

## Media Release

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## New Easy-to-clean Coatings from Optics Balzers

### **Mechanically resistant, solvent- and dirt-repellent coatings with transparency from UV to IR**

To enable driver assistance systems to do their job, a number of cameras and sensors around the car constantly collect data. In order to work correctly, their protective windows must be clean. But road dirt, mud and splash water land on them. These systems then have to withstand intensive cleaning in car washes. In addition, there are large temperature changes in everyday operation. The answer to all these requirements is a resistant protective coating that adheres very well, is spectral neutral over a large area and improves corrosion resistance.

In order to provide users the greatest possible safety, Optics Balzers offers two new hydrophobic TopFlex™ coatings. Both are chemically resistant to water, oil and grease. TopFlex™ A and TopFlex™ UV are easy to clean and dirt repellent. Both adhere extremely well to underlying coatings such as anti-reflective coatings, mirrors or various filters. The new TopFlex™ Coatings are largely insensitive to the most diverse cleaning processes and form an optimal, dirt-repellent and easy to clean top coating. TopFlex™ can be easily deposited on any combination of optical coatings. This results in a wide range of applications from the automotive industry, to heating windows, sensors, optical systems, endoscopy, diagnostics and research.

Easy-to-clean coatings have indeed been on the market for a long time. They have the advantage of low wetting, which greatly reduces the adhesion of liquids or dirt to the surface. But TopFlex™ from Optics Balzers offers even more. The coatings have a high environmental stability and can therefore be used in harsh environments. When TopFlex™ is combined with mirrors or other

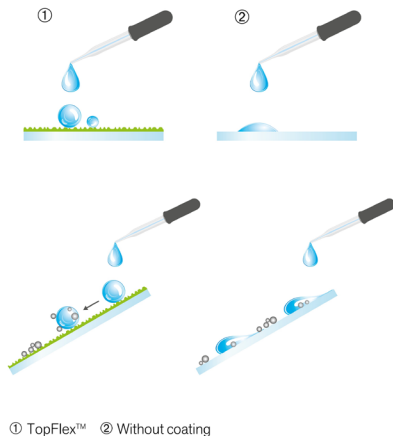
optical coatings, their corrosion resistance can be significantly improved. Depending on the combination of substrate and coating, temperature resistance up to 250° degrees can be ensured.

Even salt mist, cleaning agents and 500 temperature shocks of -40°C/+85°C do not bother them. TopFlex™A withstands the cheesecloth test with up to 50,000 cycles and TopFlex™UV has a UV resistance of 500 hours. Further information on the resistance of the two coatings can be found on the data sheet at

<https://www.opticsbalzers.com/de/service/datenblaetter.html?download=3425bac94a0141f43c7ad6765edbcf7830ed08d088b8e747d3a47e41a5f3d8d1>.

With these outstanding properties, TopFlex™ coatings offer users practical everyday solutions for improving their optical systems and sensors.

#### Schematic of TopFlex™



*Picture-Caption: Functionality with and without TopFlex™*

**Durability tests – amongst others tested according to typical automotive requirements**

<b>Environmental tests</b>	<b>TopFlex™ A</b>	<b>TopFlex™ UV</b>
Cheesecloth 500 cycles	✓	✓
Cheesecloth 10'000 cycles	✓*	✓*
Cheesecloth 50'000 cycles	✓*	
Rubber eraser 50 cycles	✓	✓
UV-A resistance	200h	500h
Salt fog 24h	✓	✓
IPA/water (1:1)	✓	✓
Cola	✓	✓
Sweat/alkaline	✓	✓
Sunscreen	✓	✓
Acid spray	✓	not tested
Soapy solution	✓	✓
Boiling 1h	✓	not tested
Condensated water	✓	not tested
Storage 90 °C/500h	✓	✓
Climate chamber 49 °C/ 95%r.h./500h	✓	✓
Climate chamber 85 °C/85%r.h./500h	✓	✓
T-shock -40 °C/ +85 °C/ 0.5h/ 500 cycles	✓	✓

\*depending on condition

*Picture-Caption: Environmental resistance overview*

Optics Balzers (located in the Principality of Liechtenstein) has been the preferred partner for providing innovative optical coatings and solutions for more than 70 years. Together with its subsidiaries in Jena (Germany) and Penang (Malaysia), Optics Balzers is a global leader in the supply of optical coatings and components. The Liechtenstein-based high-tech company focuses on selected markets such as Life Science, Industry, Consumer, Lighting, Space und Automotive. The products and services offered range from optical coatings and glass processing, patterning and bonding technologies to the manufacture of complete optical subassemblies and are acknowledged as being unique worldwide.

Additional information: [www.opticsbalzers.com](http://www.opticsbalzers.com)