

News Release

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Merck KGaA, Darmstadt, Germany unveils new liquid crystal singles at SID Display Week and celebrates 50 years of liquid crystal displays

- Merck KGaA, Darmstadt, Germany celebrates its 350th anniversary and 50 years of liquid crystal displays
- Merck KGaA, Darmstadt, Germany introduces new liquid crystal single materials for advanced display performance
- Company invests in OLED application labs in Asia

Darmstadt, Germany, May 14, 2018 – Merck KGaA, Darmstadt, Germany, a leading science and technology company whose performance materials business operates as EMD Performance Materials in the US and Canada, will showcase its broad portfolio of display solutions at the Society for Information Display (SID) Display Week 2018 at the Los Angeles Convention Center in California, USA under the slogan “Power to the Pixel – next generation display materials”. At the event, Merck KGaA, Darmstadt, Germany will also debut new high-performance liquid crystal (LC) singles under the Licristal® brand: XtraBright™, XtraBoost™, and XtraBrilliant™.

“In close cooperation with our partners in the display industry, we are constantly working on new, sophisticated solutions that precisely meet the desired performance properties and demanded high-quality that will lead us into the next generation of displays,” says Michael Heckmeier, Head of the Display Solutions business unit at Merck KGaA, Darmstadt, Germany. “We are proud that, as a leading supplier in this dynamic market, we have been able to continuously deliver innovative materials that enable design enhancement, process efficiency, improved visual experience since the first Liquid Crystal Display (LCD) 50 years ago. As we look forward, we will continue to use our extensive knowledge and expertise to further develop solutions and applications within and beyond displays.”

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Celebrating a rich history: 350 years of Merck KGaA, Darmstadt, Germany and 50 years of liquid crystal displays

In 1668, Friedrich Jacob Merck laid the foundations of what would become the world's oldest pharmaceutical and chemical company. Today, Merck KGaA, Darmstadt, Germany is a vibrant global science and technology company with a 350-year track record of putting curiosity to work for human progress. That is why, in the early 20th century the company pioneered the research for liquid crystal applications and now offers the broadest portfolio of display materials. To celebrate the 50th anniversary of the first LCD, Merck KGaA, Darmstadt, Germany will cosponsor a very special event, hosted at the SID Display Week, in honor of this milestone. Among other illustrious speakers from both academia and industry, Mark Verrall, Senior vice president of product development for the Display Solutions business unit of Merck KGaA, Darmstadt, Germany, will give a talk entitled *The (R)evolution of Liquid Crystals*.

XtraBright™, XtraBoost™, and XtraBrilliant™: new classes of innovative LC singles

Linked to current and future trends, Merck KGaA, Darmstadt, Germany has strengthened its innovation pipeline with heavy investments in its liquid crystal single materials for improved LC mixtures. With a focus on increasing brightness and contrast and further advanced quality and reliability, the company has further optimized its cutting-edge liquid-crystal materials to achieve maximum performance in all areas with its new Xtra™ high-performance LC singles. The new and optimized singles now contribute to one of three categories: XtraBright™ for ultimate transmission, XtraBrilliant™ for superb contrast, or XtraBoost™ for unparalleled reliability. Merck KGaA, Darmstadt, Germany continuously develops and commercializes liquid crystal singles and mixtures under the Licristal® brand in order to meet current display trends, to expand the design possibilities and improve cost efficiency in display manufacturing. In close partnership with their customers, Merck KGaA, Darmstadt, Germany will now be able to mix and match its Xtra™ high-performance singles by optimally coordinating the components for each unique liquid crystal mixture to meet the desired requirement profile.

Innovative and high-quality: the broadest display portfolio in the market

Merck KGaA, Darmstadt, Germany offers the broadest portfolio of high-quality display materials and solutions for display manufacturers. Their portfolio enables the displays of today and drives the future of the industry with their high-performance liquid crystals, materials for optical films, organic thin-film transistor (OTFT) for flexible displays, Quantum Materials, photoresists, reactive mesogens, and a robust LED portfolio to enhance backlighting for displays. In late 2017, Merck KGaA, Darmstadt, Germany introduced its self-aligned vertical alignment (SA-VA) liquid crystal technology, similar to the established PS-VA liquid crystal technology, which is used primarily in large displays such as high-quality televisions, public information display panels and automotive applications. Similarly, the energy-saving ultra-brightness fringe field switching (UB-FFS) technology offers optimized light transmission and higher resolution especially for smartphones and tablets. UB-Plus is being further refined for non-mobile applications, such as for slim LCD televisions with extremely high resolution and reduced energy consumption. Beyond displays, Merck KGaA, Darmstadt, Germany remains focused on the developing new applications for liquid crystals such as their liquid crystal window technology.

OLED materials from Merck KGaA, Darmstadt, Germany continue to gain importance within the display industry by enabling brilliant colors, sharper images from any viewing angle, high contrasts and perfect black states for high-end televisions and smartphones. In addition, their thin, flexible and very energy-efficient properties are enabling unique display applications. As a diffuse light source, these OLED materials are also revolutionizing the design of automotive lighting. In the future, OLED technology could transform ceilings or walls in buildings into information panels. To enable such future applications, Merck KGaA, Darmstadt, Germany is developing highly efficient OLED materials under the Livilux® brand name for vacuum evaporation methods or printing processes. Further investments in OLED from Merck KGaA, Darmstadt, Germany include successfully doubling their application lab capacity in Korea in 2017. This is to be followed by their first OLED Applications Lab in China which is to be opened later in 2018.

Merck KGaA, Darmstadt, Germany at SID Display Week

At the international symposium held during SID Display Week, Merck KGaA, Darmstadt, Germany will be presenting in various informative lectures:

- Tuesday, 22 May 2018 / 11:15-11:45 am: SID/DSCC Investor Conference: Private Equity/ VC Panel – What We Are Looking for from Privately Held Display Companies; M Ventures: *Sven Harmsen, Ph. D, Investment Director*
- Tuesday, 22 May 2018 / 04:25-04:45 pm: Special Session, Petree Hall D: Mark Verrall, Display Solutions, Darmstadt at “LCD 50th ANNIVERSARY EVENT” with “The (R)evolution of Liquid Crystals”
- Wednesday, 23 May 2018 / 10:40-11:00 am: Symposium, Session 36, Room 518: New Alignment Technologies II (Liquid-Crystal Technology), 36.1: Invited Paper: The Evolution of the Vertically Aligned LCD, Edward Plummer, Display Solutions, Darmstadt

All events will take place at the Los Angeles Convention Center. Visitors to SID Display Week 2018 (May 20 – 25, 2018) can find Merck KGaA, Darmstadt, Germany, operating as EMD Performance Materials, at stand 529.

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About Merck KGaA, Darmstadt, Germany

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 2017, Merck KGaA, Darmstadt, Germany, generated sales of € 15.3 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” name and brand. The only exceptions are the United States and Canada, where the company operates as EMD Serono, MilliporeSigma and EMD Performance Materials.