Electronic Supplementary Material (ESI) for Polymer Chemistry.

The influence of 2-acrylamidephenylboronic acid on the phase behaviour of its copolymers with N-isopropylacrylamide in aqueous solution

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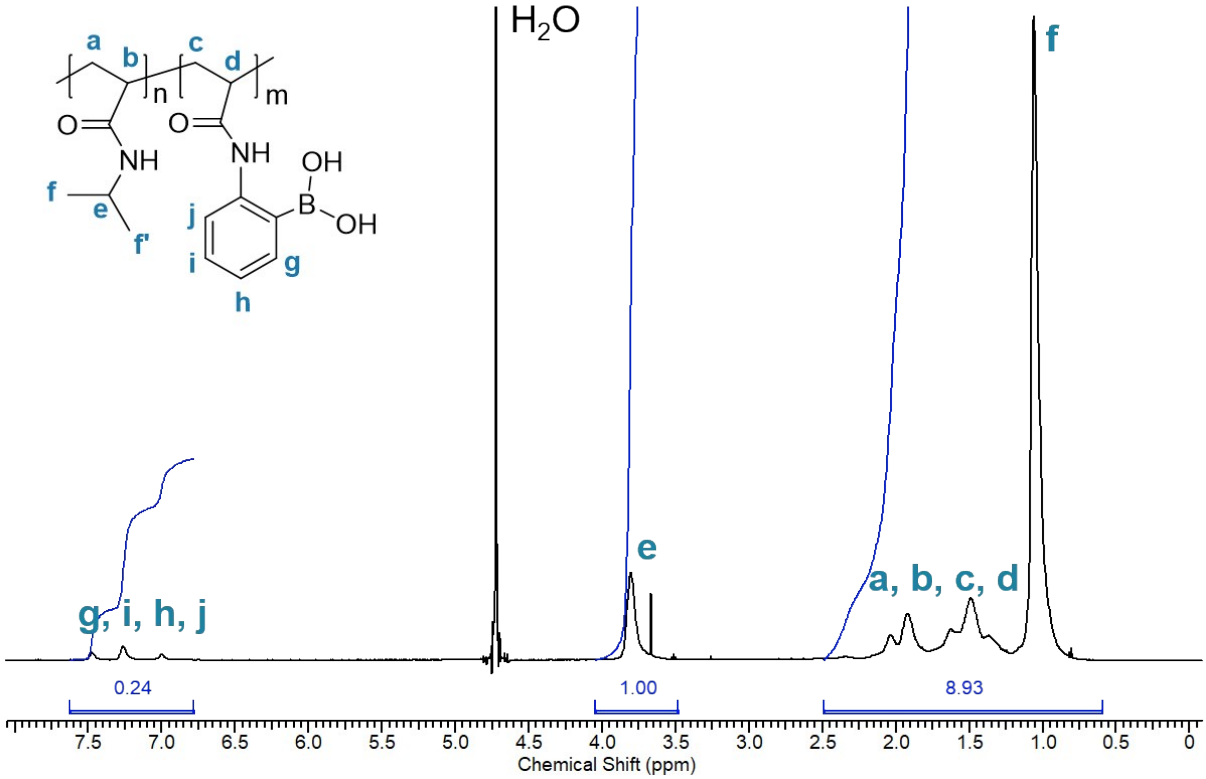


Figure S1. ^{1}H NMR spectrum of P(NIPAM-*co*-2-AAPBA)_5 recorded in deuterium oxide.

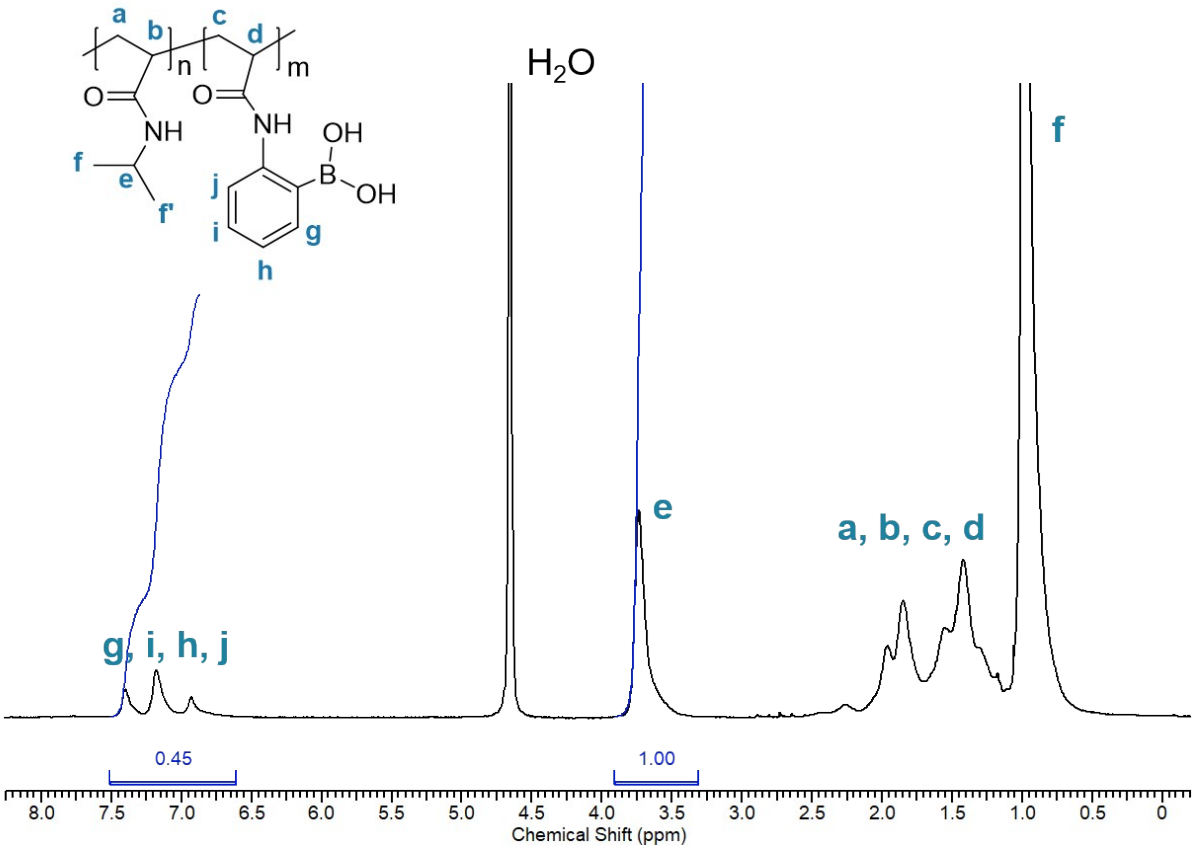


Figure S2. ^{1}H NMR spectrum of P(NIPAM-*co*-2-AAPBA)_10 recorded in deuterium oxide.

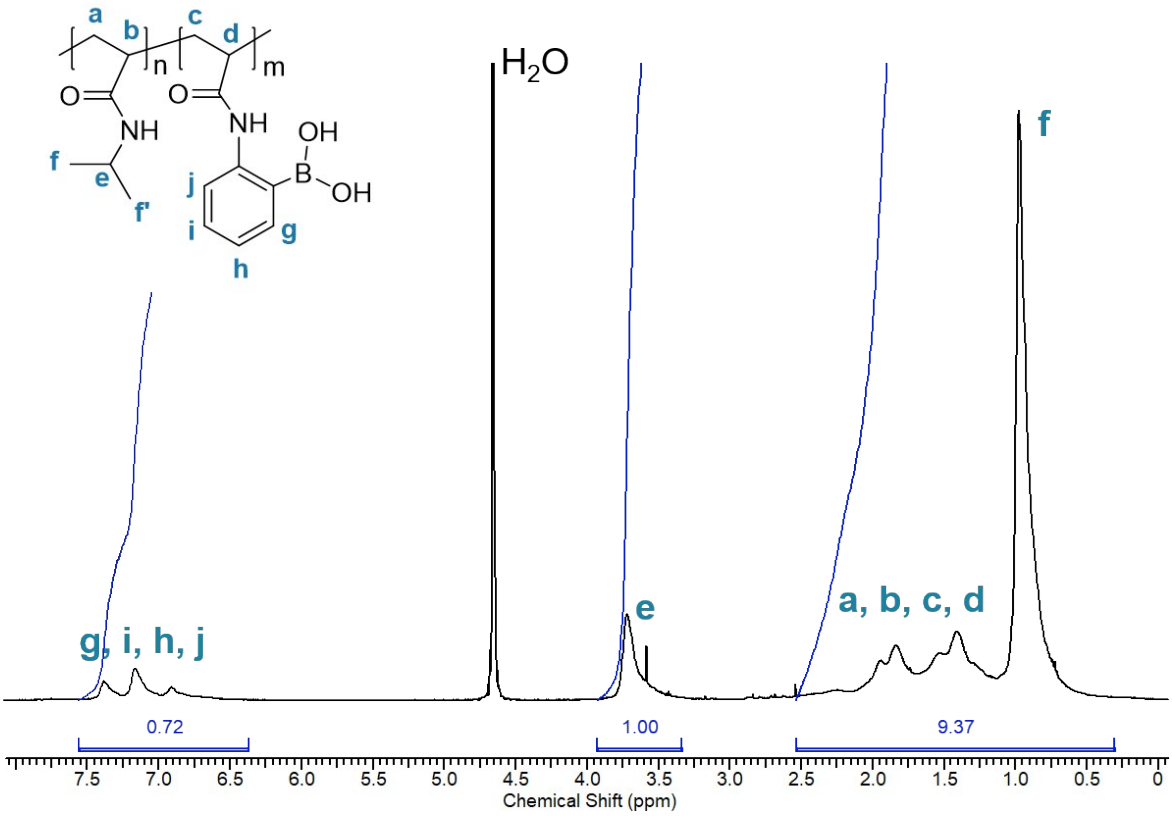


Figure S3. [1]H NMR spectrum of P(NIPAM-*co*-2-AAPBA)_15 recorded in deuterium oxide.

