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Crystallization, the gel point and DQ NMR in PDMS networks MOSHE GOTTLIEB, YOAV HAYOUN, INBAL PREKER, RACHEL YERUSHALMI-ROZEN, Chemical Engineering Department and Stadler Minerva Center for Mesoscopic Macromolecular Engineering, Ben-Gurion University, Beer Sheva, 84105 ISRAEL, KAY SAALWAECHTER , Institut fur Makromolekulare Chemie, Universitaet Freiburg, 79104 Freiburg, GERMANY — In the framework of classical models, the presence of constraints that reduce the mobility of the chains should lead to a reduction in the crystallization rate of polymer melts and result in a lower degree of crystallinity at a given cooling rate. An increasing number of experimental observations which seem to contradict the basic premises of the classical picture have been reported in the last couple of years. In particular, recent experiments findings suggest that in some cases crystallization from a crosslinked melt is more efficient than that from the non crosslinked analogue. In this work we report on a detailed study carried out in order to examine the relation between crystallization and the crosslinked network parameters. The effect of precursor molecular weight, crosslinker functionality and degree of crosslinking were examined. The thermal characteristics of the system were obtained by DSC. These were complemented by DQ NMR (dynamic order parameter) and rheological measurements. The use of DQ NMR as means to determine the gel point is also discussed..

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