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Electronic Supplementary Information

Smart functional polymer coatings for paper with anti-fouling properties

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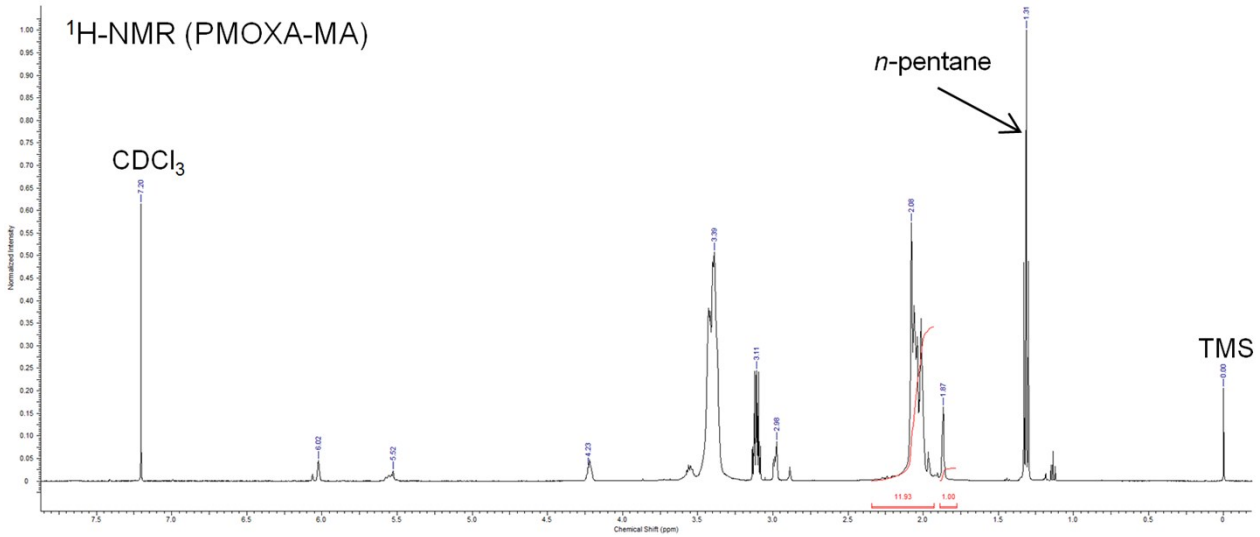
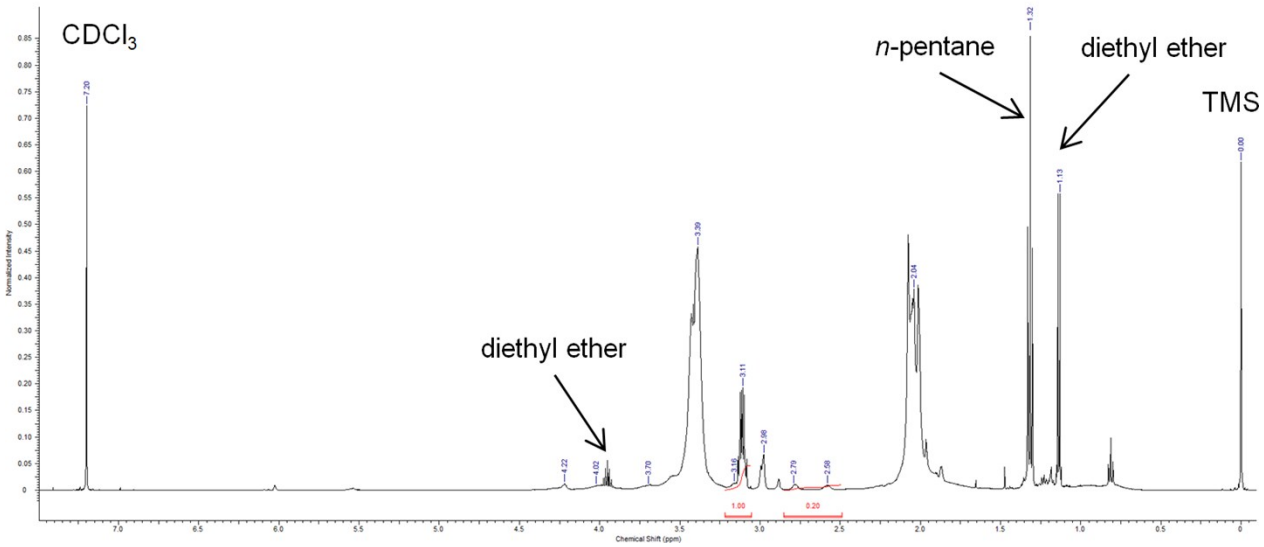
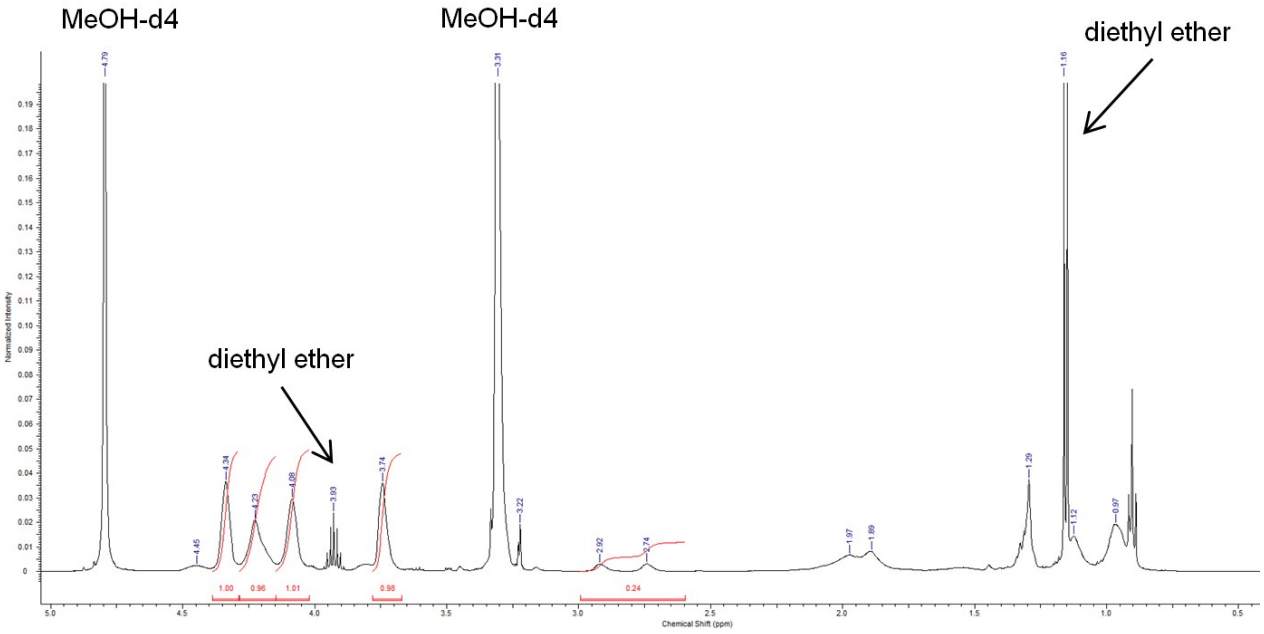
S1 NMR of synthesized polymers

