

THERMAL ANALYSIS OF MODIFIED EPOXY SYSTEMS

Vasile Bria^a, Iulia Graur^{a,b}, Cristian Munteniță^a and Adrian Cîrciumaru^{a,b}

^a”Dunărea de Jos” University of Galati, Research and Development Centre for
Thermoset Matrix Composites, Romania

^bDiagnose and Measurement Group, Galati, Romania

The aim of the research is to increase the knowledge regarding the ways the epoxy systems might be modified without changing their basic mechanical properties. Four epoxy systems were chosen mostly because of their different bisphenol A content namely Epiphen RE4020-DE 4020 (Bostik), Epoxy Resin C (R&G Gmbh Waldenbuch), Epoxy Resin L(R&G Gmbh Waldenbuch) and Epoxy Resin HT-2 (R&G Gmbh Waldenbuch). Based on previous experience regarding alkaline ions doped epoxy systems the present study was designed to emphasize the effect of chromium ions presence into the polymer structure. Ammonium dichromate was used as modifying agent in the form of a solution to be mixed with the resin and followed by the solvent vaporization. Because the solubility of ammonium dichromate into the selected solvent was poor boric acid was used also. For all the epoxy systems, based on information provided by producers an amount of one chromium ion to a number of forty bisphenol A molecule was set. At this stage, the thermal behavior of modified epoxy systems is studied by means of DSC aiming to identify the critical points and the specific heat.

Acknowledgments: The authors would like to acknowledge the financial contribution of the Project 12 P01 024 21 (C11) /31.08.2012 (code SMIS 50414).