

Supporting Information

Molecular Dynamics-assisted Design of High Temperature-Resistant Polyacrylamide/Ploxamer Interpenetrating Network Hydrogels

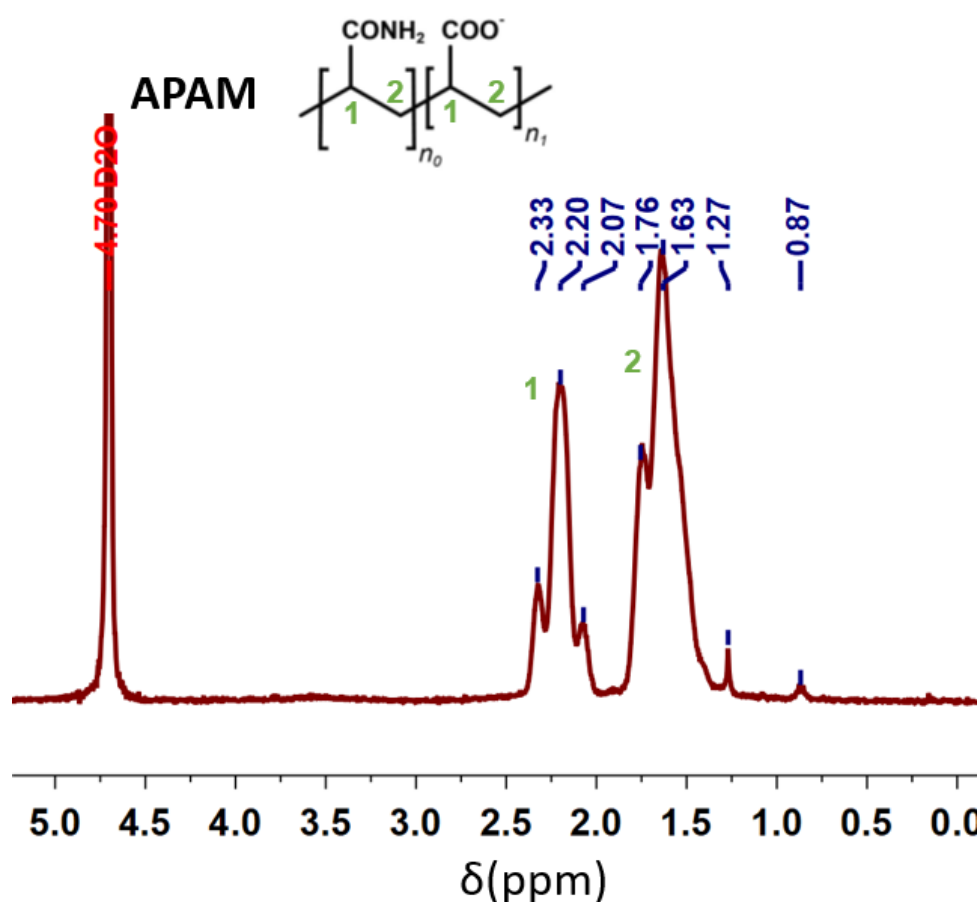


Figure. S1 The full ^1H NMR spectrum of the APAM. The peak for hydrogens on methylene groups ($-\text{CH}_2-$) attached to carboxyl or amide groups is observed around δ 2.20. The hydrogen of $-\text{CH}_2-$ on the polymer chain appears around δ 1.63.

