5 kg of peroxide-cured product per vehicle and 2.5M vehicles per year.

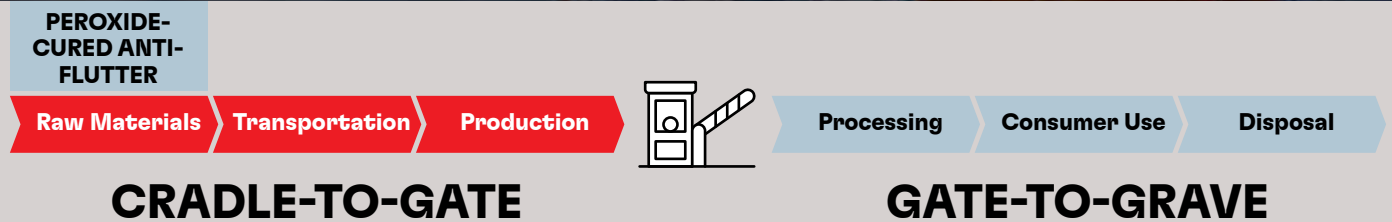


**IN THIS SCENARIO, PEROXIDE-CURED ANTI-FLUTTER  
REDUCED CO<sub>2</sub> EMISSIONS FROM RAW MATERIAL  
CHEMISTRY BY MORE THAN 25%**



# OUR GOAL

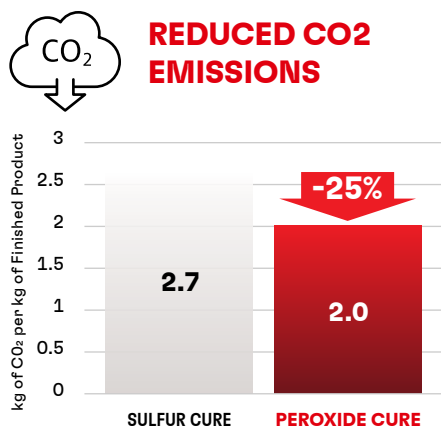
At Henkel, our goal is to improve sustainability while also protecting the health and safety of everyone who works with our products – whether at our own or our customers' facilities. We are actively working to reduce or eliminate hazardous chemicals in our product formulations wherever possible in order to enhance safety and help our customer exceed regulatory requirements.



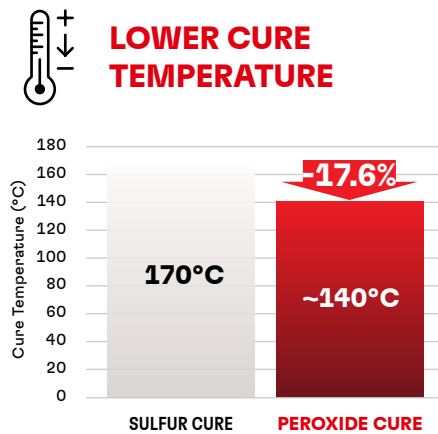
## SUSTAINABILITY OPPORTUNITY: PEROXIDE-CURED ANTI-FLUTTER

### Transition from sulfur curing to Henkel peroxide-cured anti-flutter technology.

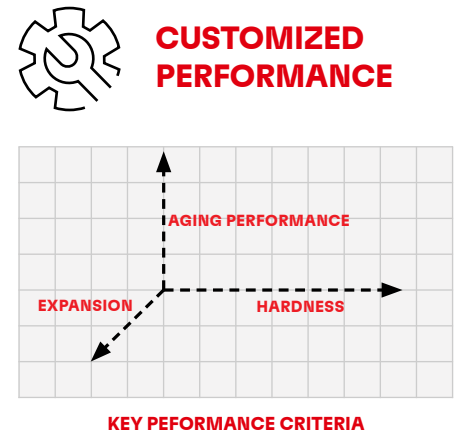
For a global OEM customer, Henkel solved the sulfur-cure corrosion concern that resulted from transitioning to a tin-free e-coat. Not only is Henkel's peroxide-cure chemistry compatible with tin-free e-coats, it also eliminates the sulfur smell and regulated materials often associated with conventional options. In addition, we have achieved more than a 25% reduction in CO<sub>2</sub> emissions in manufacturing our peroxide-cured anti-flutter material. As for performance, our modular formulations can drastically reduce required cure times at conventional curing temperatures. Alternately, low-cure processes in development can enable oven temperatures as low as ~140°C, opening the door for OEMs to reduce energy use and CO<sub>2</sub> emissions even further. At Henkel, we continually refine our own manufacturing processes and anticipate transitioning our peroxide-cured anti-flutter material from batch production to continuous production in the future. In so doing, we anticipate further reducing our process energy consumption by 58%, offering even further environmental footprint improvements.



Henkel's peroxide cure reduces CO<sub>2</sub> emissions by more than 25% compared to sulfur curing.



Henkel's enhanced anti-flutter can cure as low as 140°C, enabling OEMs to reduce e-coat oven temperatures.



With the available modular peroxide package, Henkel can customize specific key criteria from a baseline formulation to fulfill customer specifications.

## LEARN MORE

[henkel.com/sustainability](https://henkel.com/sustainability)