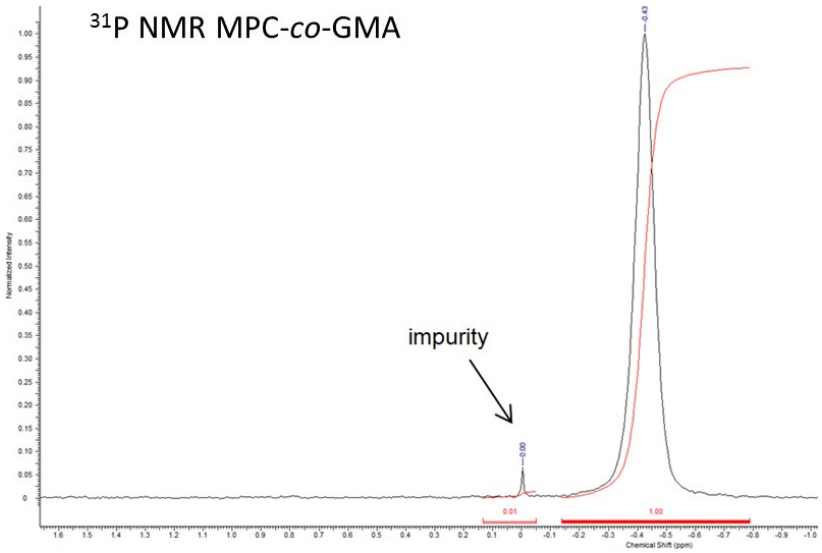


^{1}H NMR PMOXA-*co*-GMA



^{1}H NMR MPC-*co*-GMA





S2 Additional AFM-images of TMSC@SiO_2 and cellulose@SiO_2

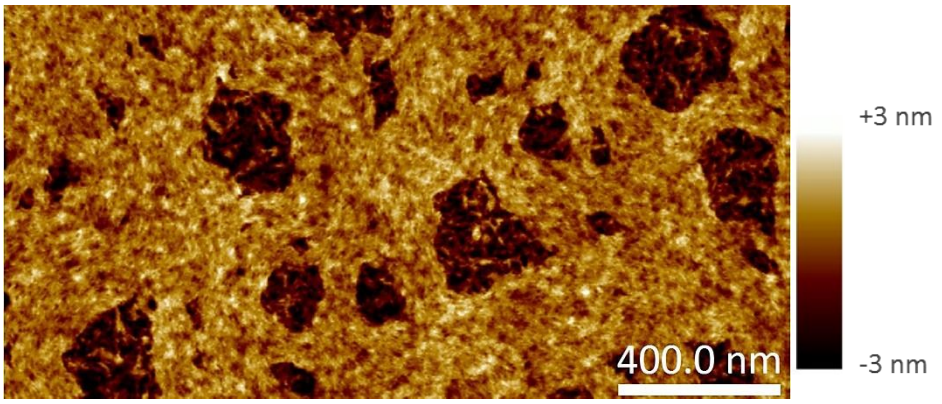


Fig. S 1 AFM-image of TMSC@SiO2 prepared by spin coating of a TMSC-$CHCl_3$ solution.

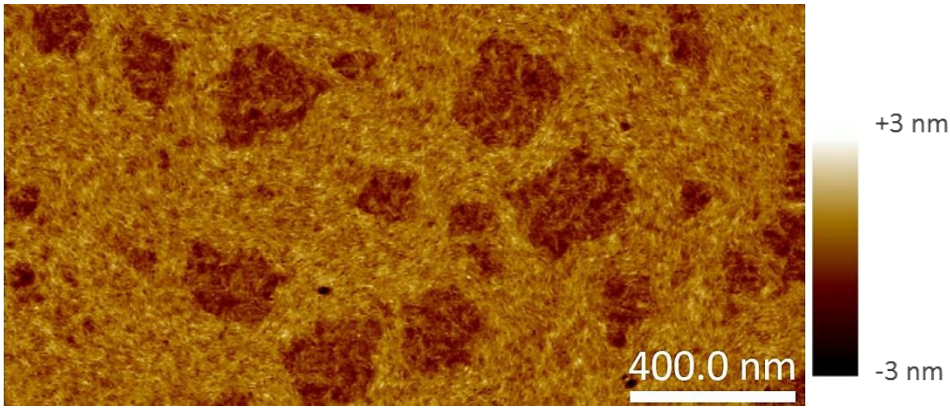


Fig. S 2 AFM-image of cellulose@SiO2 prepared by spin coating of a TMSC-$CHCl_3$ solution.

S3 Swelling behaviour of PMOXA-*co*-GMA and MPC-*co*-GMA grafted on cellulose as well as SiO_2