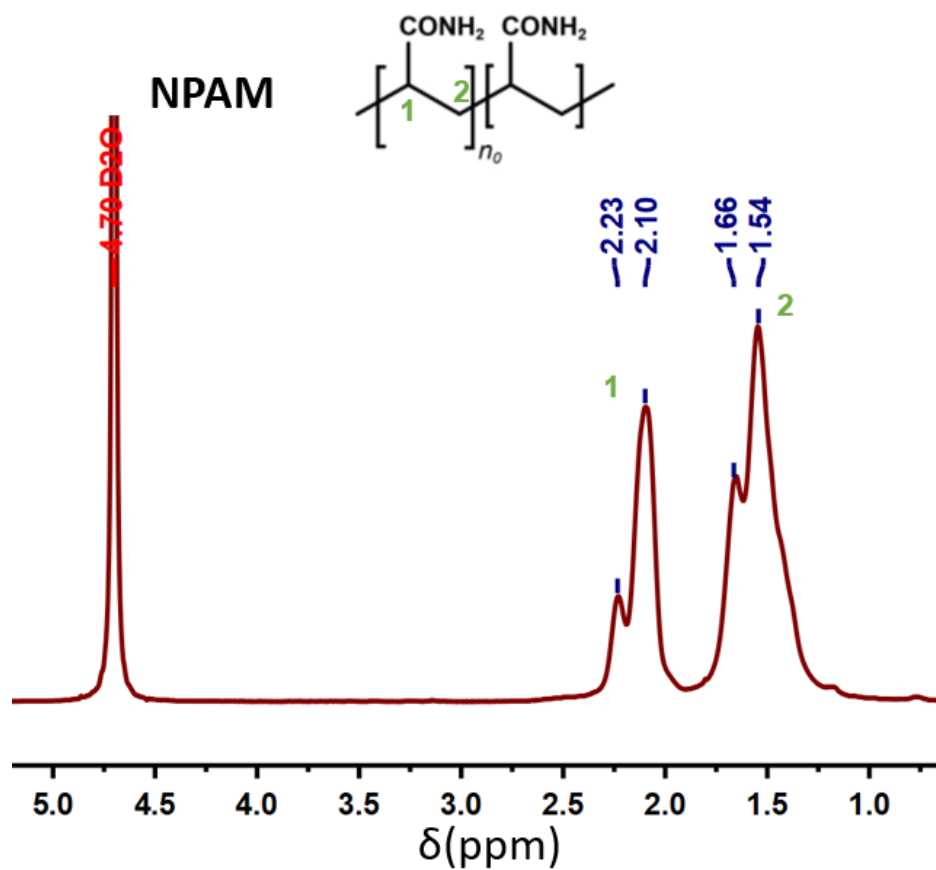


Figure. S2 The full ^1H NMR spectrum of the **NPAM**. The peak of the hydrogen on the methylene ($-\text{CH}-$) attached to the carboxyl or amide group is around δ 2.10. The hydrogen of $-\text{CH}_2$ on the polymer chain appears around δ 1.66.

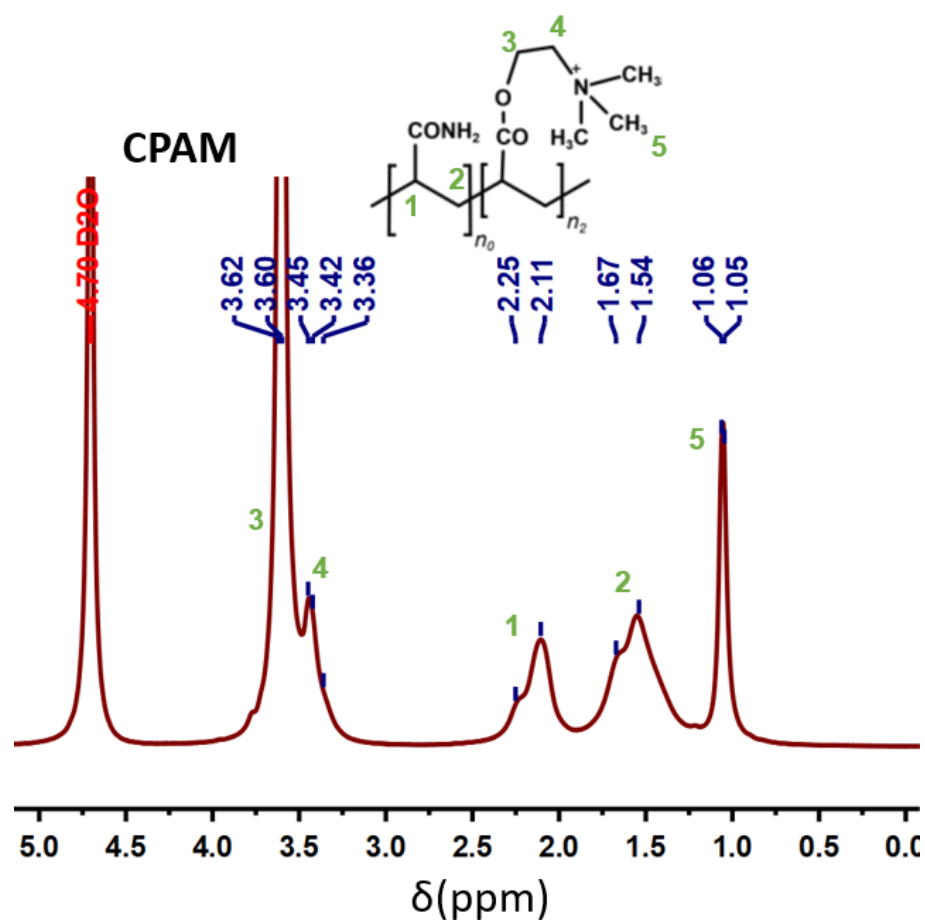


Figure. S3 The full ^1H NMR spectrum of the CPAM. The peak for hydrogens on methylene groups (-CH-) attached to carboxyl or amide groups is observed around δ 2.11. The hydrogen of -CH₂ on the polymer chain appears around δ 1.54. In addition, the hydrogens of methyl groups (-CH₃) located on branched chains are observed around δ 1.05. The hydrogens on the methylene groups on the branch are located at δ 3.30 and δ 3.60, respectively.

