**The influence of the process’ technological modes of manufacturing on the parameters of**

**the macrostructure and correction of parts from layered PCM**

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This report presents an analysis of the results of computational and experimental work on the effect of molding pressure and injection of a binder on its volume content in the resulting composite and the temperature-time mode of curing of a layered polymer composite material (PCM) on the level of residual stresses manifested in warping of manufactured parts from PCM.

The results of experimental work are presented, illustrating that:

• The implementation of the calculated volumetric content of the binder when using prepregs requires not only accurate application of the binder to the reinforcing material but also the use of special porolated films.

• The calculated volumetric content of the binder when using injection impregnation is ensured by maintaining the required pressure drop for crimping and injection.

• The method of vacuum infusion (the combined process of vacuum impregnation and molding) has a lower limit of the volumetric content of the binder, which exceeds that necessary for the implementation of the highest elastic-strength characteristics for the selected pair of “fiber-matrix”.

• The warpage of thin-walled parts strongly depends on the temperature-time mode of binder curing, especially at the stage of its gelation;

• The optimization of the temperature mode will allow minimizing the level of residual stresses in the composite.

Experimental work was carried out in the laboratory of the MAI on samples of layered polymer composite materials. A stand was developed for testing loaded samples using X-ray computed tomography [1,2]. The application of the PCM was considered [3].

**References:**

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