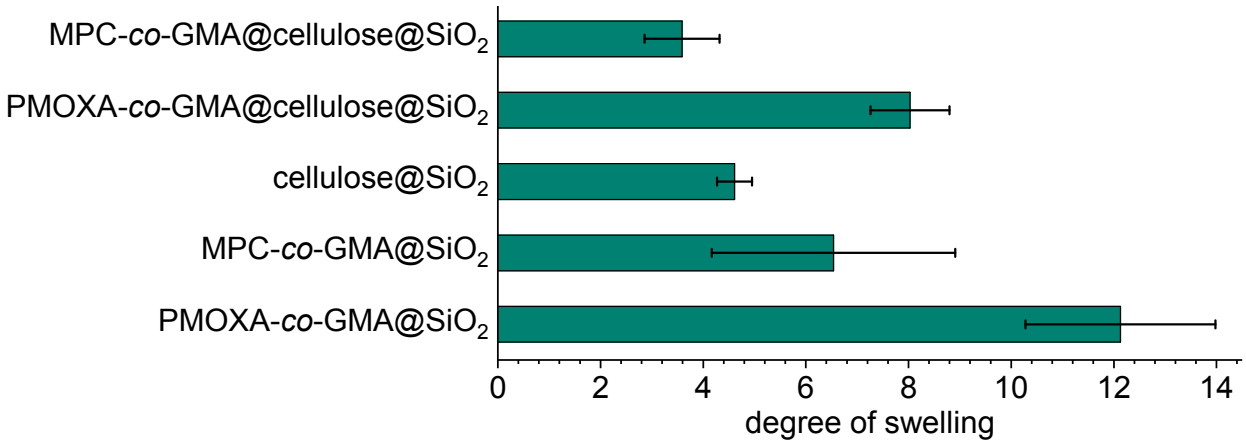


Fig. S 3 Determination of degree of swelling of the investigated polymers MPC-*co*-GMA and PMOXA-*co*-GMA grafted on cellulose@SiO_2 as well as on pure SiO_2 by in-situ ellipsometry using a phosphate puffer with pH 5 and c=0.01 mol L^{-1}.

S4 XPS-measurements of PMOXA-*co*-GMA (2) and MPC-*co*-GMA (3) grafted on SiO_2, cellulose@SiO_2 as well as on filter paper

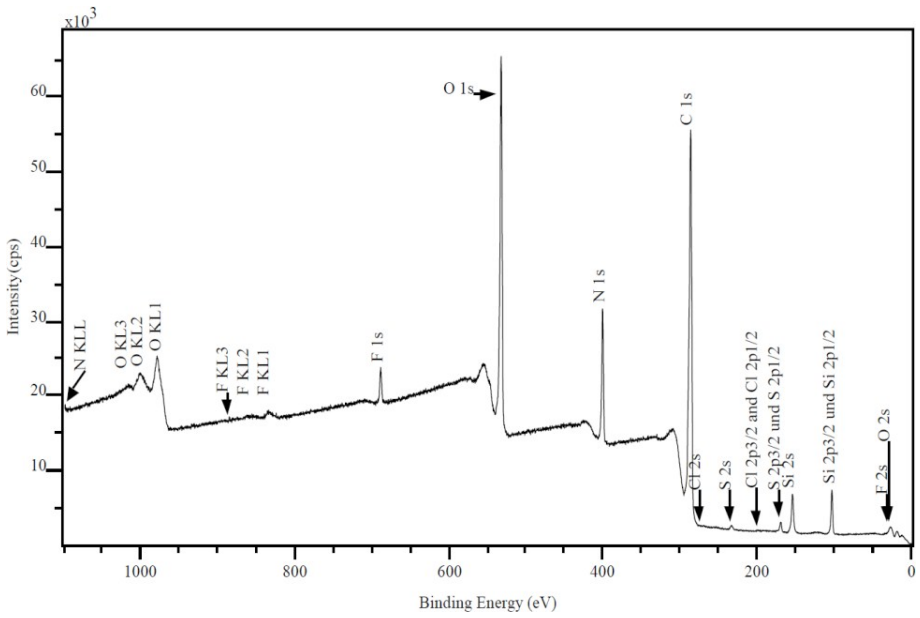


Fig. S 4 Wide-scan spectrum of **(2)**@SiO_2.

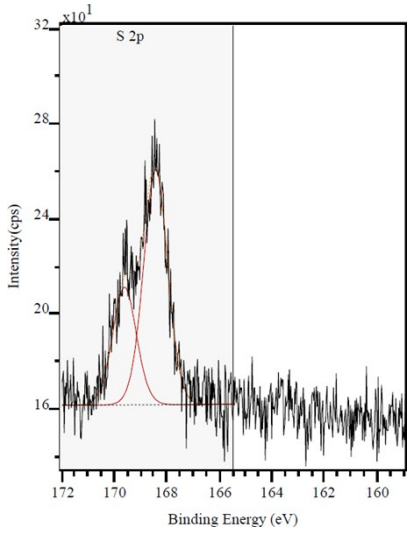


Fig. S 5 S 2p region of the XPS measurement of **(2)**@SiO_2.

