ESTCRATCH Pilot- Example of Application for the Automotive Sector with improved Scratch Resistance and Non-Conventional Aesthetics based on Nanotechnologies

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ESTCRATCH Pilot from Izadi-Nano2Industry project is an industrial prototype demonstrator of an automotive application made by injection of PMMA with improved scratch resistance and non-conventional diffractive/plasmonic aesthetics based on nanotechnologies.

A new formulation of PMMA nanocompound, patent pending, has been developed to improve the scratch and mar resistance by adding nano-additives at the extrusion step. Pre-industrial trials have been run to produce nanobatches and PMMA nanocompund.

Sample parts made of PMMA nanocompound has been injected at industrial scale to evaluate their processability and general performances, including aesthetics, chemical, mechanical and thermal properties.

A prototype version of a B-Pillar has been developed as demonstrator of automotive application with non-conventional aesthetics. The design is based on an exterior trim, with high gloss, deep black finish. Technical requirements are according to the standard quality levels of the European market. Diffractive/plasmonic aesthetics of the ESTCRATCH B-Pillar based on the nanotexturing of the injection moulds. Injection trials at industrial scale have been done to optimize processing conditions, quality of the replicas, and durability of the nanotextured surfaces of the mould. Preliminary evaluation tests have been done to verify the performance of the parts, according to the functional specifications from European car makers.

Acknowledgement
Financial support by the EU Commission through Project H2020-686165-IZADI-NANO2INDUSTRY is gratefully acknowledged.

References

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Figures

Figure 1: Nanotextured diffractive IZADI logo on top side of the ESTCRATCH B-Pillar.