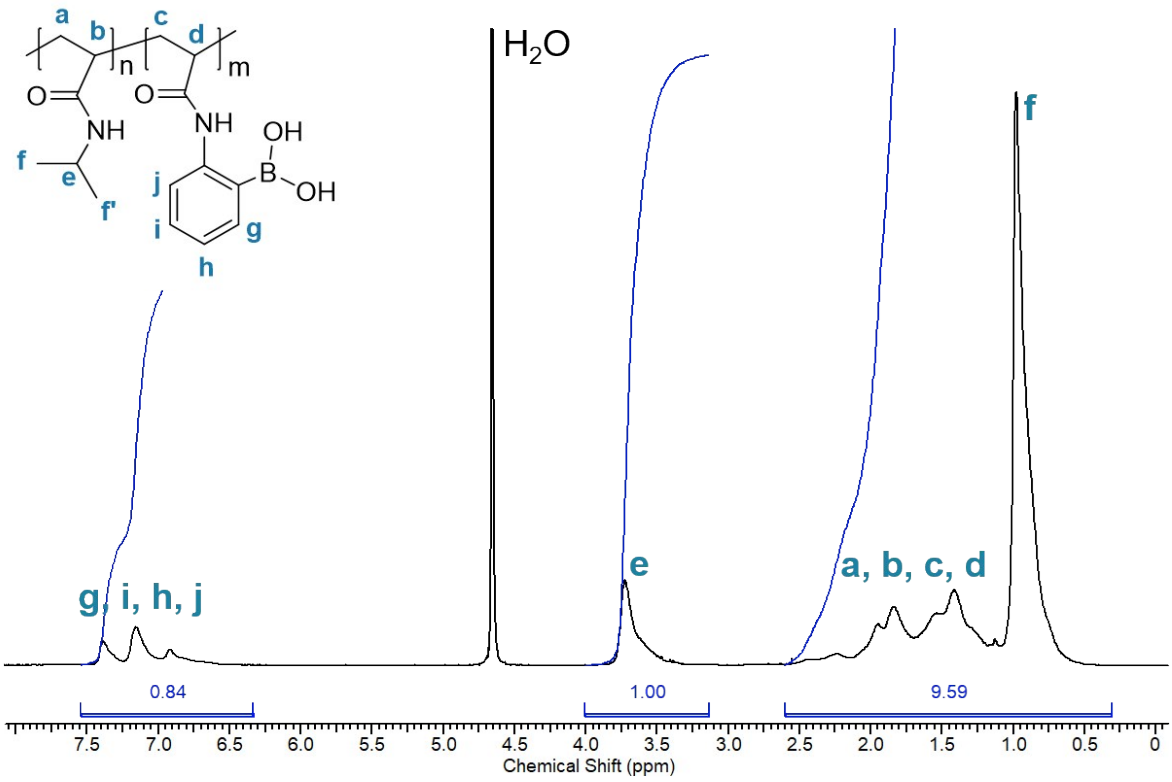


Figure S4. [1]H NMR spectrum of P(NIPAM-*co*-2-AAPBA)_17 RAFT recorded in deuterium oxide.

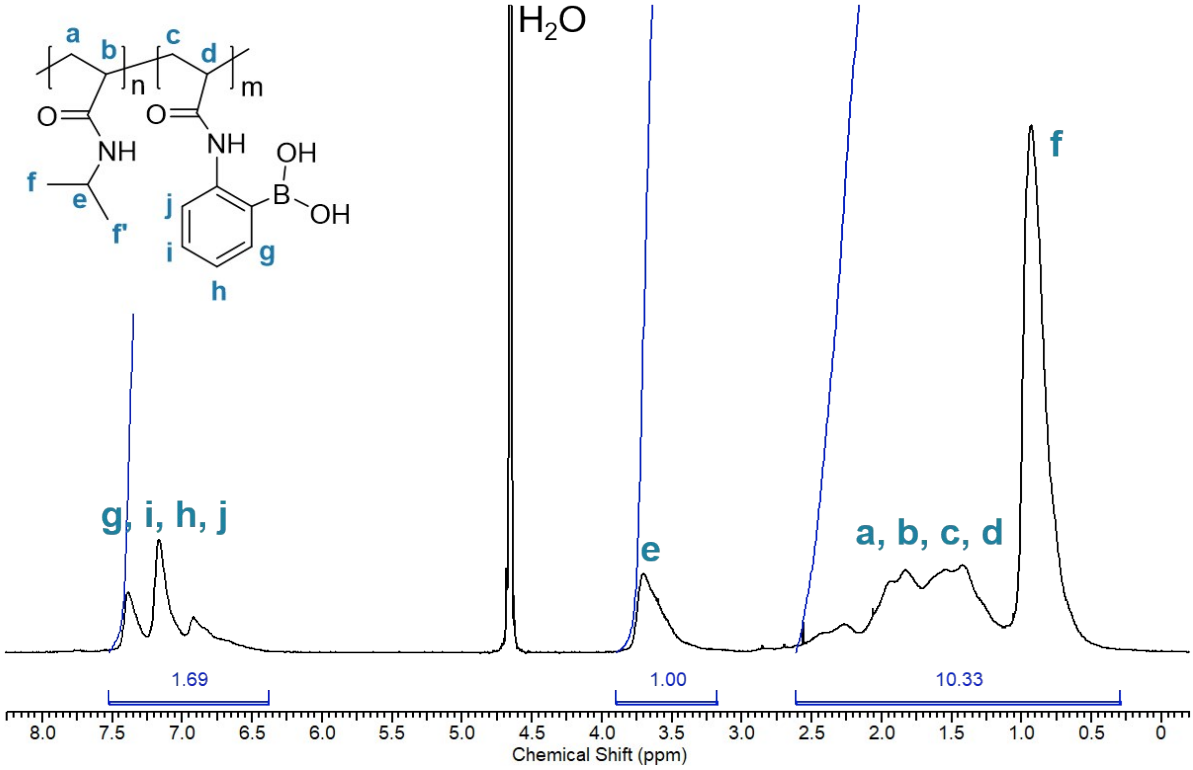


Figure S5. [1]H NMR spectrum of P(NIPAM-*co*-2-AAPBA)_30 recorded in deuterium oxide.

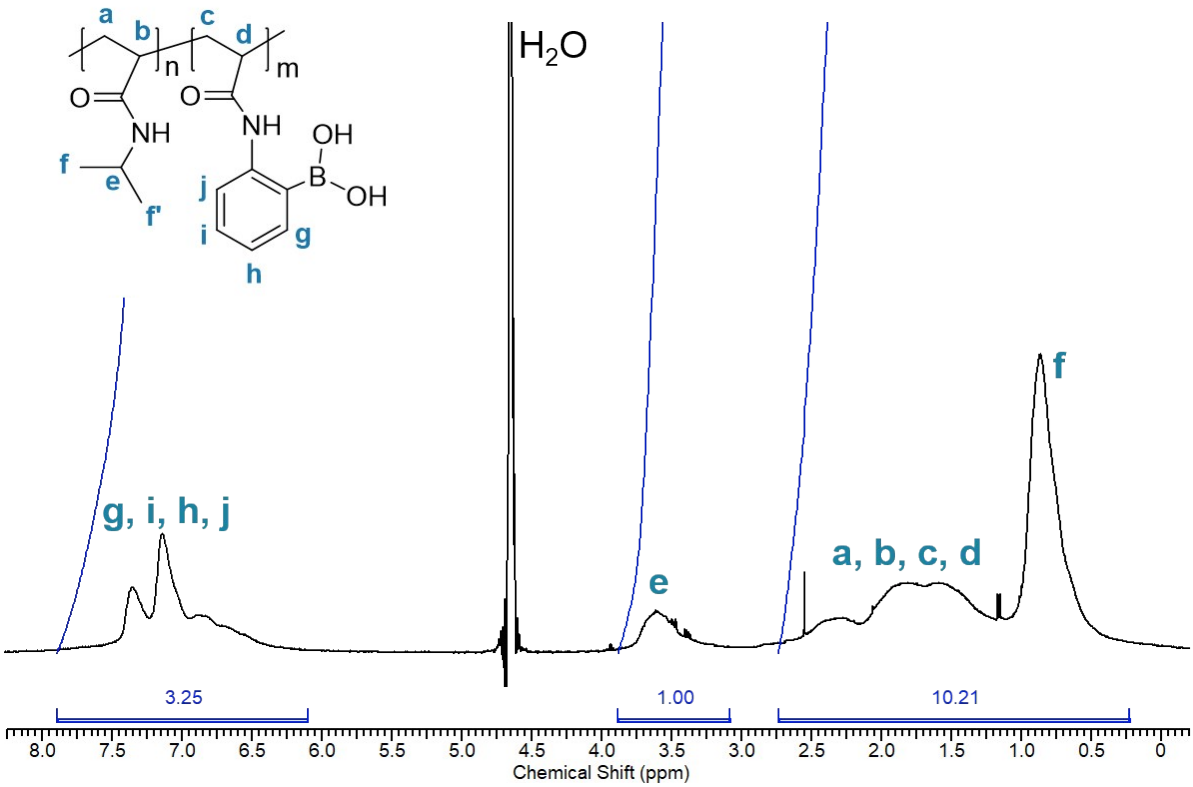


Figure S6. [1]H NMR spectrum of P(NIPAM-*co*-2-AAPBA)_45 recorded in deuterium oxide.

