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Press release

ELIX Polymers and Roctool join forces to increase the chemical resistance of healthcare applications

- *The aim is to increase chemical resistance and retain material properties when disinfectants are used in the medical sector.*

Tarragona, 9 November 2021

Since the start of the COVID-19 pandemic, the use of disinfectants to clean surfaces in medical and daily life environments has increased remarkably, underscoring the importance of chemical resistance and property retention for materials used in medical and consumer devices.

ELIX Polymers and Roctool have already worked together in the past on Roctool's heat and cool technology to mould and test the ELIX Ultra HH4115HI ABS/PC blend for the Automotive industry. For more information, see the ELIX homepage elix-ultra-hh4115hi.
This time, two different medical ABS materials have been tested, ELIX M203FC and ELIX M205FC, in order to study their processability, surface gloss level, stress accumulation in the part and chemical resistance to some of the most frequently used cleaning and disinfectant agents in the medical sector.

The easy material processability of ELIX medical grades was confirmed in the study thanks to their good flowability properties. According to the gloss level study, very high gloss finish surfaces were obtained in all samples. This result is due to ELIX ABS's specific emulsion technology process which makes it possible to reach very high gloss levels compared to other ABS.
Textured surfaces can reduce the ABS gloss level when required. Lower gloss values could be better achieved with Roctool technology thanks to a more precise mould surface replication, compared to the conventional injection moulding process.

An acetic acid test was used to detect internal tensions in the sample plaques. On using Roctool technology and comparing it to a standard injection moulding technology, it was possible to reduce the residual stress in the plaques generated during the injection process. This was possible when using Roctool; the high temperature used during injection (140 °C) allows a gentler filling of the cavity, as well as a reduction in the shear rate and the degree of orientation of the melt next to the frozen layer.

"Internal stress accumulation in a device part depends on the injection moulding technology and settings and also affects the material's chemical resistance to disinfectants in the final application. For this reason, it is important to minimize these residual tensions, since they would sum up with the external stresses on the part and accelerate the diffusion of the chemical solvent into the polymer, causing local swelling and crack expansion", says Luca Chiochia, ELIX business Development Manager.

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Several chemical resistance tests were conducted in the study applying very severe conditions on the ELIX medical ABS samples. These included not only contact with several disinfectants based on different solvents and concentrations, but also introducing mould design weaknesses such as weld line placement in the centre of the tensile bar or adding a fixed external flexural strain applied to the tensile bars while in contact with the disinfectant.

All materials, with and without Roctool, presented good chemical resistance when no flexural strain (external stress) was applied to the part, without showing cracks or changes in mechanical properties.

When external stress was applied, no cracks were observed after 24h with the disinfectant product “Surfa’safe Premium”. No cracks were observed either with the disinfectant product “Meliseptol” in the M205FC material, which showed better chemical resistance than the M203FC material.

When using Roctool, improvements were observed in the weldline performance in contact with the chemical and with flexural strain applied.

Further details of the test results are available on request.

This new collaborative venture highlights the existing partnership framework between ELIX and Roctool and the focus of both companies on providing tailored solutions that respond to real customer needs and industry trends in their constant research into compliant materials in the medical and healthcare sector.