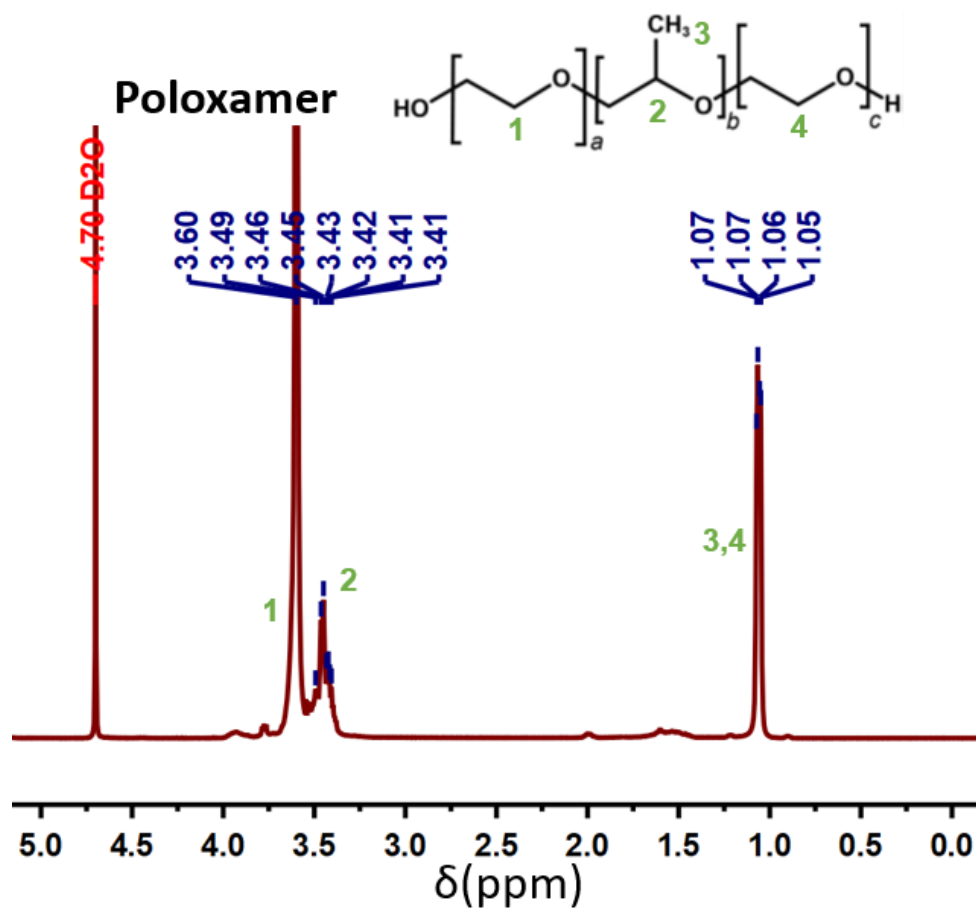


Figure. S4 The full ^1H NMR spectrum of the poloxamer. The hydrogen of the methyl group ($-\text{CH}_3$) on the molecular chain is located at δ 2.20. In addition, the hydrogen peak on the methylene group ($-\text{CH}-$) attached to the methyl group is around δ 3.41. The peak appearing around δ 3.60 is the hydrogen on the methylene ($-\text{O}-\text{CH}-$) attached to the ether group.