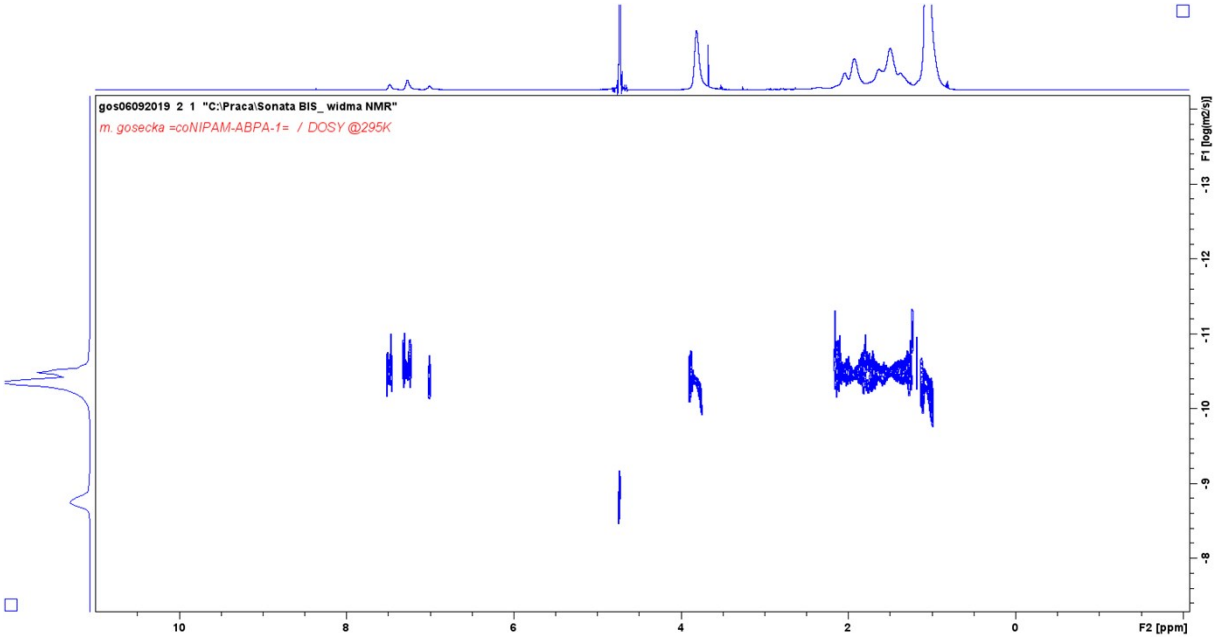


Figure S7. [1]H DOSY NMR spectrum of P(NIPAM-*co*-2-AAPBA)_5 recorded in deuterium oxide.

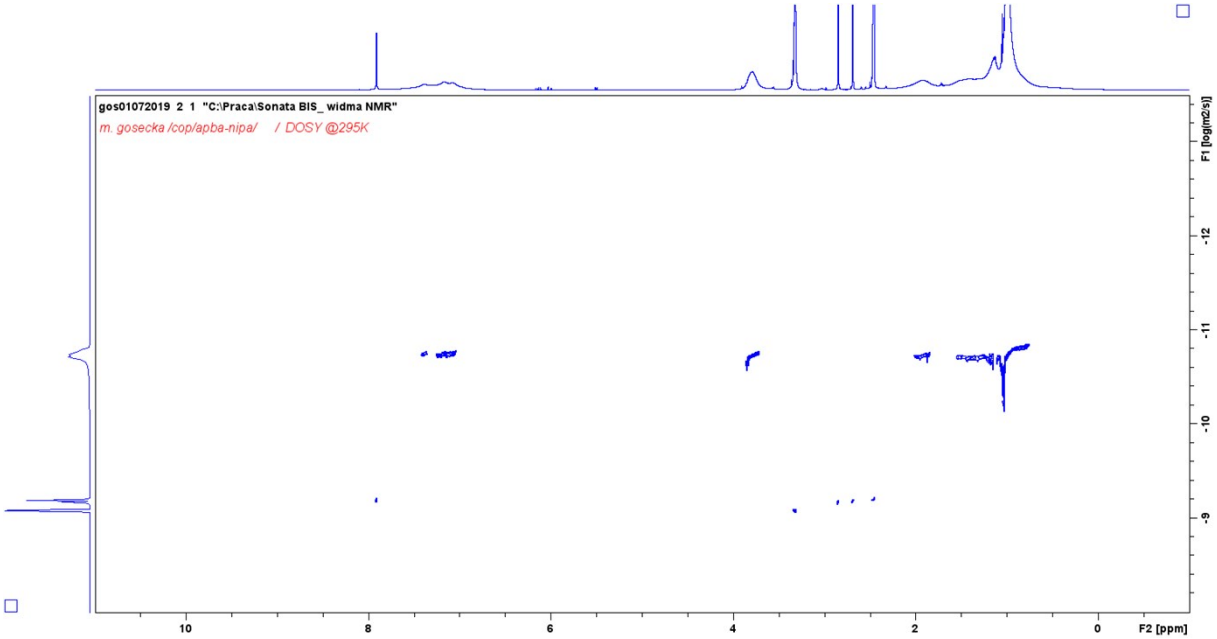


Figure S8. [1]H DOSY NMR spectrum of P(NIPAM-*co*-2-AAPBA) _10 recorded in deuterium oxide.

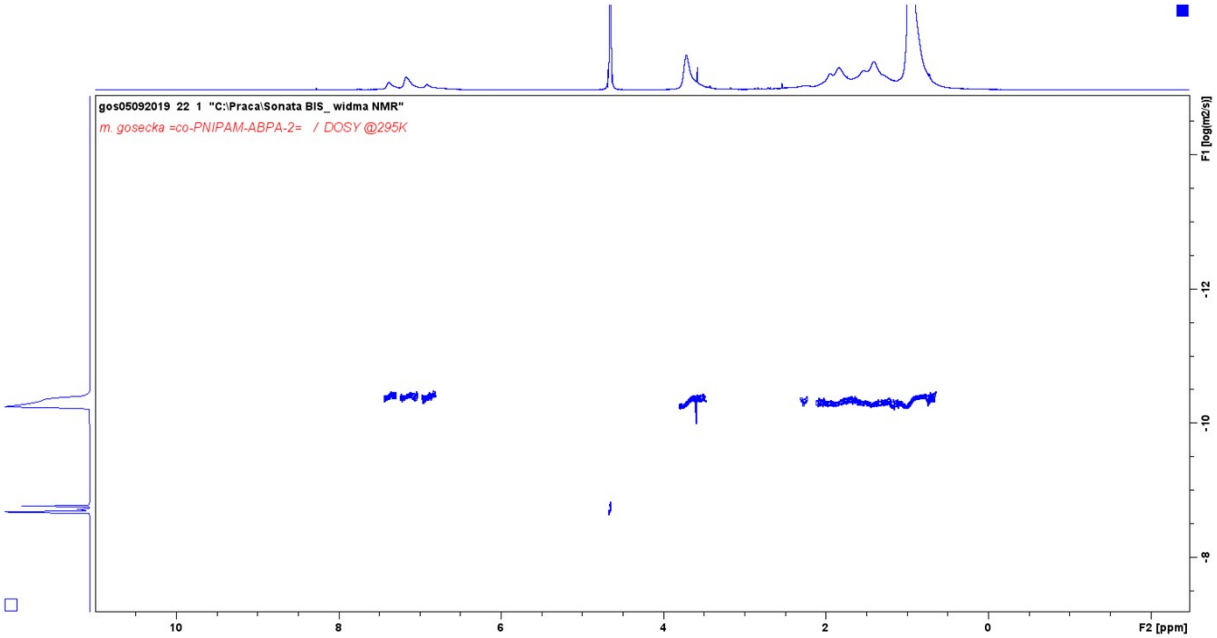


Figure S9. [1]H DOSY NMR spectrum of P(NIPAM-*co*-2-AAPBA) _15 recorded in deuterium oxide.

