



BLENDS OF COMMODITY AND ENGINEERING PLASTICS FOR AUTOMOTIVE APPLICATIONS

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Plastics help automobile designers and engineers to innovate and take car performance. Nowadays an average car consists of more than hundred kilograms of plastics. Without plastics an average car would be around 200-300 kg heavier. That is additional weight equivalent with 0.5-0.9 litre per 100 km fuel consumption. 1,000 different parts of cars of all shapes and sizes made of polymers, but the types of polymers are limited. Generally less than 15 different polymers are used in a passenger car, but the polypropylene (32%), polyurethane (17%) and PVC (16%) are represented the ruling types. In the last decade the importance of ABS as engineering plastic have been increasing especially in bumpers, seating, dashboard, interior and exterior trim and lighting applications. The prices of engineering plastics, e.g. polypropylene are four-five times higher than that of commodity plastics. Therefore engineers and designers try to replace many parts of cars made from engineering plastics to commodity plastics or blends of engineering and commodity plastics. Owing to their moderate prices many of car producers applying recycled plastics too. In our work different blends of commodity plastics and engineering plastics have been prepared for automotive application. Then the most important mechanical, physical, chemical and rheological properties were investigated by standardized methods, FTIR, SEC techniques and others ways. The longer term uses of specimens have been tested in a sunlight and rain testing chamber. For improving the properties of polymer blends different experimental coupling additives have been used. By the experimental polyalkenyl-poly-maleic-anhydride coupling agents especially the tensile properties could be improved.