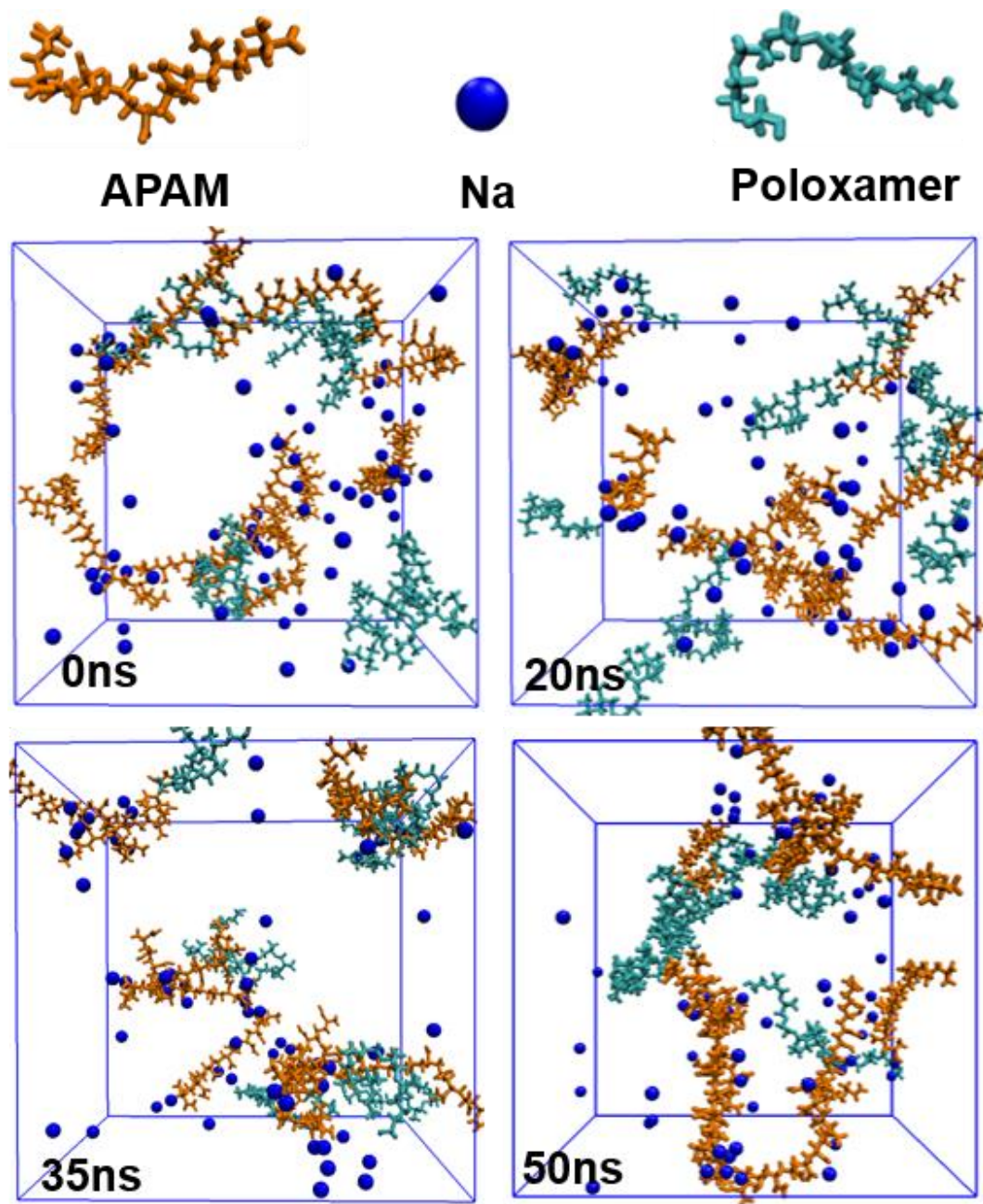


Figure. S5 Molecular dynamics process of the interaction between **APAM** and poloxamer.

