



## Moving more with less CO<sub>2</sub> - Bonding in the Automotive Industry

The motor car has been with us for more than 120 years and today it is hard to imagine life without the motor car. It has transformed our way of life, our landscape, and our outlook. Worldwide it has provided mobility, pleasure and economic opportunity to millions of people, but its widespread use has damaged the environment. Now the big question is how sustainable is the motor car, and the way we use it?

The European Commission is committed to reducing CO<sub>2</sub> emissions from new cars and vans sold in the European Union, to ensure that the EU meets its greenhouse gas emission targets under the Kyoto Protocol and beyond. To meet the targets requires some fundamental changes in the way cars are assembled, used, and – ultimately – disposed of. Adhesive bonding is one of beneficial factors in car production since it helps to reduce the vehicle's weight, and thus also the CO<sub>2</sub> emission, of the finished car. Moreover, it has also proved to be the most energy efficient joining technique. A lighter car generally emits less CO<sub>2</sub>. But modern cars also need to display ever more innovative and functional designs and continuously improve the safety of the passengers.

In order to achieve these various goals, whilst also limiting the overall weight of the car, many different materials – such as aluminium, magnesium, steel, or fibre-reinforced plastics – need to be used. Joining all these different parts and materials to make a complete car can only be done with the help of adhesives, since traditional joining techniques like welding, riveting and clinching might damage the material and cannot be applied on all substrates.

Increasingly, vehicle manufacturers are using plastic in doors and other vehicle body parts, while most use plastic in bumpers. Tooling for plastic components generally reduces costs and requires less time to develop than that for steel components and therefore may be changed by designers at a lower cost, making it an attractive material for vehicle makers, despite its higher cost per pound. The relative low weight also contributes to higher fuel efficiency in cars. Not only the car body, but many exterior and interior components, visible or hidden in a car, owe their functionality to state-of-the-art adhesive technologies.

Overall the energy spent per bonding application with adhesives is lower than the energy spent for conventional joining techniques like welding or clinching.

Adhesive bonding increases the choice of material used and enables more innovative designs; both are important factors for the safety of the car. For example, the windscreen provides structural

strength to the car body and helps keep passengers inside the car if an accident should occur.

The use of adhesives in car production contributes to improving safety standards and allows modern design with innovative material. Adhesives help the car industry to meet its challenges of developing more environmentally friendly solutions for the future.

Whatever direction the motor vehicle industry takes in the coming decades, it is certain that adhesives and sealants will have an increasing part to play.

For more information about this Benefit Story, please contact:

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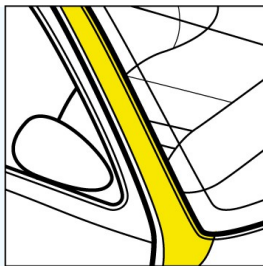
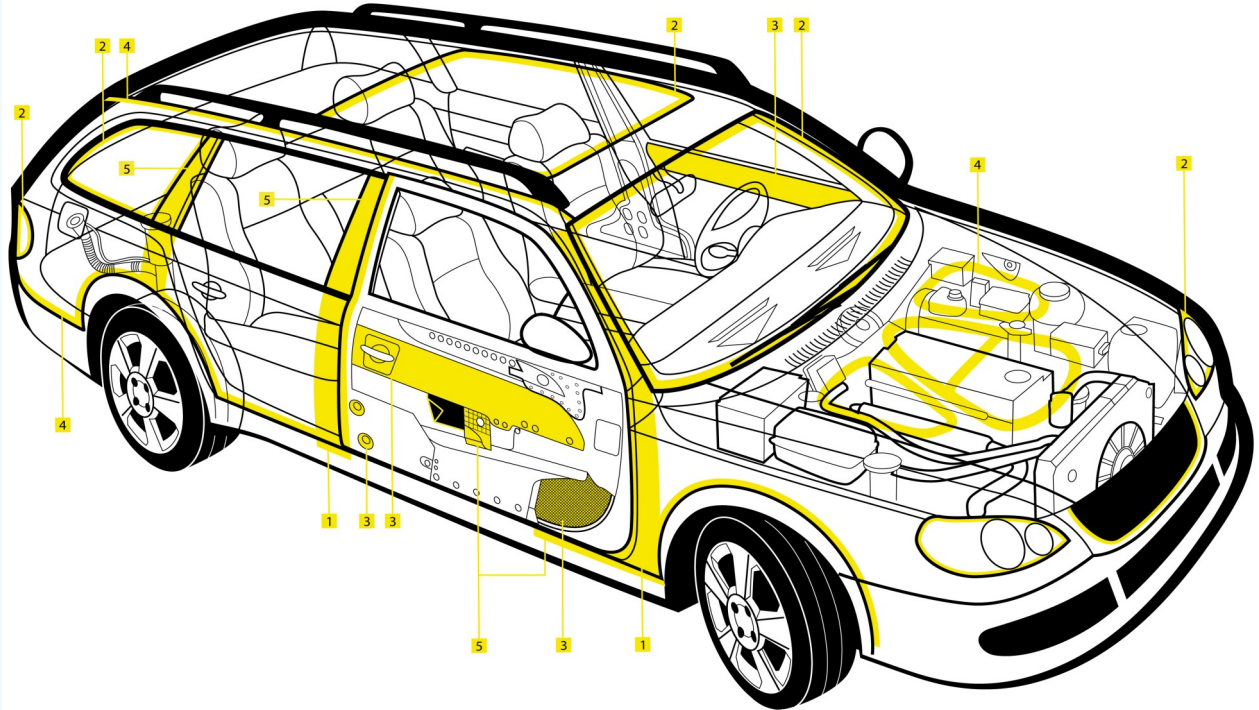
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### About Feica

FEICA, the Association of the European Adhesive & Sealant Industry is a multinational association representing the European Adhesive and Sealant Industry. With the support of 14 national associations and several company and affiliated members, FEICA coordinates, represents and advocates the common interests of our industry throughout Europe. In this regard FEICA aims at establishing a constructive dialogue with legislators in order to act as a reliable partner to resolve issues affecting the European Adhesive and Sealant Industry.

For any additional information about the FEICA activities please visit our website: [www.feica.eu](http://www.feica.eu)

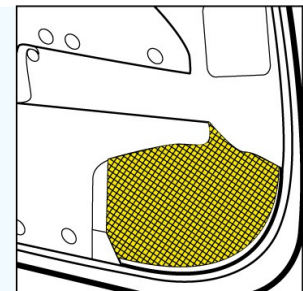
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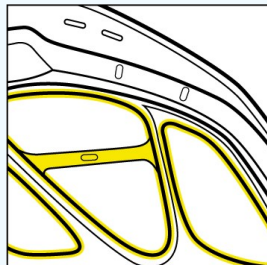
1. Structural reinforcement of cavities



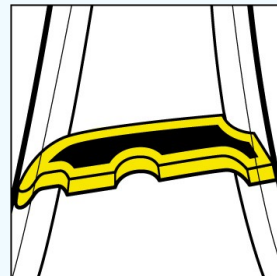
2. Direct glazing with and exterior bonding



3. Interior bonding



4. Structural bonding and sealing



5. Sound damping

“Sika car” Images courtesy of Sika Services AG.