



MODIFYING PMMA BY COMPOUNDING WITH PMMA-COLLOIDS

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The aim of this project is to create a new material group of transparent polymer compounds with improved mechanical properties by mixing the bulk material with colloids made from the same monomer. In this case, PMMA is compounded with PMMA colloids ($r \approx 140\text{nm}$) to increase the yield stress, the modulus of elasticity and the impact strength without reducing the transparency. In order to attain a material group suitable for series-production, the compounds will later be produced on a co-rotating twin-screw extruder. However, in the first step, compound made of a standard PMMA with a colloid content of 10% is used. It is mixed in a solution to cause perfect penetration and is dried afterwards. The optical and mechanical properties are compared to those of the unfilled material so as to be able to distinguish the effects of "cross-linking". First results of these mechanical analyses are shown in this paper.