# Press Release For immediate release

**Trelleborg Launches its ‘Fab Four’ Best-in-Class FFKM Materials for the Most Critical Semiconductor Sealing Applications**

Trelleborg Sealing Solutions launches four best-in-class materials in its Isolast® PureFab™ range, specifically engineered for critical semiconductor sealing applications. For original equipment manufacturers and Fabs, utilizing these unique perfluoroelastomer (FFKM) formulations will increase product yield and decrease process defects. This will reduce downtime, extend product maintenance cycles, and enable greater process uptime, resulting in a lower total cost of ownership.

With excellent mechanical properties, all the ‘Fab Four’ semiconductor materials demonstrate the highest purity of their kind, without compromising plasma resistance, outgassing, or thermal stability. Individually, the materials are best-in-class for specific characteristics: Isolast® PureFab™ JPF10 for remote plasma resistance with fully organic formulation; Isolast® PureFab™ JPF20 for overall plasma resistance and minimal particulation in harsh environments; Isolast® PureFab™ JPF21 for long-term thermal stability and low trace metal contamination; and Isolast® PureFab™ JPF30 for its market-leading high temperature rating and extreme purity in a translucent material.

Dr. Murat Gulcur, Semiconductor Materials Development Manager at Trelleborg Sealing Solutions, says: “Listening to the voice of the customer and addressing the requirements of critical front-end processes, we invested significant R&D resources into the development of the four new cutting-edge Isolast® FFKM materials. The new compounds are market-leading and completely in line with the industry’s needs today and, more importantly, the developing needs of tomorrow.

“Selecting the correct sealing material for semiconductor applications is particularly important in achieving the optimum balance between extending the life of a seal and the chances of contamination. This is made all the more critical by miniaturization. With the most advanced technology node as small as 5 nanometers (nm) today, and 3 nm on the horizon, purity and cleanliness are paramount.

“Proving of the materials’ performance took place over 24 months involving extensive testing, including plasma erosion tests in the most common process gasses; as well as long-term mechanical and purity tests, including trace metal analysis and outgassing.

“Equipped with these test results and competitive benchmarking data, Trelleborg engineers can support our customers’ development teams by precisely specifying the most effective sealing material to match the process chemistry, system location and tool complexity of their demanding semiconductor environments. This support and technical data significantly reduce our customers’ risks when qualifying new materials.”

Isolast® PureFab™ JPF10 incorporates unique cure technology to improve plasma resistance of organic materials without using any inorganic fillers. This makes it one of the best performing, fully organic materials on the market, offering extremely low trace metal content and providing long service life, even at high temperatures.

Gulcur continues, “In some highly critical semiconductor processes, the requirements of a sealing material can be even more stringent. For example, when a process node is below 10 nm and an elastomer part is in close proximity to wafers, a specially formulated ultra-pure FFKM translucent material without any filler may be required to maintain volume wafer output.”

To this end, Isolast® PureFab™ JPF30 offers unrivalled elevated temperature performance and sealing integrity compared to other translucent materials in the market.

Isolast® PureFab™ JPF20 incorporates an advanced nanoparticle filler with a very high surface area, meaning the amount of fillers in the material is significantly lower than competitive compounds, which provides the ultimate plasma resistance, while minimizing particle generation.

Another fully synthetic filler system is used in Isolast® PureFab™ JPF21 to offer outstanding high temperature performance up to +320 °C /+593 °F and minimum particulation upon exposure to fluorine-based plasmas. Due to its excellent compression set properties, the compound is suitable for dynamic applications, including bonded slit valve doors.

The new Isolast® PureFab™ materials are especially suited for critical seal locations for leading-edge semiconductor manufacturing processes, in particular plasma processes, including deposition, etching, ashing and stripping, as well as thermal processes, such as oxidation, diffusion, RTP, ALD and metal CVD.

Chris Busby, Product Line Director & Semiconductor Segment Lead for Trelleborg Sealing Solutions, adds: “It’s not just about the product itself. Trelleborg Sealing Solutions is renowned for its design and engineering expertise, earning a reputation as a ‘problem solver’ for the semiconductor industry. Global development is backed by local specialist support, wherever internationally acting semiconductor original equipment manufacturers and Fabs need it.”

On April 27, 2021, Trelleborg experts will be hosting a webinar on Isolast® PureFabTM materials. After the live event, a recording of the webinar will be made available on the website. More information on Isolast® PureFab™ and the webinar can be found [here](https://www.trelleborg.com/en/seals/products-and-solutions/latest-innovations/isolast-purefab-ffkm).

**ENDS**

**For more information or high-resolution pictures, please contact:**

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**About Trelleborg Sealing Solutions and Trelleborg Group**

***Trelleborg Sealing Solutions*** *is one of the world’s leading developers, manufacturers and suppliers of precision seals, bearings and custom-molded polymer components. It focuses on meeting the most demanding needs of aerospace, automotive and general industrial customers. Its network extends to over 25 production facilities and more than 50 Costumer Solution Centers globally. The business area accelerates the progress of its customers through outstanding local support, an unrivalled product range including patented products and proprietary materials, a portfolio of established brands, unique process offerings, its ServicePLUS value chain solution and ‘Ease of Doing Business’ philosophy.*[*www.tss.trelleborg.com*](http://www.tss.trelleborg.com)

***Trelleborg*** *is a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments. Its innovative solutions accelerate performance for customers in a sustainable way. The Trelleborg Group has annual sales of about SEK 33 billion (EUR 3.13 billion, USD 3.57 billion) and operations in about 50 countries. The Group comprises three business areas: Trelleborg Industrial Solutions, Trelleborg Sealing Solutions and Trelleborg Wheel Systems, and a reporting segment, Businesses Under Development. The Trelleborg share has been listed on the Stock Exchange since 1964 and is listed on Nasdaq Stockholm, Large Cap.* [*www.trelleborg.com*](http://www.trelleborg.com )