

New surface functionalities by process-integrated surface modification of polyolefins (Extension)

Initiative: Herstellung funktionaler Oberflächen (beendet)

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Polyolefins usually need a pre-treatment before parts made thereof can be painted or bonded. This modification is mostly not permanent because of the low glass transition temperature T_g which leads to re-arrangements of segments in the surface layer. This is now exploited for surface modification using so-called modifiers. The approach takes advantage of the high melt temperature for initiating the reactions, although some reactions continue even at room temperature due to the low T_g . Besides the advantages of the process integration, like saving of expenses for pre-treatment and a high reproducibility, this approach opens new surface functionalities, which can hardly be realised efficiently with conventional methods. The surfaces can be functionalised in a broad range, from hydrogel precursors over paintabilities up to scratch-resistant silica layer precursors. The technological conditions and solutions as well as fundamentals of the chemical reactions under the difficult conditions are investigated during this project and transferred to technological processes and applications.

Projektbeteiligte

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