

Cross-linking of carboxylated polyacrylamide in aqueous solutions under γ -irradiation and with chromium acetate

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Gelling compositions based on functionalized polyacrylamide are well known to be used in different areas (oil recovery, medicine, agriculture etc.). In the present work gel formation in 1 % aqueous solutions of carboxylated polyacrylamide FP-307 (SNF Floerger, France) has been studied. Acrylate groups content in the polymer chain was 8 mol %, viscous molecular mass being $4.7 \cdot 10^6$. Cross-linking of the initial polymer was performed both under γ -irradiation (absorbed dose in the range of 1–10 kGy) and in the presence of chromium acetate as cross-linker, the latter concentration varying from 0.08 to 12.7 % in Cr^{3+} scaling. Water sorption and gel fraction values of the gels obtained have been determined depending on the γ -radiation dose and the cross-linker concentration as well.