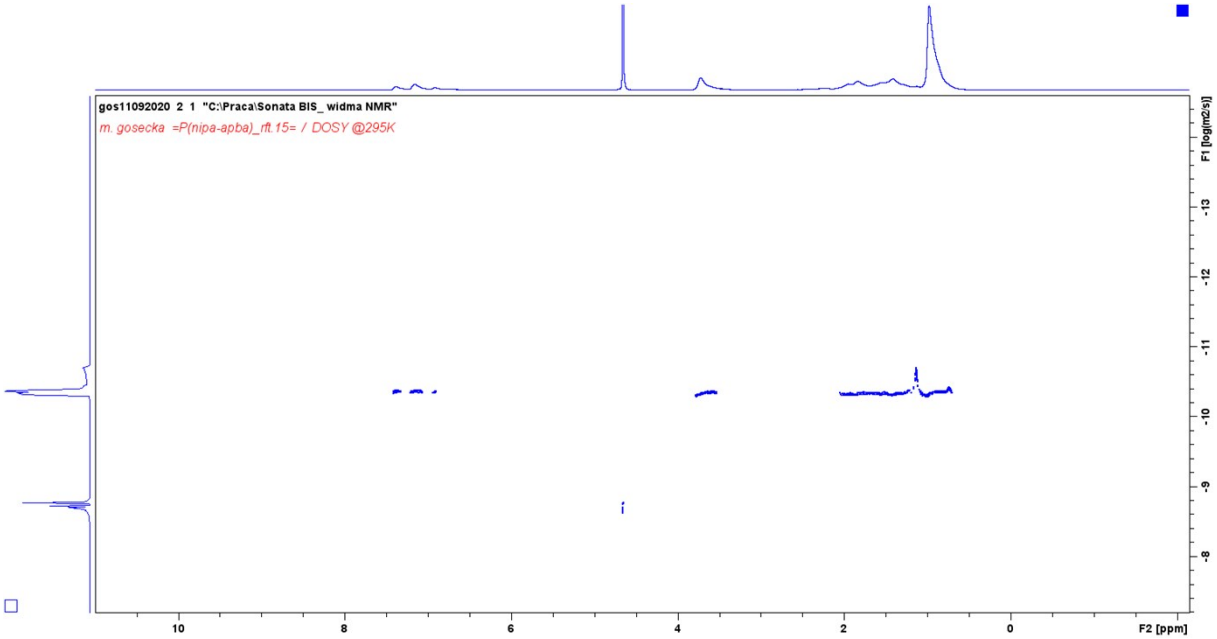


Figure S10. [1]H DOSY NMR spectrum of P(NIPAM-*co*-2-AAPBA)_17 (RAFT) recorded in deuterium oxide.

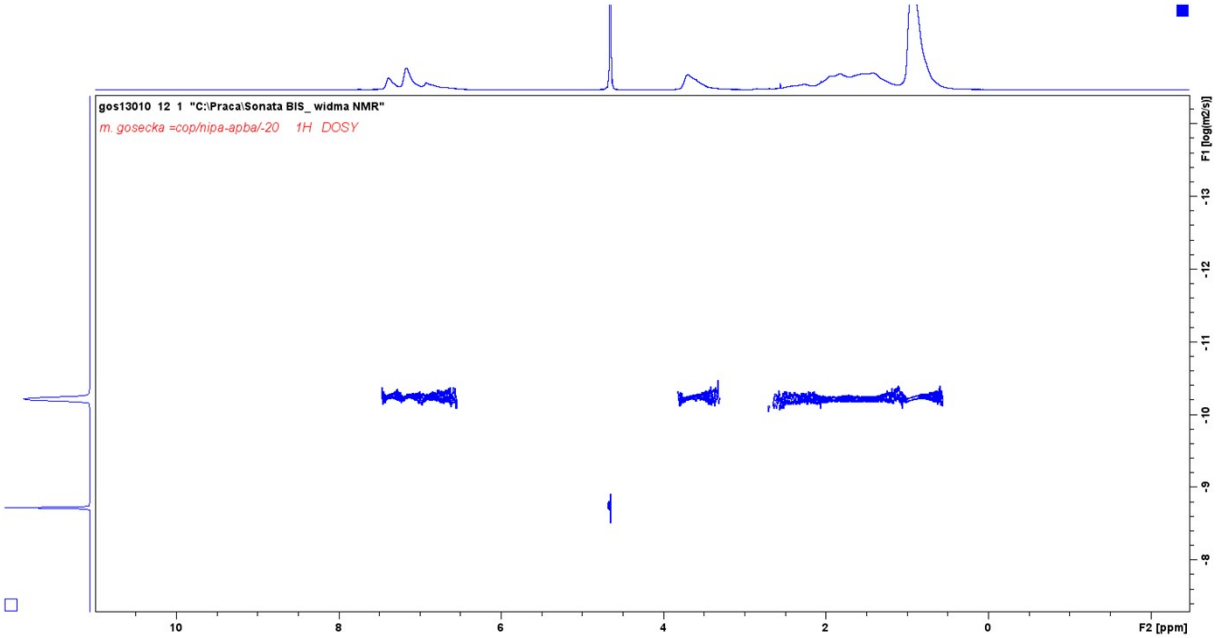


Figure S11. [1]H DOSY NMR spectrum of P(NIPAM-*co*-2-AAPBA) _30 recorded in deuterium oxide.

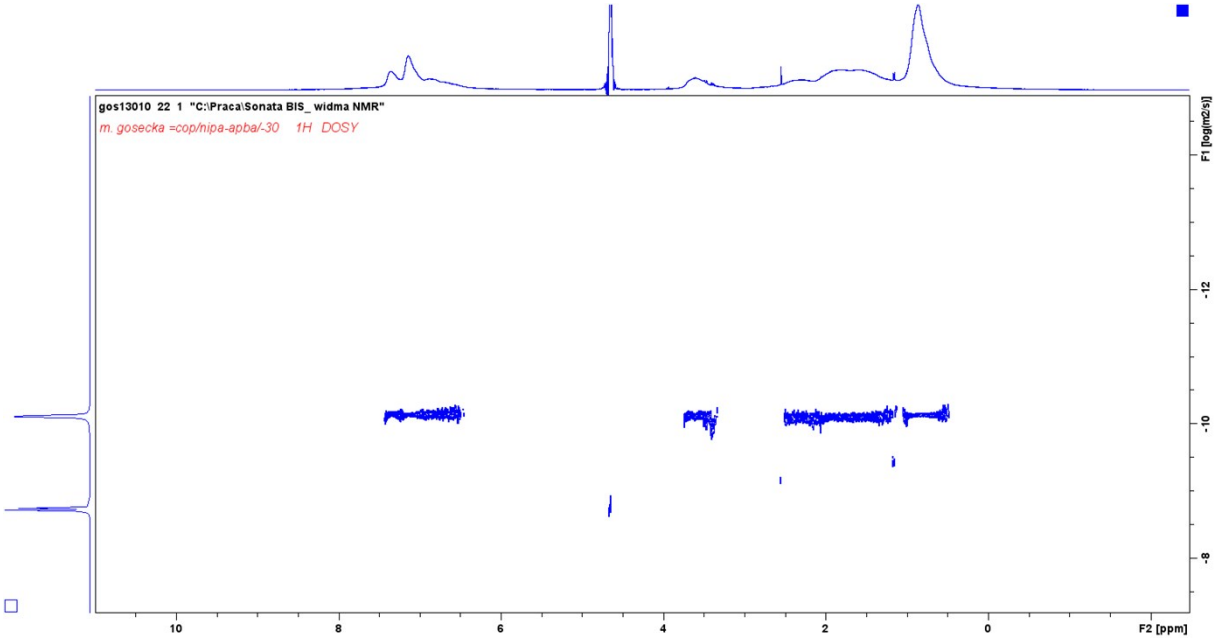


Figure S12. [1]H DOSY NMR spectrum of P(NIPAM-*co*-2-AAPBA) _45 recorded in deuterium oxide.

