

Specialty chemicals from Evonik for the television of the future

- Evonik intends to revolutionize the display industry
- New metal-oxide semiconductors heighten image resolution and lower production costs
- Executive Board Chairman Klaus Engel makes it clear: "We need innovation to continue to perform well."

Ultra-HD televisions are known for their incredibly high definition, depth of detail, brilliant colors, and high contrast. A core element of these extremely high definition televisions are semiconductors, which are currently made of amorphous silicon that has reached the limits of their performance. Evonik Industries is answering this challenge with its new inorganic metal-oxide semiconductor material iXsenic®. The material not only allows higher display resolutions but also reduces production costs. The first customers are already exploring ways of integrating iXsenic® into their production lines. As one of the leading specialty chemicals companies worldwide, Evonik is stepping up with new materials and processes to revolutionize the display industry.

Because iXsenic® is opening up a new, attractive market segment for Evonik, Klaus Engel, Chairman of the Executive Board of Evonik Industries AG, has now recognized the development of iXsenic® with the company's own Innovation Award for New Products/New System Solutions. "Innovation is the lifeblood of a specialty chemicals company," said Engel. "We need it to continue to perform well and strengthen our growth. The quality of the topics submitted for our Innovation Award prove the inventiveness of our researchers and developers," says Engel. "Innovation and self-renewal go hand in hand. I'm convinced that with our creativity and our ingenuity, we'll notch up our performance even higher in the next few years. This will keep our innovation pipeline well filled going forward."

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The inorganic metal–oxide semiconductor material iXsenic® not only allows higher performance than amorphous silicon but can also be applied from solution at ambient conditions. Unlike the conventional processing technique for amorphous silicon—vapor deposition in a vacuum—production is significantly easier and resource–conserving. And thanks to lower processing temperatures, it is possible to use new materials such as plastics for flexible displays. In addition, the coating technology forms a bridge to the printing of electronic components.

The project that resulted in iXsenic® was initiated about ten years ago by Creavis, Evonik’s strategic innovation unit. Since then, a team from the Coatings & Additives Business Unit has worked on the market launch. Because manufacturing processes for displays vary depending on the manufacturer and application—television, tablet or smart phone—the final development stage is worked out with the customer, and the material and process are adapted accordingly. Initial trials are already underway. Following a successful launch, Evonik will participate in the display market, which is estimated to be around US\$150 billion.

In addition to iXsenic®, an optimized biotechnological manufacturing process for amino acids also received the Evonik Innovation Award. Six research projects in all had been nominated for the award. More information can be found in Evonik’s science newsletter elements 49.

Company information

Evonik, the creative industrial group from Germany, is one of the world leaders in specialty chemicals. Profitable growth and a sustained increase in the value of the company form the heart of Evonik’s corporate strategy. Its activities focus on the key megatrends health, nutrition, resource efficiency and globalization. Evonik benefits specifically from its innovative prowess and integrated technology platforms. Evonik is active in over 100 countries around the world. In fiscal 2013 more than 33,500 employees generated sales of around €12.7 billion and an operating profit (adjusted EBITDA) of about €2.0 billion.

Evonik Industries has been producing specialty chemical products in the Greater China region (Mainland China, Hong Kong and Taiwan) since the late 1970's; with wide-ranging trading relations already in place prior to this in the region. Evonik regards Greater China as one of the driving forces of the global economy and we consequently endeavour to grow our business in the region. The company now has around 3,200 employees in the Greater China region, the regional sales reached over €1 billion in 2013.

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