

Mip experiment on the melting temperature of different polymers essay



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LDPE has the lowest mean liquescent temperature (103.6°C) out of the 4 polymers. It is because LDPE is a additive polymer that has a branched construction which is able to throw out the applied heat faster through the “ branches” and melt faster. HPDE has the 2nd last norm liquescent temperature (139.5°C) out of the 4 polymers. Unlike LDPE. HDPE does non hold a bifurcate construction and the HPDE polymer ironss are able to pack more tightly to one another. Therefore HPDE has a higher denseness than LDPE and is able to defy more heat than LDPE.

However HPDE and LDPE has lower mean liquescent temperatures of 139.5°C and 103.6°C severally than mean liquescent temperature of PP (178.4°C) is due to the fact that the monomer of PP (C_3H_6) has one more $-\text{CH}_2$ than the monomer of PE (C_2H_4) . Hence PP has a bigger molecular size than that of both LDPE and HDPE and more heat energy is required to get the better of the intermolecular forces between PP molecules than that of LDPE and HDPE. Nylon has the highest mean liquescent temperature (252.5°C) among the 4 polymers.

The three polymers: LDPE. HDPE and PP are homopolymers while Nylon is a copolymer which is made up of 2 different monomers: diamine and dicarboxylic acid. Since Nylon has the biggest molecular size. more heat energy is needed to get the better of the strong intermolecular forces between the Nylon molecules.