

## News Release

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## Merck KGaA, Darmstadt, Germany, Debuts Automotive Innovations at the IAA

- **Smart LC and OLED materials enable high-performance lighting systems**
- **Individually switchable panes thanks to liquid crystal window technology**
- **Free-form displays create new display possibilities in automotive engineering**
- **Smart antennas ensure high-performance connectivity for stable and reliable network connections**
- **Pearlescent pigments give surfaces a radiant appearance**

Darmstadt, Germany, September 7, 2017 – Merck KGaA, Darmstadt, Germany, a leading science and technology company, will exhibit for the first time at the International Motor Show (IAA) in Frankfurt, Germany (Hall 3.1, Stand A21), presenting its innovative solutions for the automotive industry that enhance functionality and aesthetics in automotive engineering.

In its Performance Materials business sector, Merck KGaA, Darmstadt, Germany, offers a wide variety of materials for the automotive industry. The applications include materials for lighting systems, sunroofs, free-form displays and smart antennas, as well as coatings for interior and exterior applications. To give visitors an impression of the vast range of possibilities, a partial model of a virtual concept car will be exhibited at the stand of Merck KGaA, Darmstadt, Germany.



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“With our products, we want to help automotive manufacturers and suppliers provide their customers with cutting-edge products and applications,” said Stefan Oschmann, Chairman of the Executive Board and CEO of Merck KGaA, Darmstadt, Germany.

### **Smart LC and OLED materials for vehicle lighting**

Liquid crystal and OLED materials from Merck KGaA, Darmstadt, Germany, are an integral component of innovative lighting solutions. Headlights with liquid crystal shutters go one step further than conventional systems by adjusting the light distribution as needed in real time. The necessary displays with liquid crystals from Merck KGaA, Darmstadt, Germany, have a matrix of 100 x 300 pixels and permit fully adaptive light projection onto the road. Optimum road lighting in the dark improves traffic safety and makes driving a little easier. Individual areas can be blocked out, for instance when a vehicle is approaching from the opposite direction or headlights shine on highly reflective elements. New, highly complex functions such as projected navigation arrows are also possible. Hella, a lighting and electronic components expert, wants to bring this technology to the market together with Merck KGaA, Darmstadt, Germany, and other partners. OLED technology offers new types of advantages, which will be presented at the IAA in a partial model of the concept vehicle. Because the parts are lightweight and require little space, they allow rear lights in new forms, giving designers even greater possibilities.

### **Individually switchable panes with liquid crystal window technology**

The liquid crystal window technology developed by Merck KGaA, Darmstadt, Germany, can also be used in cars, making it possible to darken sunroofs and windows at the push of a button. The technology will celebrate its global debut as a complete component at the IAA. Corresponding exhibit items will show how this technology can be best used in automotive engineering. Merck KGaA, Darmstadt, Germany, has been developing this expertise for architectural solutions for quite some time now. The windows can be switched not only between light and dark, but also between fully transparent and opaque for more privacy.

### **Free-form displays create new design possibilities in automotive engineering**

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In addition, liquid crystal and OLED materials from Merck KGaA, Darmstadt, Germany, permit free-form displays, which no longer have to be rectangular, thus paving the way for new interior designs. Not only can the shapes be designed more flexibly, but especially with OLEDs, the depth is also shallower, which expands the design possibilities even further. In addition, the technology permits particularly vivid contrasts, brilliant colors, sharp images, and pleasant readability.

### **Smart antennas for stable, high-speed network connections**

Liquid crystal mixtures from Merck KGaA, Darmstadt, Germany, are also used in smart satellite antennas specifically developed for vehicle applications. With increasing digitalization and maximum connectivity, reliable network connections in cars are becoming increasingly important. The antenna beam is aimed electronically in various directions. In contrast to today's usually large mechanical antenna solutions, smart antennas can receive a much greater volume of data nearly everywhere around the world. Corresponding software ensures that contact with the satellite is not dropped, and the antenna is flat enough to be integrated in the roof of a car.

### **Pearlescent pigments and functional additives for radiant surfaces**

As the long-standing market and innovation leader in pearlescent pigments, Merck KGaA, Darmstadt, Germany, manufactures materials for the automotive industry that are used in both interiors and exteriors to give vehicles a unique color, luster, sparkle, and gloss effects. Functional additives protect the coating, forming a protective shield to prevent external influences such as scratches, dirt, and corrosion, and at the same time freshen up older coatings.

Further media information for journalists can be found on the IAA event website <https://www.emdgroup.com/en/events/iaa-2017.html>.

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Merck KGaA, Darmstadt, Germany, is a leading science and technology company in healthcare, life science and performance materials. Around 50,000 employees work to further develop technologies that improve and enhance life – from biopharmaceutical therapies to treat cancer or multiple sclerosis, cutting-edge systems for scientific research and production, to liquid crystals for smartphones and LCD televisions. In 2016, Merck KGaA, Darmstadt, Germany, generated sales of € 15.0 billion in 66 countries. Founded in 1668, Merck KGaA, Darmstadt, Germany, is the world's oldest pharmaceutical and chemical company. The founding family remains the majority owner of the publicly listed corporate group. Merck KGaA, Darmstadt, Germany, holds the global rights to the Merck KGaA, Darmstadt, Germany, name and brand. The only exceptions are the United States and Canada, where the company operates as EMD Serono, MilliporeSigma and EMD Performance Materials.