

Rheology Study of Polyurethane (COAPUR 6050) For Composite Materials Usage

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Abstract : The use of polyurethane in different areas becomes more frequent. This is due to significant advantages they have including their lightness and resistance. However, their use requires a mastery of their mechanical performance. We will present in this work, a COAPUR 6050 which can be used to develop composite materials. COAPUR 6050 is an associative polyurethane thickener allowing fine rheological adjustment of flat or semi-gloss paints. COAPUR 6050 is characterised by its thickening efficiency at low shear rate. It is a solvent-free liquid product. It promotes good paint pick up, while maintaining a low yield point after shearing, and consequently a good levelling. We will then determine its rheological behaviour experimentally using different annular gaps. The rheological properties of COAPUR 6050 were researched by rotational rheometer (Rheometer-Mars III) using different annular gaps. There is the influence of the size of the annular gap on the behaviour as well as on the rheological parameters of the COAPUR 6050. The rheological properties data of COAPUR 6050 were regressed by nonlinear regression method and their rheological models were established, are characterized by yield pseudoplastic model. In this case, it is essential to make a viscometric correction. The latter was developed and presented in the experimental results.

Keywords : COAPUR 6050, flow's couette, polyurethane, rheological behaviours

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