

The chemistry behind self-driving cars

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Self-driving, electric cars have been touted as the next big thing in transportation. While this technology has progressed in recent years, experts caution that automakers will need the chemical industry to help make it a reality. A new article in *Chemical & Engineering News*, the weekly newsmagazine of the American Chemical Society, explains how chemistry can help develop the materials necessary for fully autonomous vehicles.

It's still early days for automated vehicles, but some are already on the road, delivering items such as groceries in cities around the U.S. However, the ultimate goal is delivering human passengers, which is turning out to be more challenging than initially expected. While the legal and regulatory ramifications continue to be debated, chemists are putting the pedal to the metal to advance the science needed for producing efficient, safe and attractive [self-driving](#) passenger vehicles, writes Associate Editor Craig Bettenhausen. For example, consumers expect these cars to be electric in keeping with current trends, so chemists are working on better batteries. Chemistry will play a key role in developing the complex computer systems and sensors required for fully autonomous driving, along with new structural materials that provide a spacious, safe and comfortable environment for human passengers. Because the technology is brand-new, specialty chemical firms will need to create custom materials for their clients, leading to a potential boom in materials science.

Safety is key when transporting people. Among the many technologies and materials required for self-driving cars, sensors are one of the most

important elements in that they enable the [vehicle](#) to "see" its surroundings and avoid dangerous situations. To help keep these sensors working as they should, manufacturers are investigating the use of nonstick and self-cleaning coatings to reduce maintenance and enhance safety. In addition, companies are looking at revising the reflective materials used on road signs and lane lines to make them more visible to [autonomous vehicles](#). While there are many [challenges](#) to overcome, experts say there are even more opportunities to make this new type of transit a reality.

More information: "Self-Driving Cars are Coming. Chemical Makers are Racing to Keep Up," [cen.acs.org/business/consumer- ... ming-Chemical/98/i41](https://cen.acs.org/business/consumer-.../ming-Chemical/98/i41)

Provided by American Chemical Society

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