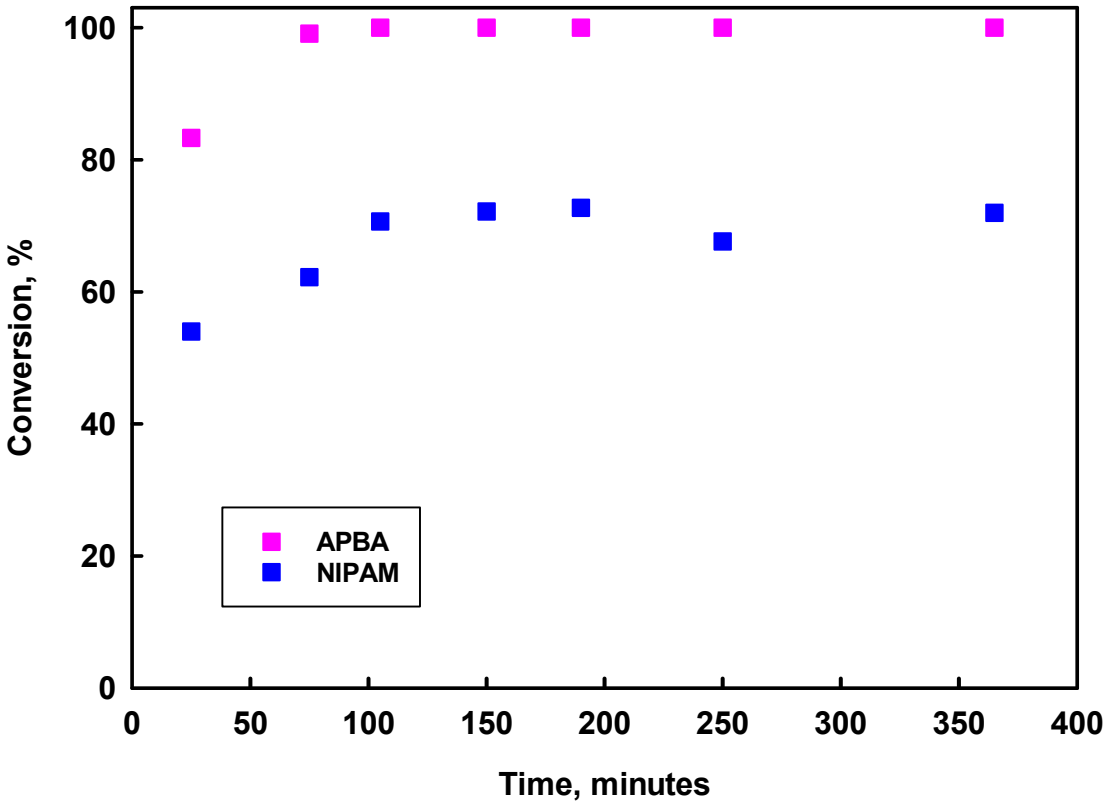
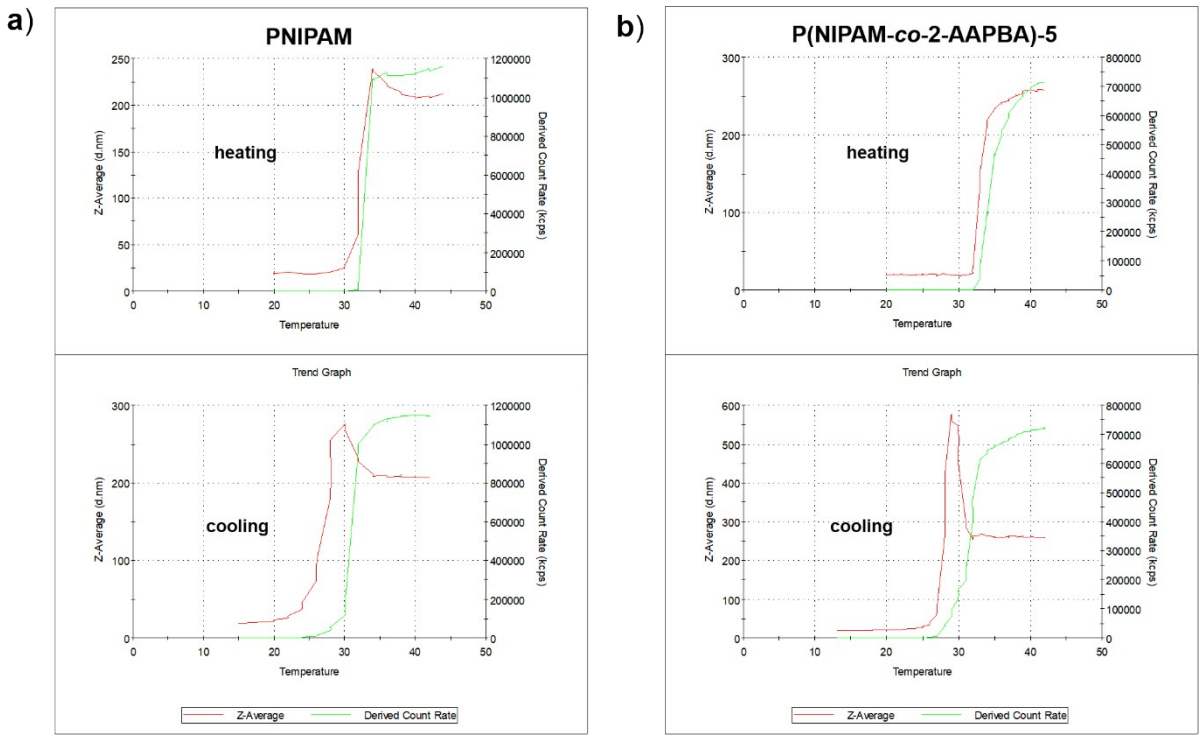


Figure S13. The conversion rate of 2-acrylamidephenyl boronic acid pinacol ester, 2-AAPBAPE and N-isopropylacrylamide, NIPAM in the molar ration 10:90 in the free radical copolymerization.



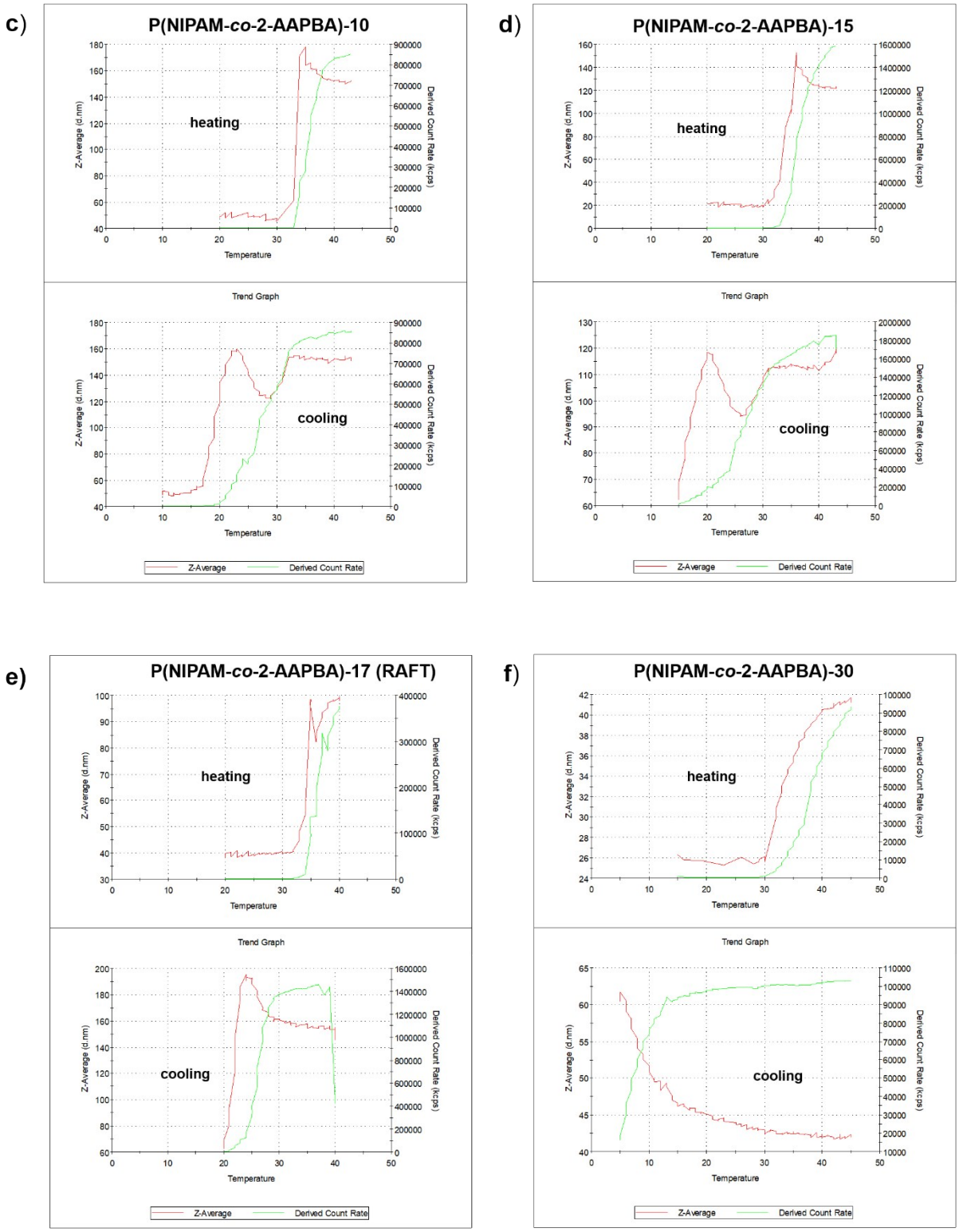


Figure S14. Heating-cooling cycles recorded by DLS for PNIPAM (a) and P(NIPAM-*co*-2-AAPBA)copolymers differing 2-AAPBA molar content (b-f) revealing the phase transition temperatures.

