

**'stern' magazine adds Kuraray Europe to its hit list of Germany's most innovative companies:**

**Kuraray among Germany's most innovative SMEs  
magazine 'stern' found out**

According to German weekly magazine 'stern', it is often unknown global market leaders – so-called hidden champions – that secure prosperity in Germany with their inventive spirit. In light of this, the magazine has now taken a closer look, and together with the German Society for Consumer Studies (DtGV) and with the help of an objective, data-based methodology, it has identified the 500 most innovative SMEs in Germany.

The basis for the evaluation was formed by the "patent performance" of the candidate companies – i.e. the number of patents granted and their relevance for the "innovation activity of the economy" – in the period from October 1, 2021 to September 30, 2022. A prerequisite for the study is that the companies were not allowed to exceed a turnover of one billion euros in order to be counted as an SME.

To obtain as realistic an assessment of the patents as possible, and their importance for the "innovation activity of the economy", they were evaluated on how often they are cited in other patents, or how often other patents were mentioned in them. The results were converted into a score value.

Each company was assigned to one of 30 industries – from drive technology to toolmaking. Interestingly, the companies could not apply for inclusion in the list. The methodology was decided solely by the independent DtGV Institute together with the 'stern' editorial team; and only the companies were evaluated; not their products.

The overall list was published by 'stern' in its March 30 issue and online at "[stern.de/innovativste-mittelstaendler](https://www.stern.de/innovativste-mittelstaendler)."

Several of the patent families examined for Kuraray deal, for example, with the black outer edge area in automotive windshields. The common practice for many years has been to apply an opaque black coating to the windshield to protect the sealant and bond from UV light. Kuraray has been supplying the automotive industry with laminated safety glass film for many years. The film manufacturer has now applied for a patent for a process by which the black ink can be printed directly onto a thin film that is bonded to the actual safety glass film. This process also supports the integration of further sensors in the windshield, which are necessary for driving autonomous vehicles.

Another patent application deals with the "invisible" integration of "watermarks" for batch designations or proof of origin of laminated safety glass. For the end customer, it is very difficult or impossible to determine if the product is the original Kuraray product ordered.

Kuraray inventors found that interlayers made up of two separate films with different refractive indices can solve this problem.

When illuminated from the edges or sides, patterns such as watermarks or product names can be made visible. This invention

was also made possible by 3D printing, which played a key role in its development.

In the future, it should therefore be possible to have a reliable designation in the glass that rules out any errors and guarantees that the customer has received the correct product. It would also be conceivable to integrate large logos or symbols that are initially reserved (invisible) in daylight and only appear in the evening when illuminated, e.g. on shop windows.

All these inventions originate from the European research & development center of Kuraray's "Advanced Interlayer Solutions Division," which produces interlayers for laminated safety glass. This division is part of the specialty chemicals group of Kuraray in Japan, which is involved in a very wide range of disciplines: solutions for architecture and construction, health and pharmaceuticals, printing, paints and electronics industries, as well as many other products used in our daily lives.

Photos 'CITT3452.png' and 'Pic Watermark.png': Glass interlayers with different refractive indices make inscriptions or images visible that would not be visible to the naked eye.

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Kuraray is the leading global producer of PVB and ionoplast interlayers for laminated safety glass applications in the architectural segment. With the biggest product portfolio worldwide, Kuraray offers outstanding solutions:

- Structural: Trosifol® Extra Stiff PVB and SentryGlas® ionoplast films
- Acoustic: Trosifol® SC Monolayer and Multilayer PVB films for sound insulation
- Films for UV control: Trosifol® UV Extra Protect, Trosifol® Natural UV and SentryGlas® Natural UV - from complete UV protection to natural UV transmittance
- Trosifol® UltraClear PVB film with the lowest yellowing value in the industry
- Decorative & design: Black and white, color and printable interlayers

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