PRESS RELEASE

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Styrolution's NAS sheds new light on innovation for Polyoptics

- *Polyoptics partners with Styrolution for the development of a breakthrough process for light guide development*
- *Styrolution's NAS offers new possibilities due to its excellent photometric properties, processability and crystal-clear transparency*

Frankfurt, Germany – November 25, 2014 – An emerging leader in optical technology, Polyoptics, partnered with Styrolution, the global leader in styrenics, for the development of a completely new light guide technology. Funded by the Federal Ministry of Economics and Industry in Germany, Polyoptics sought to construct a light guide tool with a laser machined surface. Utilizing, Styrolution's innovative transparent styrene acrylic copolymer, NAS®, Polyoptics was able to develop the desired light guide, which ensured homogenous lighting without the necessity of polishing or laser treating to achieve the desired optical appearance. The developed light guide serves as a proof of concept for technology that will be incorporated into future applications, such as automotive interiors.

Key points:

- ***A need to innovate*:** The market and demand for backlighting components continues to grow as designers in a range of industries, including electronics and automotive, seek to give their applications the sleek, futuristic and modern aesthetics achieved through backlighting. As leaders in photonics (using light as a tool) look to innovate for their industries, current processes for background lighting, such as transverse coupling-fiber, OLEDs and electroluminescent films reach their limits. As such, it is

critical that manufacturers discover new ways to empower freedom in application design while producing the highest quality light possible.

- ***Excellent properties lead to lighting innovations:*** NAS boasts numerous material characteristics which make it an ideal product for applications related to lighting and light guides. Its photometric properties include light control, light distribution and light transmission; for light guides, these properties help achieve homogenous lighting through the laser machine surface with only the lighting source. A brilliantly transparent material, NAS also results in higher brightness, an essential characteristic for backlighting components.

- **NAS offers a competitive advantage and new opportunities in optics:** Complements of its good flow properties and lower mold temperatures, the use of NAS results in production efficiencies and cost savings as molds require shorter cycle times. Due to its excellent flow properties, NAS also reveals new possibilities for producing thick-walled optical parts and thin-walled, large-scale optics, while reducing or avoiding flow lines.

- **Collaborative innovation that brings vision and clarity to development:** Leveraging its skilled technical team, Styrolution worked closely with Polyoptics' developers to support them in the creation of a completely new technology. The company also leveraged its knowledge at Polyoptics customer presentations, helping to bring to life Polyoptics' innovative new technology for potential customers.

- **NAS grades offer transparency and strength:** These transparent styrene methyl methacrylate copolymers (SMMA) are a premium choice for applications demanding a strong, stiff, water-clear plastic. NAS provides thermal stability, better alcohol resistance and less molded-in stress than other materials. It also offers cost savings due to lower density, shorter cycle times and lower processing temperature.

- **Driver of electronic innovations:** The successful development of the proof of concept for the light guide highlights the potential that NAS, as well as Styrolution's

overall transparent specialties portfolio, offers to the electronics industry. As consumer purchasing habits and technological innovations push the industry towards sleeker, lighter and more brilliant applications, transparent specialty materials will continue to be enablers of design and developmental progress in the electronics industry.

Quote:

Walerij Schulz, Production Manager, Polyoptics: “As we embarked on developing a completely new, breakthrough technology, we sought a partner that not only offered the material properties we desired but also technical expertise to help us maximize the potential of the material and innovate towards a new solution. The product and support provided by Styrolution not only helped us achieve our goals, but also exceed our customers’ expectations.”

Lars Koppelmann, Director Global Electronics, Styrolution: “Polyoptics is an emerging leader in its field and is dedicated to developing the tools and technologies necessary to drive forth the future of optics and photonics. In many ways photonics and styrenics are similar as they are both tools that offer significant customer value and bring new ideas and innovations to fruition throughout a range of industries. As such, we are honored to have combined our expertise in styrenics with Polyoptics’ strengths in optical design for the collaborative development of a completely new lighting solution.”

ABOUT STYROLUTION

Styrolution is the leading, global styrenics supplier with a focus on styrene monomer, polystyrene, ABS Standard and styrenic specialties. With world-class production facilities and more than 80 years of experience, Styrolution helps its customers succeed by offering the best possible solution, designed to give them a competitive edge in their markets. The company provides styrenic applications for many everyday products across a broad range of industries, including automotive, electronics, household, construction, healthcare, toys/sports/leisure, and packaging. In 2013, sales were at 5.8 billion euros, resulting in an

EBITDA before special items of 442 million euros. Styrolution employs approximately 3,200 people and operates 17 production sites in ten countries.

For further information please visit www.styrolution.com.

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