

# **Composite materials based on thermoplastic and thermoreactive resins with low environmental impact**

## *Abstract*

The thesis entitled „**Composite materials based on thermoplastic and thermoreactive resins with low environmental impact**”, realised by PhD. Eng. Alina Elena Coman, under the guidance of Emeritus Professor Dr. Eng Gheorghe Hubca, is mainly aimed at studying composite materials and is organized in two sections.

The first part deals with composites based on PVC thermoplastic resin. The key aspect was the synthesis of „green grains” based on PVC suitable for electric cables. To achieve this, the following specific objectives have to be fulfilled: (i) the study on the influence of stearic acid and calcium stearate; (ii) the influence of plasticizer nature and of processing mode and (iii) a study on the effect of a class of flame retardant systems based on PVC.

The second part belongs to composite materials with thermoreactive matrix based on olive oil. The principal scope of this part consists of the synthesis of PU flexible foams based on renewable raw materials, replacing petroleum polyols. The originality consist of using for the very first time olive oil in the obtaining of PU flexible foams suitable for mattress production. To meet this main scope, several secondary objectives have to be accomplished, as follows: (i) the process study on epoxidized olive oil synthesis; (ii) the process study on the synthesis of polyols starting from epoxidized olive oil; (iii) synthesis of PU flexible foams using petroleum polyols and olive oil-derived polyols and (iv) their characterization with the end of establishing the optimal recipe.