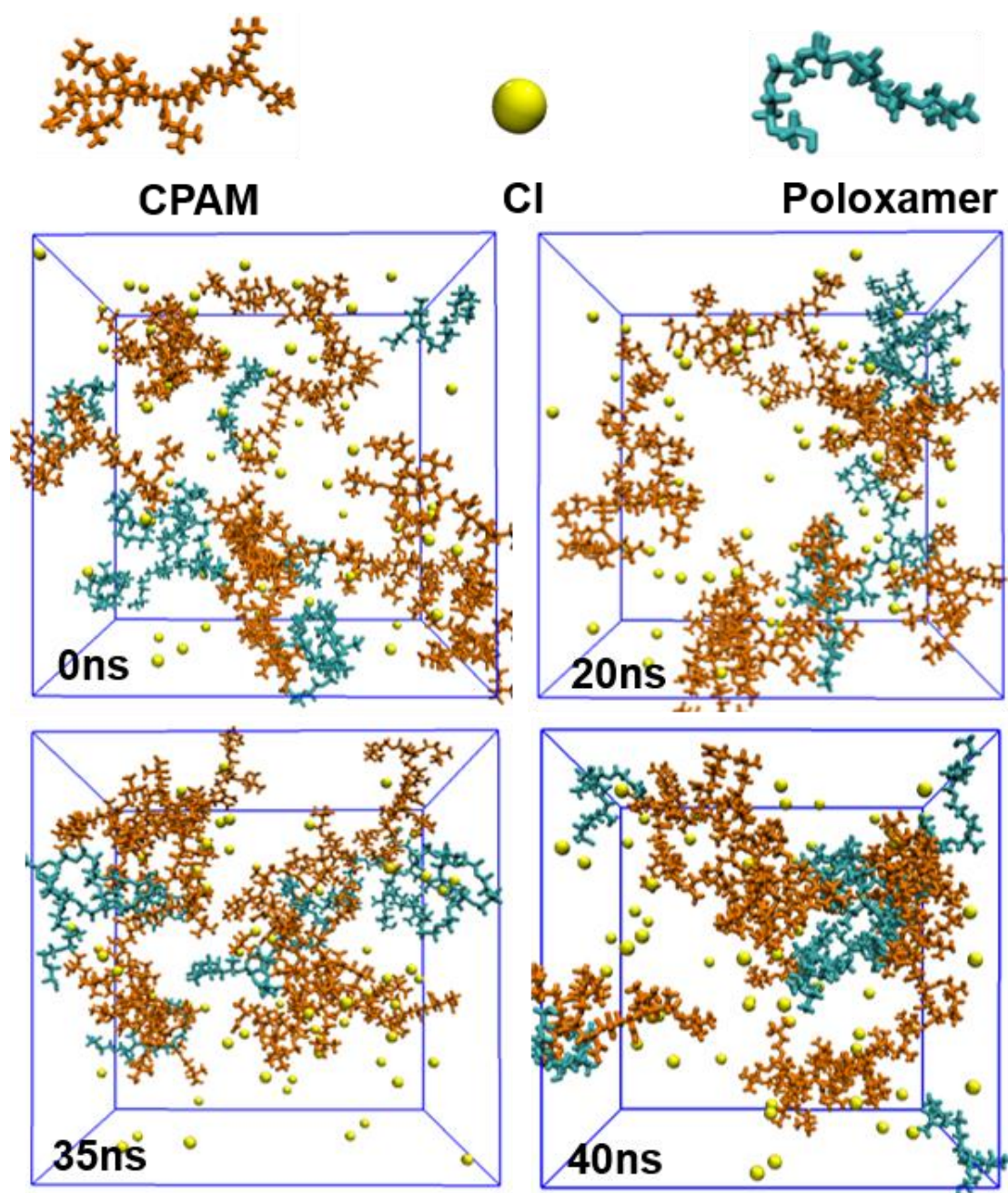


Figure. S6 Molecular dynamics process of the interaction between **CPAM** and poloxamer.

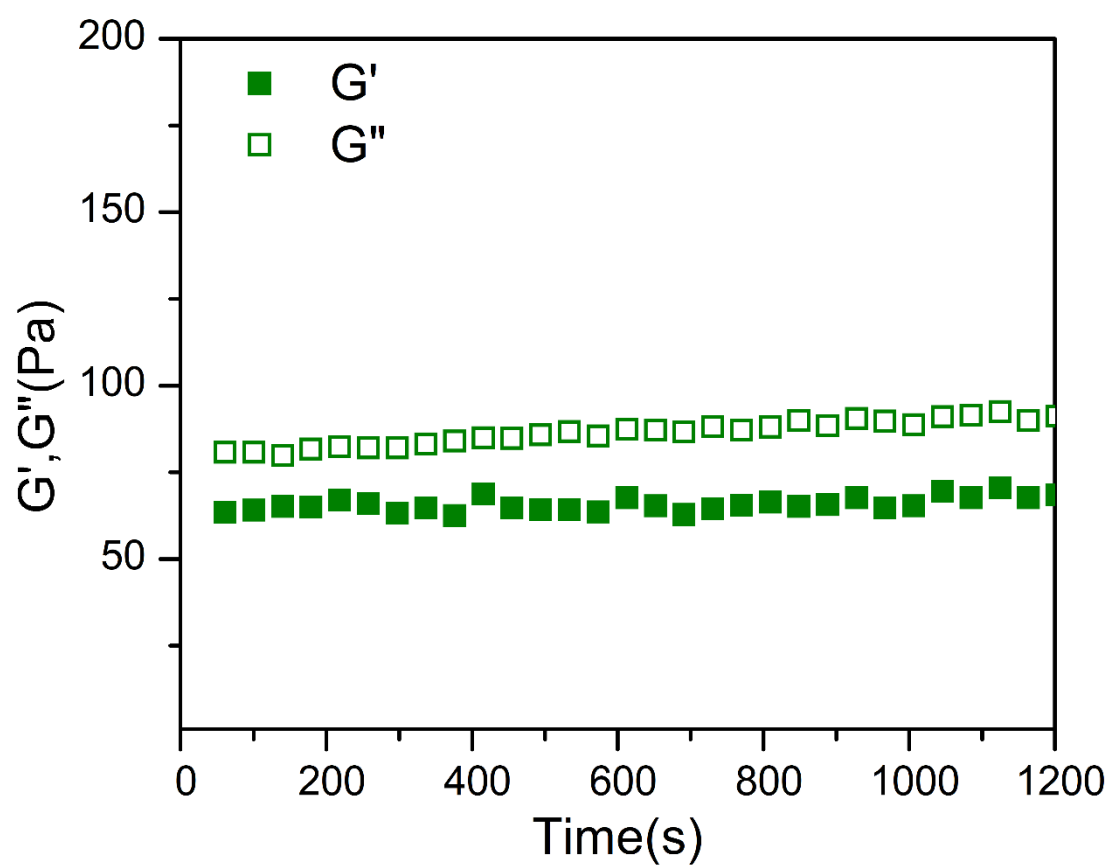


Figure. S7 G' and G'' values of CPAM/poloxamer composite system.