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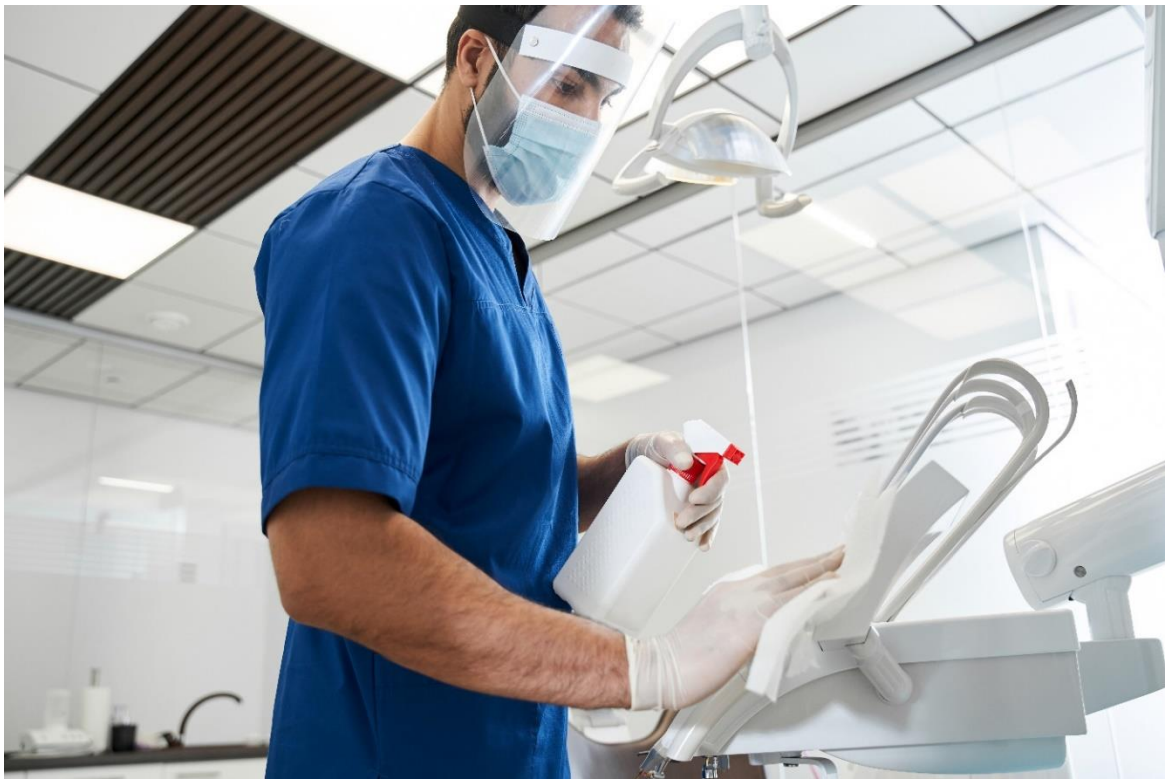

Picture: ELIX Polymers

ELIX Polymers - ELIX Polymers, a member of Sinochem International, is a leading manufacturer of ABS (Acrylonitrile-Butadiene-Styrene) resins and derivatives in Europe.

Operating from its head office in Tarragona, Spain, and with Sales support teams in all key markets, the company is a specialist provider of tailor-made solutions for high quality thermoplastics applications. With more than 45-year track record, ELIX Polymers is an expert in ABS polymers, and it has the resources, the expertise and the experience to create value for its customers through highly individual solutions.

ELIX Polymers offers a broad range of material solutions for a variety of industries and applications, meeting the stringent requirements of the Healthcare, Automotive, Appliances, Electronic, Toys and other industries.

For more information, please visit www.elix-polymers.com.

As per corporate identity, ELIX is written in capitals. Would you be so kind as to use this way of writing when publishing this story? Many thanks.

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About Roctool - Founded in 2000, Roctool is a technology and manufacturing solutions provider offering engineering services and systems. The Roctool induction process, perfectly adapted to plastic injection and compression moulding, is available in many configurations to meet industrial requirements. Roctool's research and development team is constantly adapting its technologies to new materials, particularly metals. Roctool is the leader in heat and cool technologies, and currently supplies HDPlastics™ to plastic moulders, Light Induction Tooling technology - LIT™ to suppliers of composite parts and Induction Dual Heating technology - IDH™ for complete moulding solutions. The processes developed by Roctool are used in production by leading brands in innovative sectors such as automotive, aerospace, consumer products and electronics. They offer many advantages, including reduced cycle times, excellent surface quality, weight and performance savings, which allow manufacturers to reduce the overall cost of the parts produced. Roctool is listed on the Euronext Growth market in Paris. Its headquarters and R&D centre are located at Le Bourget du Lac (France). Roctool also has offices and platforms in North America, Japan, Taiwan, Germany and China.

For more information, please visit www.roctool.com.

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This press release, together with the respective photographs, can be downloaded from **www.elix-polymers.com/news**