



**Fig 5:** Plastic lenses coated with OLVIN P in three different nuances

oxide (MgO) and some of the colour materials. Transparent conductive oxides such as ITO can also contribute to adhesion.

Antistatic films that can be incorporated at different positions within the coating stack are based on conducting layers and realised by Indium tin oxide (ITO), metal layers or reduced oxide layers.

There are several approaches to Cleancoat or easy-to-clean films.

Currently used film materials for spectacle lenses are fluorocarbons designed for maximum water, oil and grease repellence from the lens surface which is realised by high contact angles to water and oily substances. Materials with static water contact angles up to  $-105^\circ$  are called hydrophobic (examples: Hydrophobic<sup>3</sup>, Topcoat<sup>3</sup>), those with

water contact angles  $>110^\circ$  and contact angles to hexadecane (an oily substance)  $>65^\circ$  as super hydrophobic and oleophobic. Whereas the mentioned hydrophobic materials do not pose particular problems to pad adhesion for the post-deposition processing (lens edging), most of the available super hydrophobic substances do. Super hydrophobic films are mostly differentiating in their pad stick-

ing ability. Most available super hydrophobic materials yield films with sticking problems for the optical pads that have to be overcome by additional pads or temporary layers, leading to additional costs. An example of a super hydrophobic material with water and oil repellence at the inherent limit, but improved pad adhesion, is Everclean<sup>3</sup>. Another approach to a high cleaning comfort are hydrophilic films, i.e., films with an improved wetting of water for eased cleaning. So far, they have not proved popular in ophthalmic lens coating.

**REFERENCES**

<sup>3</sup>Values of a light wavelength of 550 nm, for coating conditions applicable to plastic lenses.

<sup>3</sup>TiO<sub>2</sub><sup>nanocoat</sup> is a proprietary Umicore version of doped TiO<sub>2</sub>.

<sup>3</sup>DRALO, LATI, ROMA, PIZOLIN, LIMA, MALBUNIT, MELDINA, GREY A, MG51, OLVIN C<sup>3</sup>, ROSE, OLVIN P HYDROPHOBIC, TOPCOAT and EVERCLEAN are trademarks of proprietary coating material mixtures of Umicore Thin Film Products.

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