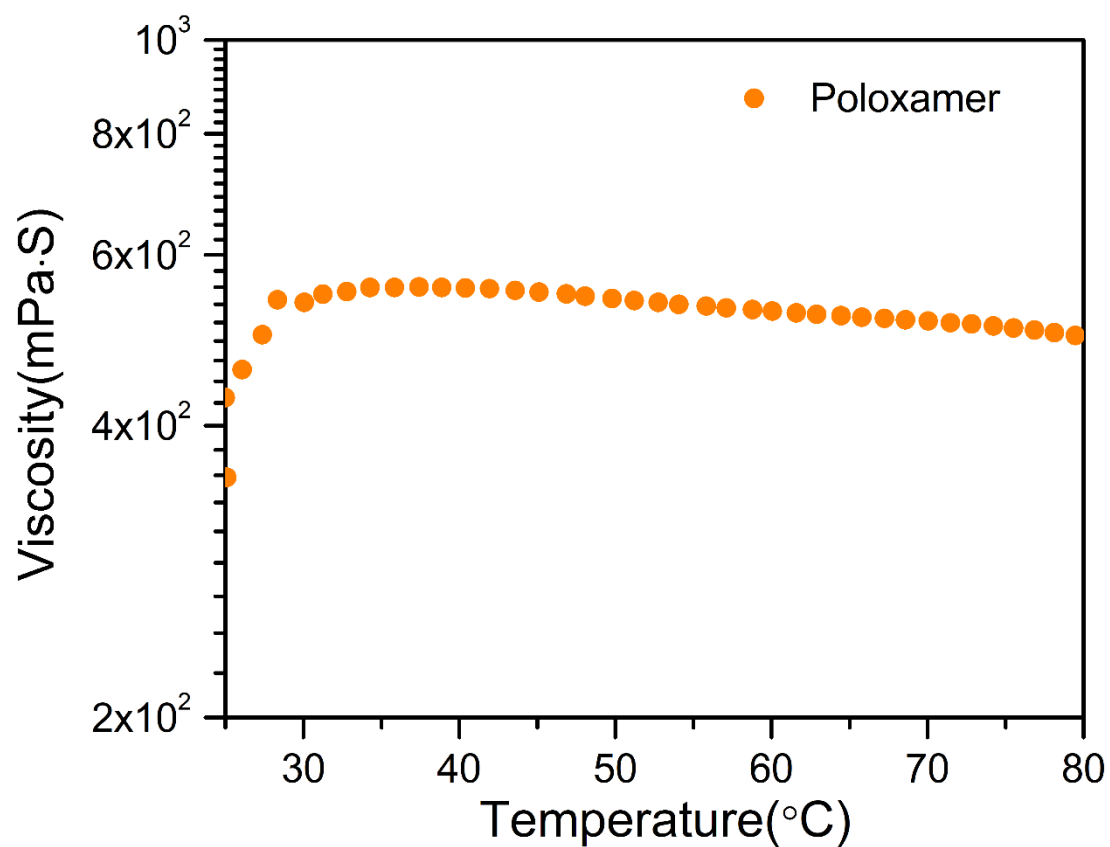


Figure. S8 Viscosity of poloxamer (mass fraction: 10 wt%) in the temperature range of 25-80°C.

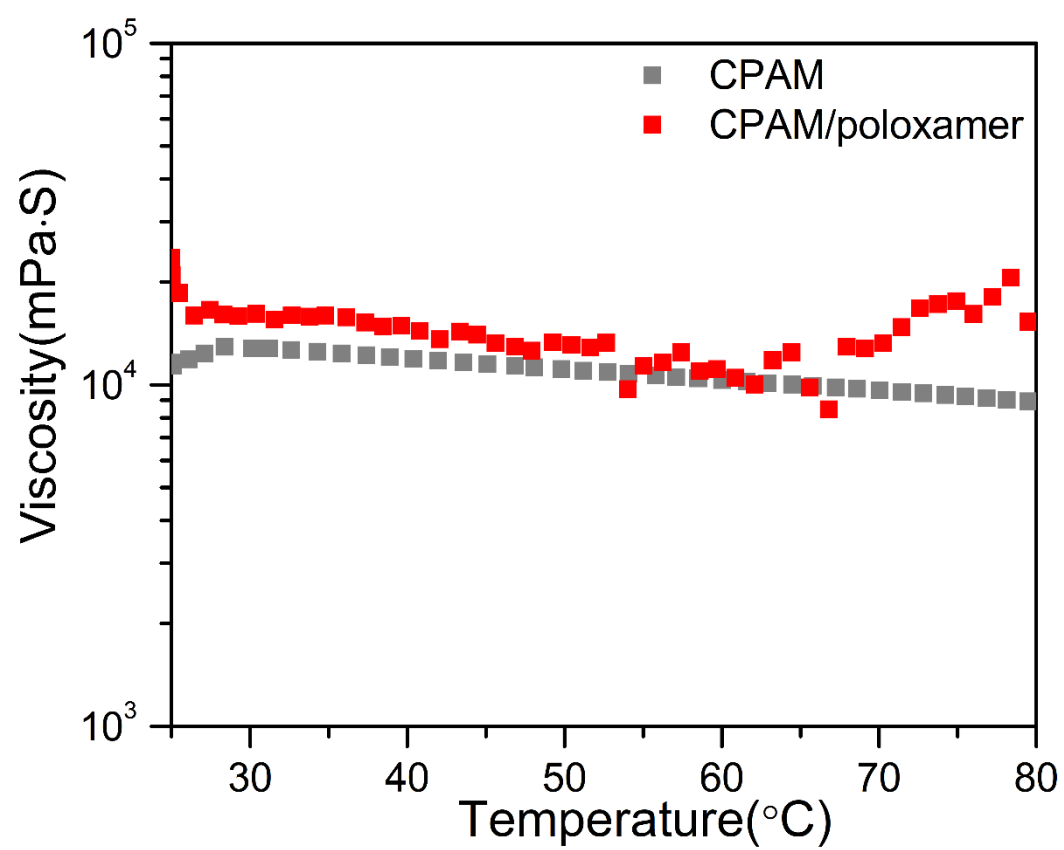


Figure. S9 Viscosity of CPAM and CPAM/poloxamer.