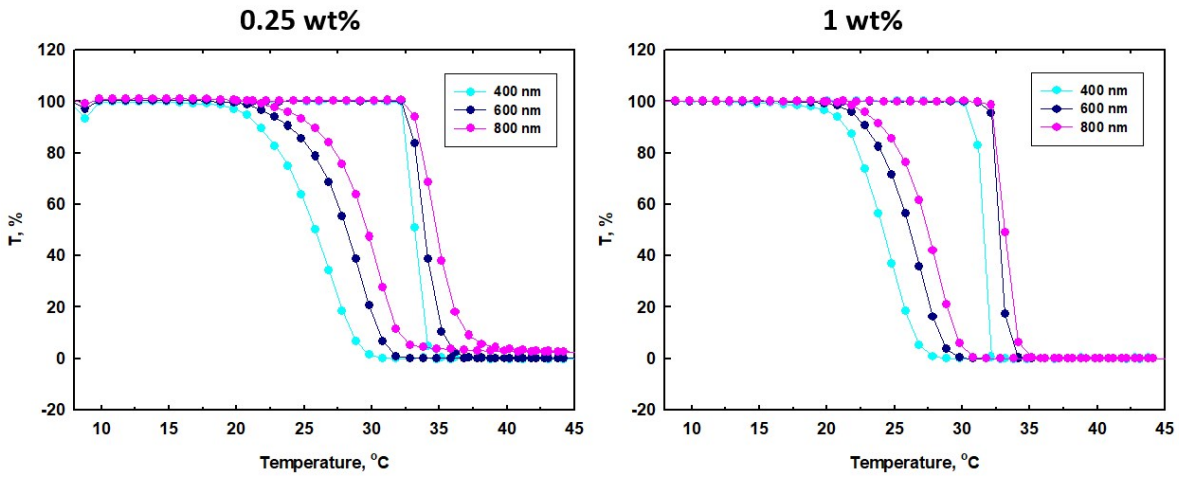


Figure S15. The turbidity experiments recorded for aqueous solutions of P(NIPAM-co-2-AAPBA)_5.

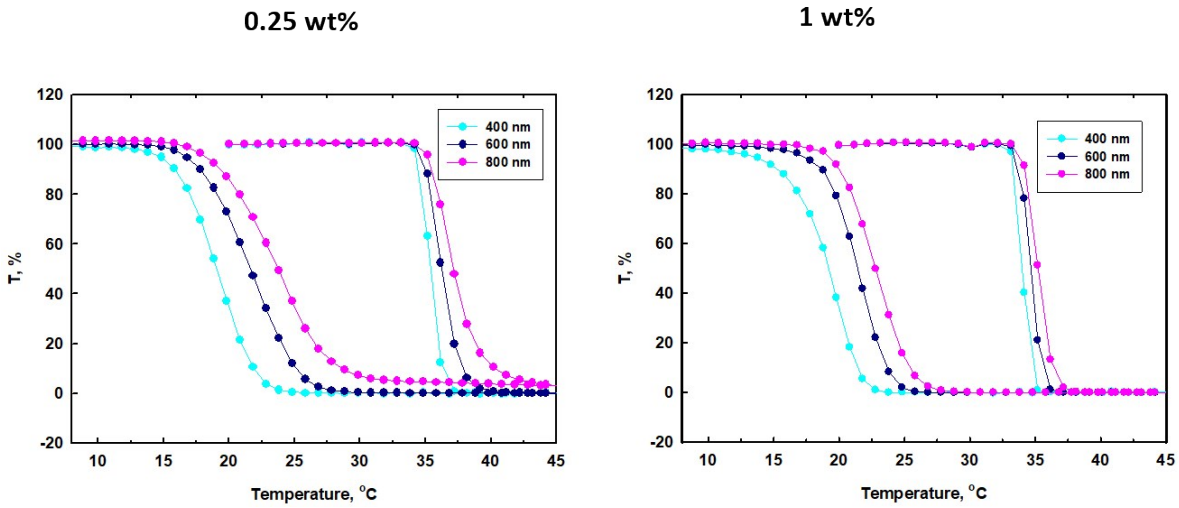


Figure S16. The turbidity experiments recorded for aqueous solutions of P(NIPAM-*co*-2-AAPBA)_15 at the concentration 0.25 and 1.00 wt%, respectively.

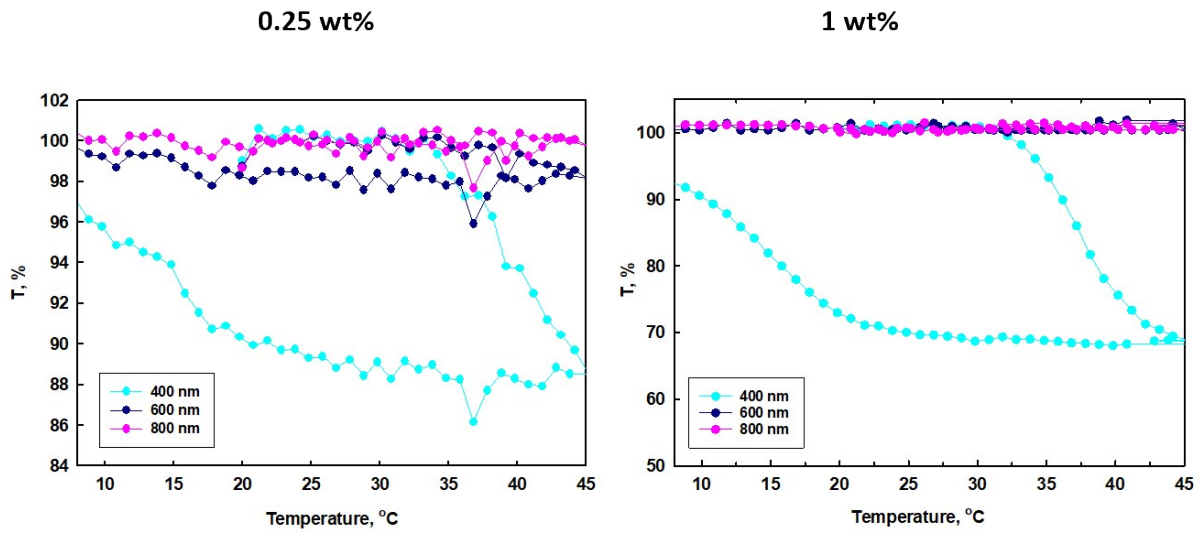


Figure S17. The turbidity experiments recorded for aqueous solutions of P(NIPAM-*co*-2-AAPBA)_30 at the concentration 0.25 and 1.00 wt%, respectively.

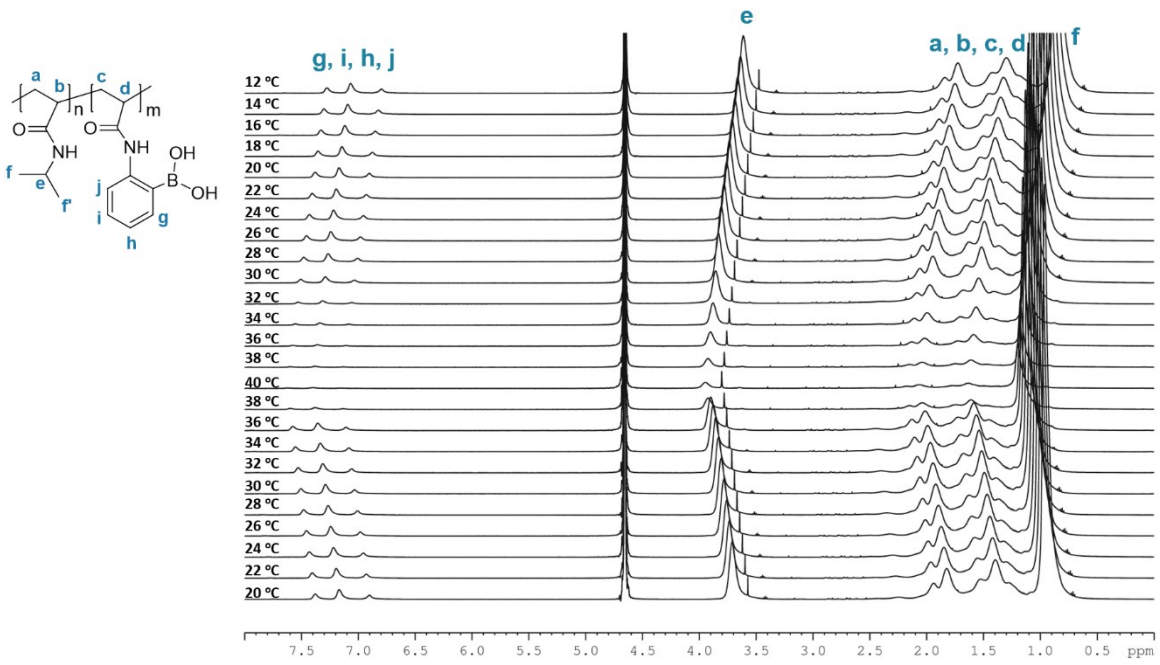


Figure S18. Variable temperature ^{1}H NMR spectra of P(NIPAM-*co*-2-AAPBA)_5 recorded in deuterium oxide.

