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Viscoelastic Properties of Fluorinated Ethylene-Propylene (FEP) Random Copolymers¹ MEGAN CURTIN*, BENJAMIN WRIGHT*, Chemical and Biological Engineering, RAHMI OZISIK, Materials Science and Engineering, Rensselaer Polytechnic Institute — Fluorinated ethylenepropylene (FEP) random copolymers contain tetrafluoroethylene (TFE) and hexafluoropropylene (HFP) repeat units. FEP is an excellent alternative to poly(tetrafluoroethylene), PTFE, which cannot be melt processed due to its high molecular weight and extensive crystallinity. On the other hand, FEP is a melt processible polymer and offers similar if not the same properties as PTFE. Many studies have been performed on FEP over the years, however, the properties of these polymers strongly depend on the HFP concentration and molecular weight (distribution). Just like PTFE, FEP cannot be dissolved in many solvents, therefore, obtaining molecular weight distribution of these polymers is not possible with commonly used methods. In the current study, we perform rheological analysis of various FEPs and obtain their molecular weight distributions by employing the Tuminello method.

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