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Authors: Yifei Fan, Huatang Cao, Frank van Mastrigt, Yutao Pei, Francesco Picchioni



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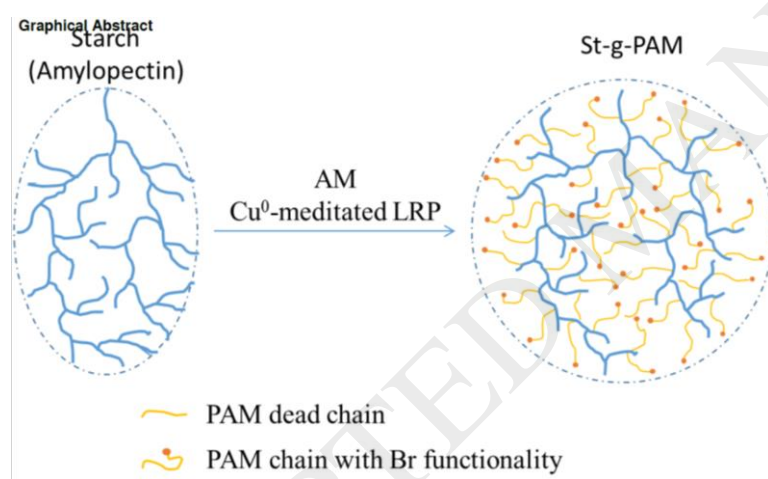
Copper-mediated Homogeneous Living Radical Polymerization of Acrylamide with Waxy Potato Starch-based Macroinitiator

Yifei Fan^a, Huatang Cao^b, Frank van Mastrigt^a, Yutao Pei^b and Francesco Picchioni^{a,*}

^a Department of Chemical Engineering, Engineering and Technology Institute Groningen, University of Groningen, Nijenborgh 4, 9747AG Groningen, The Netherlands

^b Department of Advanced Production Engineering, Engineering and Technology Institute Groningen, University of Groningen, Nijenborgh 4, 9747AG Groningen, The Netherlands

Graphical abstract



Highlights:

- Waxy potato starch-based water-soluble macroinitiator for controlled radical polymerization was synthesized.
- Starch-g-polyacrylamide (St-g-PAM) was synthesized homogeneously in water by Cu⁰-mediated living radical polymerization (Cu⁰-mediated LRP) at 0 °C.
- FT-IR, NMR, SEM, XRD and TGA prove the successful grafting. Difference in the hydrodynamic volume between starch, St-g-PAM and free PAM chains proves, although indirectly, PAM was grafted at the molecular level.
- Primary rheological properties show the performance of St-g-PAM in water could be finely tuned with Cu⁰-mediated LRP.

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