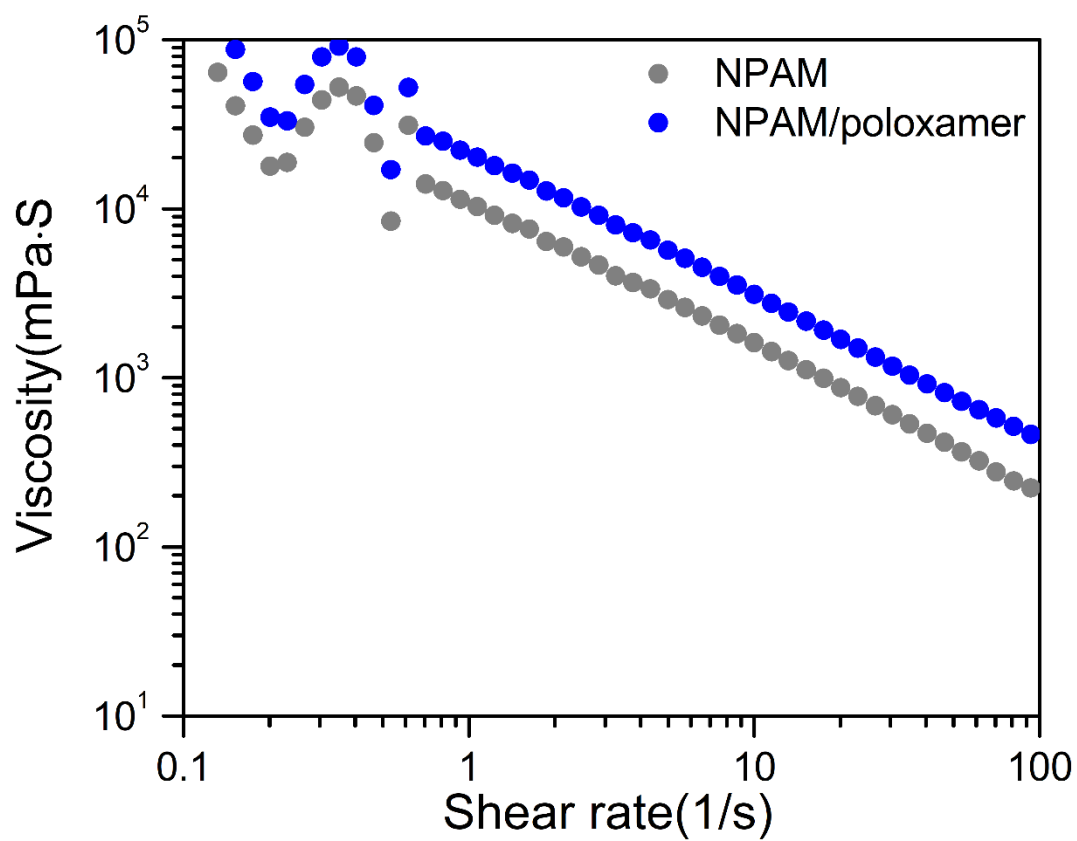


Figure. S10 Viscosity of NPAM and NPAM/poloxamer.