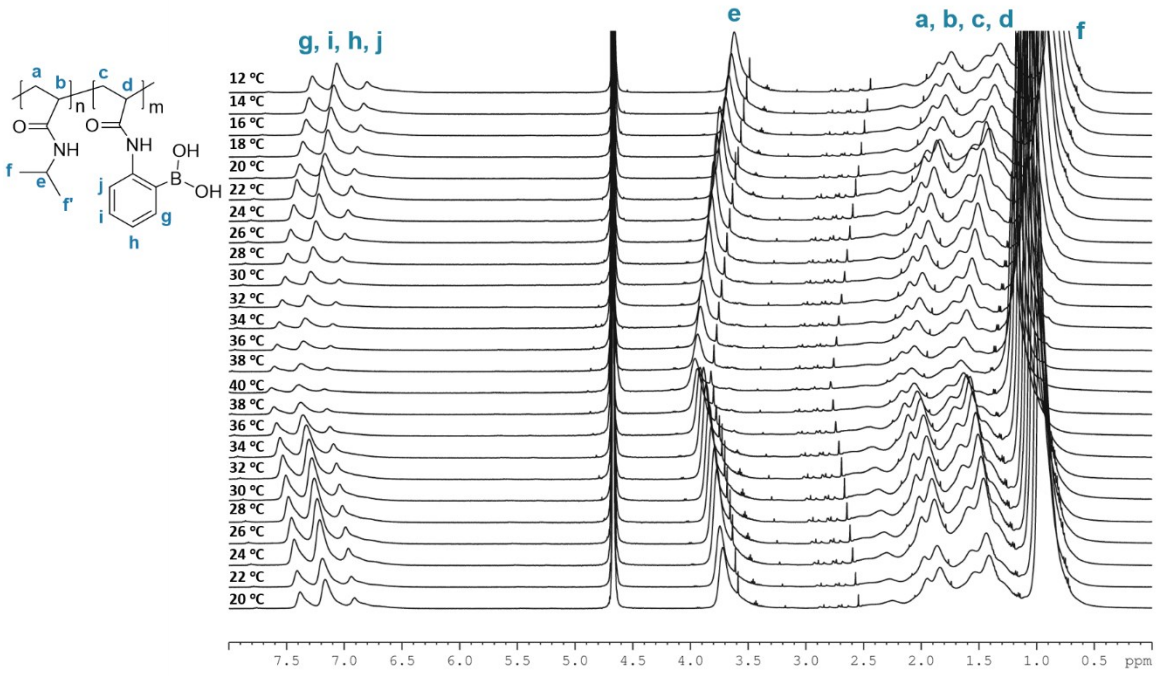


Figure S19. Variable temperature ^{1}H NMR spectra of P(NIPAM-*co*-2-AAPBA)_17 (RAFT) recorded in deuterium oxide.

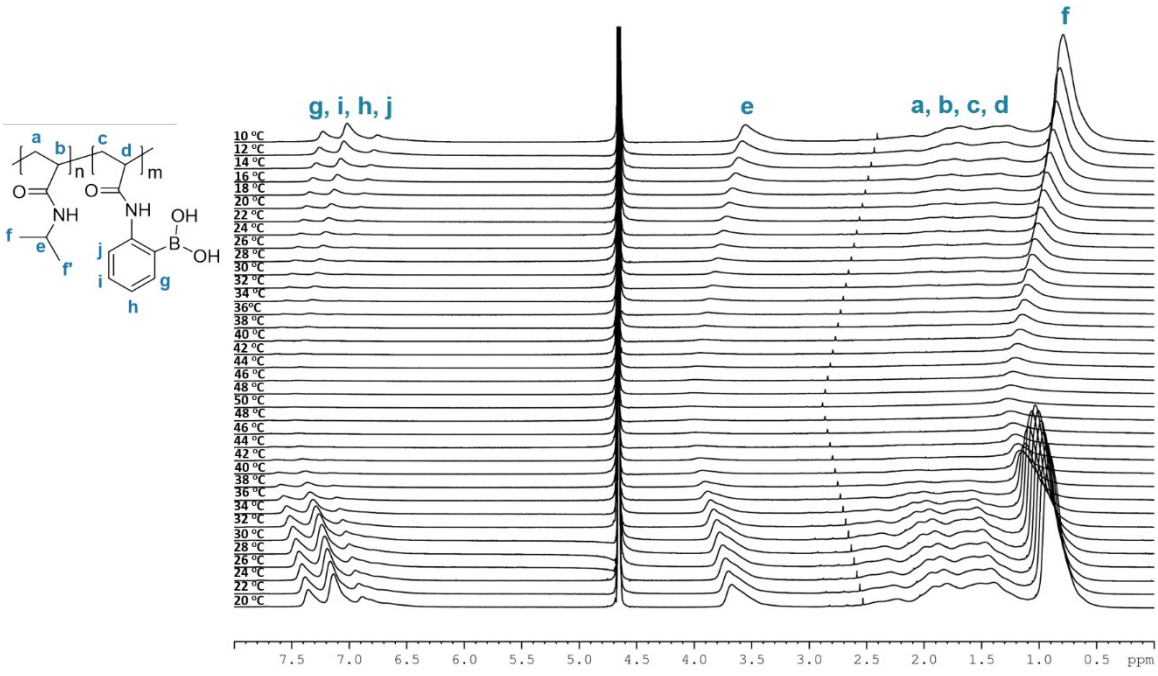


Figure S20. Variable temperature ^{1}H NMR spectra of P(NIPAM-*co*-2-AAPBA)_30 recorded in deuterium oxide.

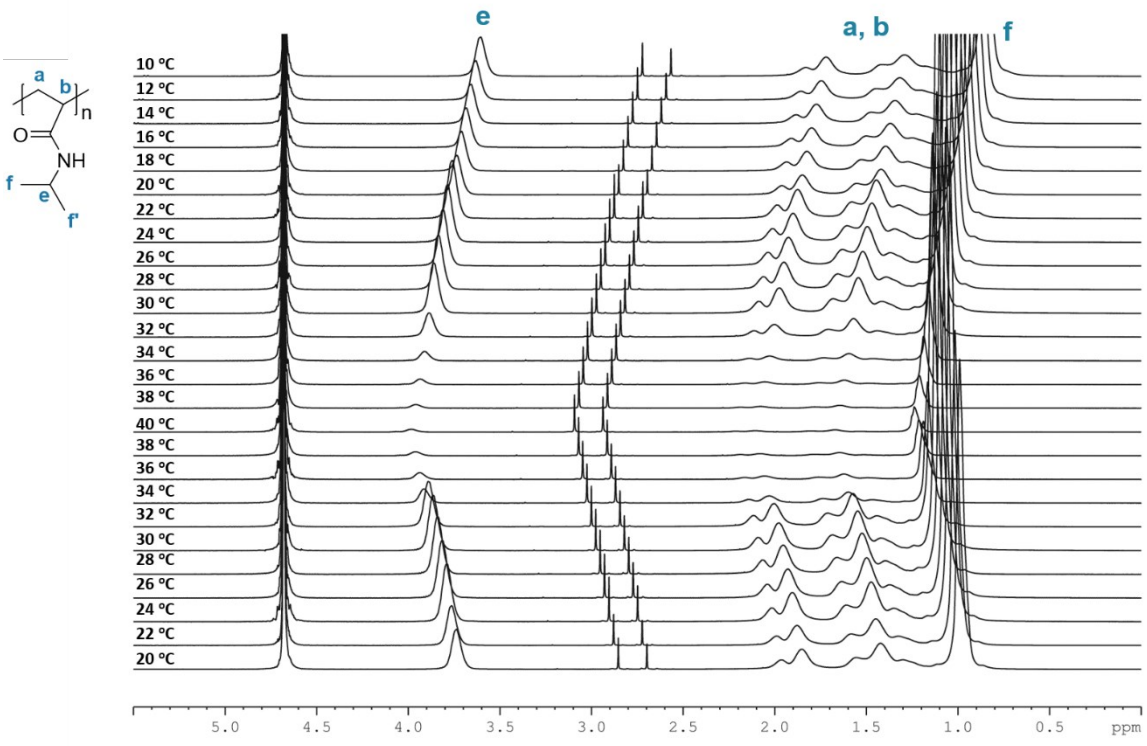


Figure S21. Variable temperature ^{1}H NMR spectra of PNIPAM homopolymer recorded in deuterium oxide.

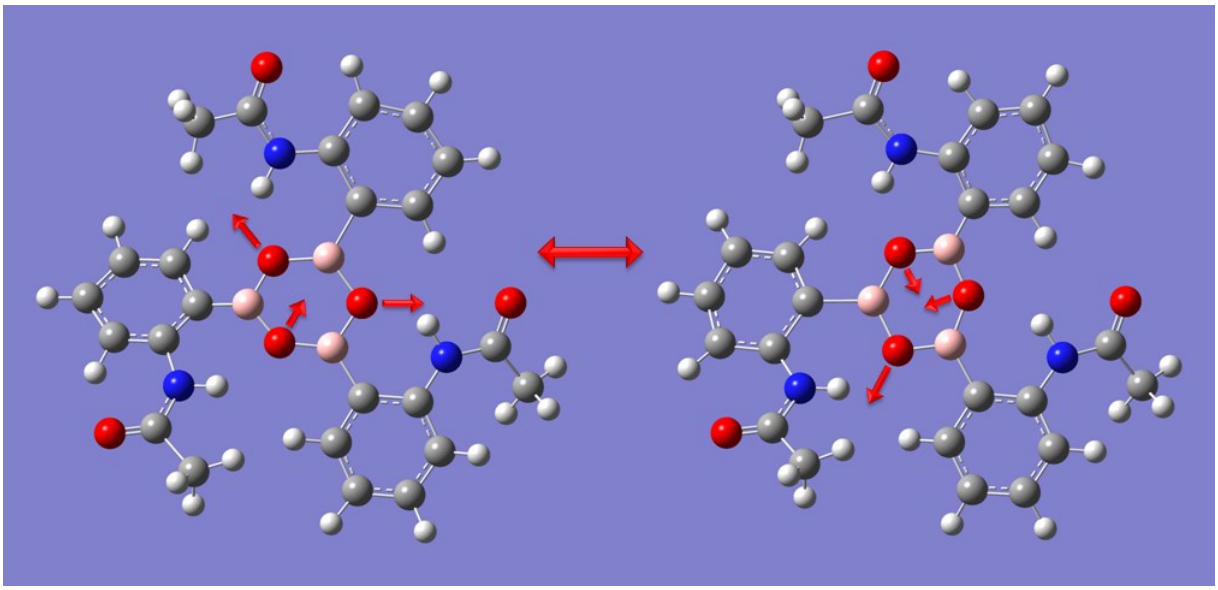


Figure S22. Raman active vibrational mode typical for B_3O_3 in boroxine composed of 2-acetamidephenylboronic acid at 752 cm^{-1}.Boron atoms (pink), oxygen atoms (red), nitrogen atoms (blue), carbon atoms (grey), hydrogen atoms (white).

