

Support through all phases of component development

Custom service for the lighting industry

- **Plastic component design with focus on thermal conductivity**
- **BRDF data for project partners**
- **Hammer and ball-drop impact tests both on computer and the finished part**

Cologne – Specialty chemicals company LANXESS, with its tailored HiAnt services, supports customers in the lighting and electrical/electronics industries worldwide in all phases of plastic component development. “We want to collaborate with our customers on developing component solutions that are optimized for all stress scenarios and requirements, but simple and cost-efficient at the same time. One objective, for example, is to discover at an early stage whether a material is suitable for a specific application, because that enables the customer to more accurately target his development activities,” explains Frank Lutter, CAE team leader in Customer Engineering Services for LANXESS's High Performance Materials business unit. LANXESS has assembled a team of engineering and business specialists dedicated to the lighting industry who coordinate all the services.

Computer simulation of heat dissipation

The HiAnt services range from component design and material selection, through function engineering and mold design, all the way to assistance in launching production. One highlight, for instance, is a simulation tool that helps to design plastic components to efficiently dissipate heat. It functions on the basis of the component geometry, the installation situation and the heat input. It can visualize, for example, how the temperature of an LED heat sink in operation depends on its geometry and the material from which it is made. “In addition, we can visualize the air convection around a component, enabling engineers to then align cooling ribs with the convection to

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improve heat dissipation,” explains Lutter. In the case of materials displaying anisotropic thermal conductivity, LANXESS further is capable of determining the local orientation of fillers in a component by means of filling simulation. This is an important basis for considering the directional dependency of the thermal conductivity in a component, and thus making the most realistic predictions possible.

BRDF data – reducing development costs and saving time

During projects, LANXESS provides its partners with angle-resolved bidirectional reflectance distribution function data (BRDF) for its materials. These data describe the reflection behavior of light on the surface of the respective plastics. They provide the main inputs required by optical simulation programs, such as ASAP, SPEOS, LightTools or LucidShape. These enable a customer to simulate the illumination behavior of its lighting systems, such as indoor lamps or automotive headlamps, and to optimize the lighting design accordingly. “These simulations help to save money and time, because prototyping can be reduced and much of the development work completed virtually on computer,” adds Lutter.

Optimal component design for shock and impact

Another important HiAnt service is the computer-aided design of components exposed to strong mechanical stresses, such as from shocks or impact. For example, LANXESS can simulate the hammer and ball-drop impact tests commonly used in the lighting industry, and adapt the design of a part, such as a housing, to the forces by modifying its reinforcing ribs. The same applies to components made from highly filled materials. “Our testing center has equipment we can use to validate our calculations.”

LANXESS is a leading specialty chemicals company with sales of EUR 8.0 billion in 2014 and about 16,300 employees in 29 countries. The company is currently represented at 52 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of plastics, rubber, intermediates and

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News Release

specialty chemicals. LANXESS is a member of the leading sustainability indices Dow Jones Sustainability Index (DJSI World) and FTSE4Good.

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