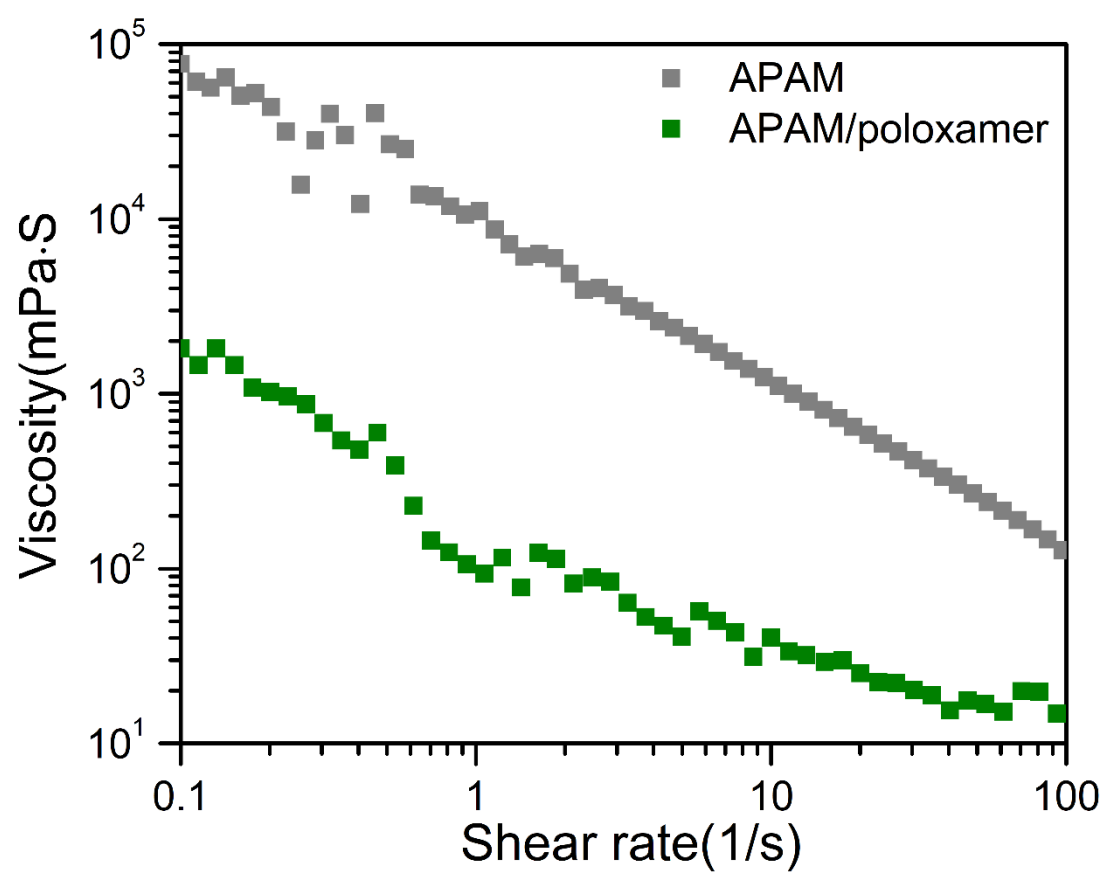


Figure. S11 Viscosity of APAM and APAM/poloxamer.

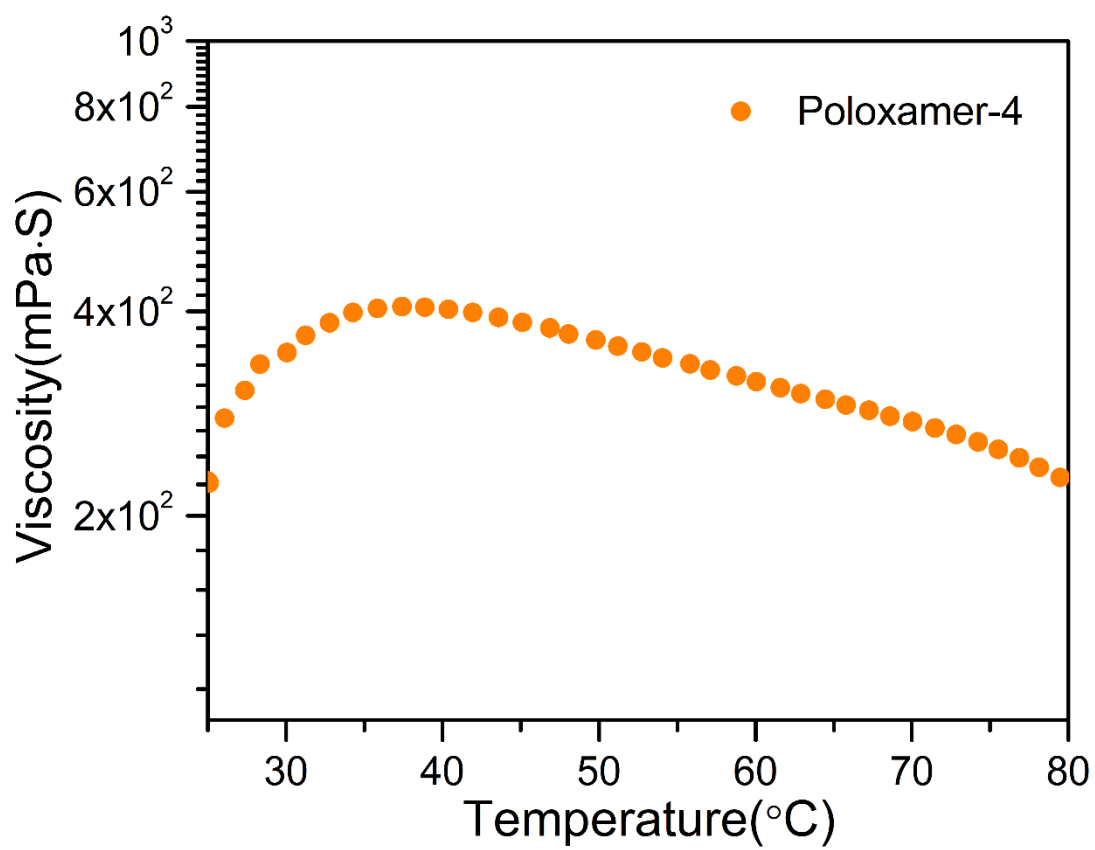


Figure. S12 Viscosity of poloxamer (mass fraction: 4 wt%) in the temperature range of 25-80°C.