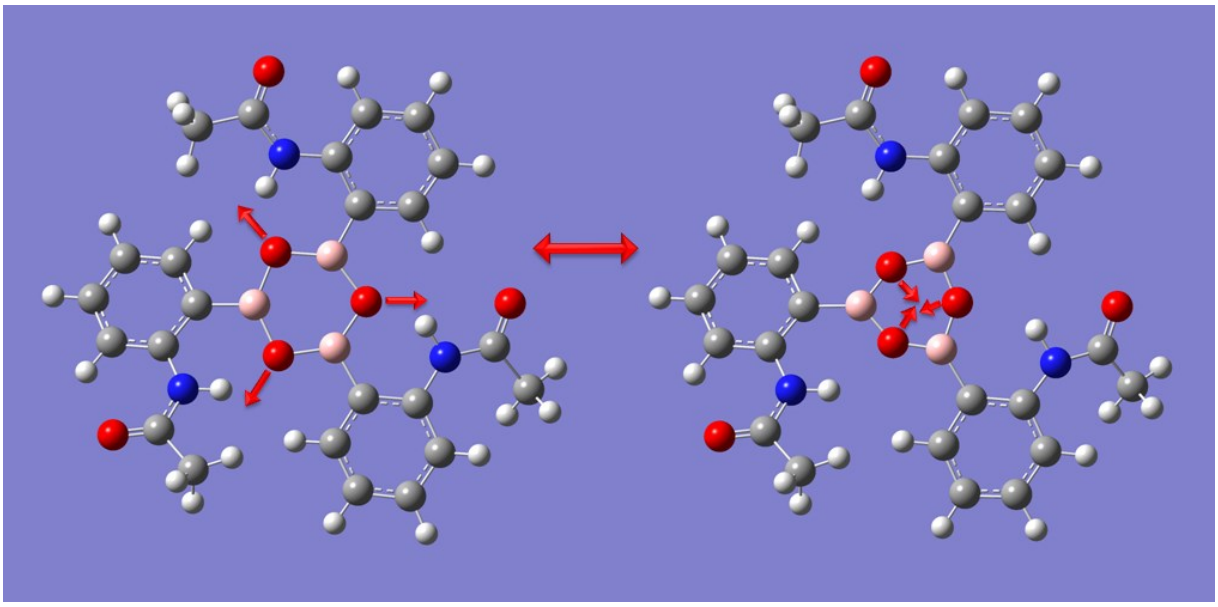


Figure S23. Raman active vibrational mode typical for B_3O_3 in boroxine composed of 2-acetamidephenylboronic acid at 780 cm^{-1}. Boron atoms (pink), oxygen atoms (red), nitrogen atoms (blue), carbon atoms (grey), hydrogen atoms (white).

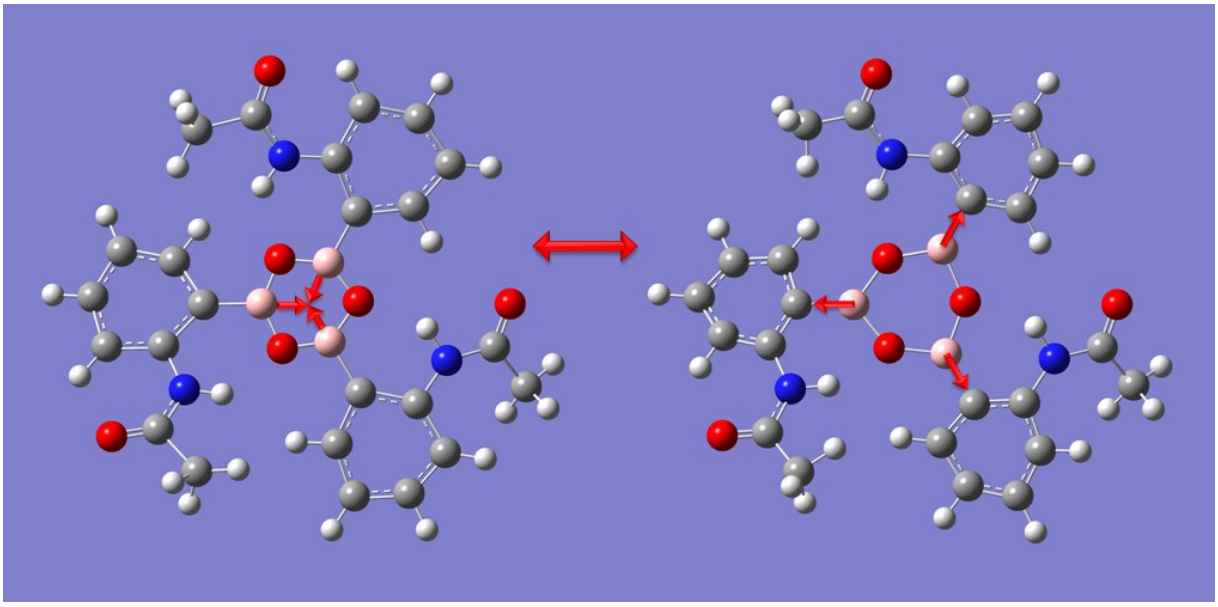


Figure S24. Raman active vibrational mode typical for B_3O_3 in boroxine composed of 2-acetamidephenylboronic acid at **957** cm^{-1}. Boron atoms (pink), oxygen atoms (red), nitrogen atoms (blue), carbon atoms (grey), hydrogen atoms (white).

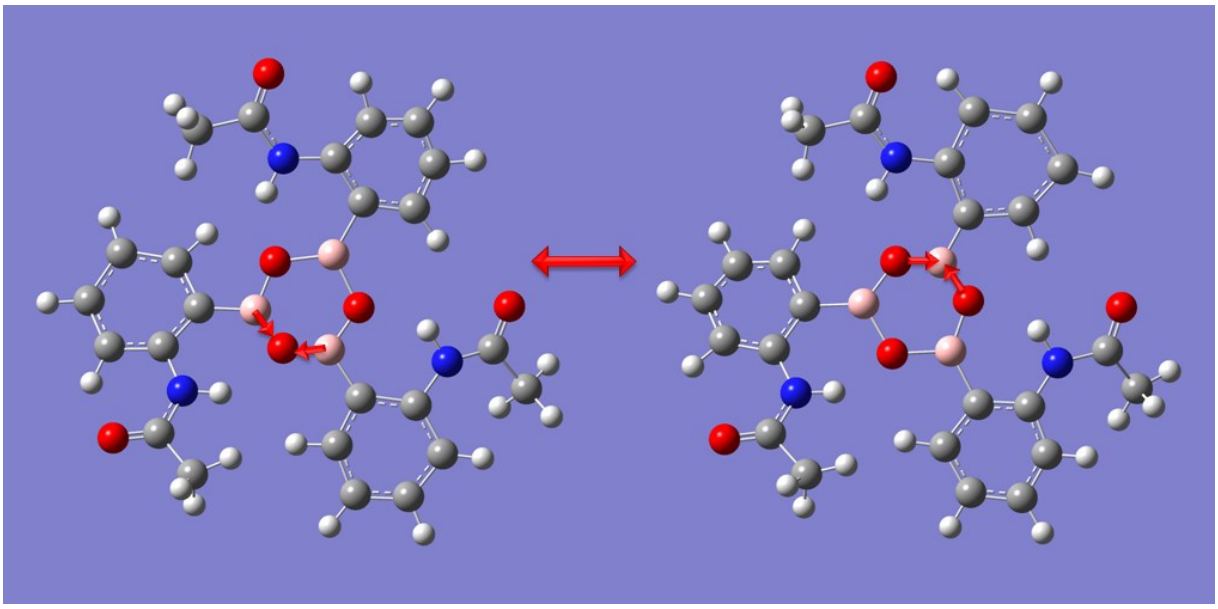


Figure S25. Raman active vibrational mode typical for B_3O_3 in boroxine composed of 2-acetamidephenylboronic acid at **999** cm^{-1}. Boron atoms (pink), oxygen atoms (red), nitrogen atoms (blue), carbon atoms (grey), hydrogen atoms (white).