



G02.07

**Thermal Investigation of PP /GFR PA-66 Blends-Composites:
Establishment of their Continuous Cooling Transformation Diagrams.**

*Z. Safidine (a), S. Fellahi (b), A. Frick (c)

*(a) Laboratoire de Chimie Macromoléculaire /LCM/UERCA/DRFPG/EMP BP 17 Bordj El Bahri ALGER 16111**(b) Engineering polymers Department / IAP-CU Boumerdes 35000**(c) Polymers technology Department Aalen University, D-73430 Aalen, Germany*

Poly (propylene)/Poly (propylene)-grafted-maleic anhydride/Glass Fibre Reinforced Polyamide 66 (IPP/PP-g-MAH/ GFR PA 66) Blends-composites were investigated with and without the addition of Poly (propylene)-grafted-maleic anhydride (PP-g-MAH). The effect of the compatibilizer on the thermal properties and crystallization behavior was determined by differential scanning calorimetry (DSC 7 PE). From the results it is found that the crystallization of PP was significantly affected by the presence of PP-g-MAH. In PP/PP-g-MAH/ GFR PA 66 (30 wt %/70 wt %) blends-composites containing a various amounts of compatibilizer (from 0 till 10 wt %), it is also found that 2.5 wt % of PP-g-MAH should be enough to improve the crystallization velocity of PP. New approaches using metallurgical concepts; i.e. Transformation of crystallinity under Continuous Cooling rate (T.C.C) diagrams have been used. These diagrams are used to evidence the role played by each part on the crystallization of the given components under non-isothermal conditions. In these blends-composites, concurrent crystallization was not observable for PA66 GFR, even though the amount of PP-g-MAH was high. The thermal degradation of blends and Melt flow index of blends were investigated by TGA and Rheometer in order to study the effect of compatibilizer on both degradation and rheological behavior.

Key words: polypropylene, Polyamide 66, Polypropylene-polyamide blends, Glass Fiber, compatibilizer, crystallization kinetics, differential scanning calorimetry, TGA, MFI, and TCC diagrams.