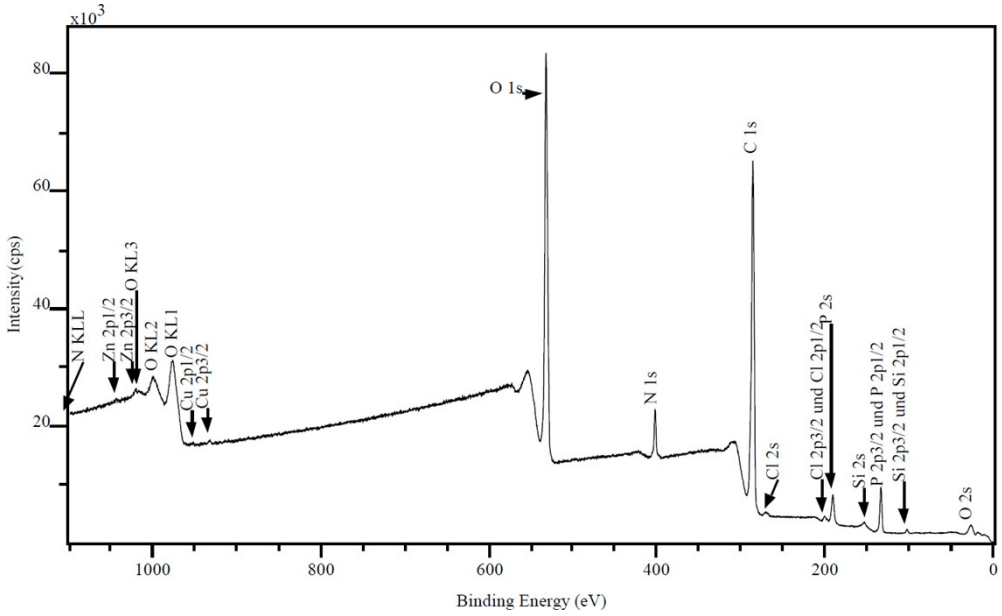


Fig. S 6 Wide-scan spectrum of **(3)**@SiO_2.

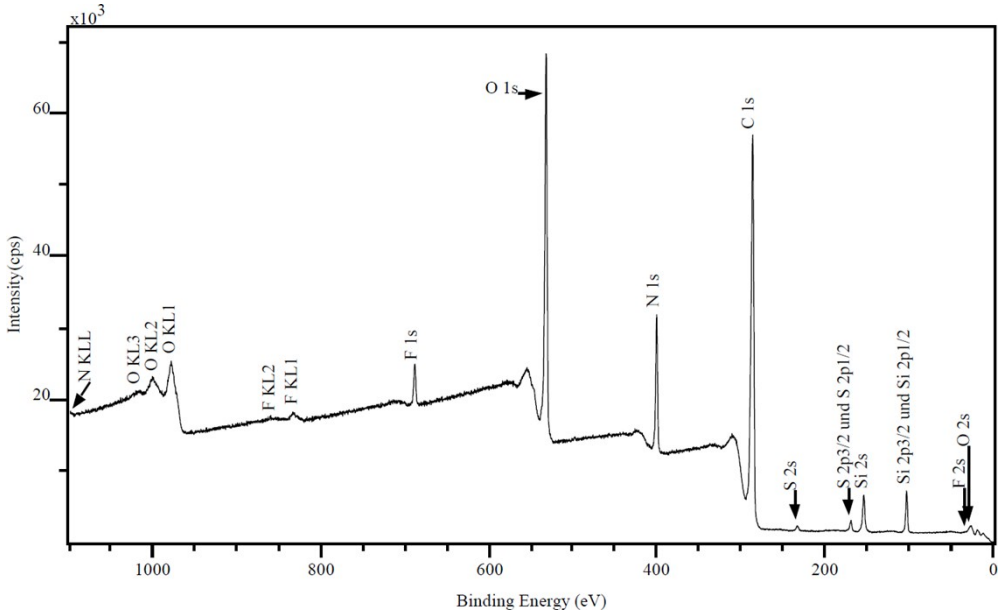


Fig. S 7 Wide-scan spectrum of **(2)**@cellulose@SiO_2.

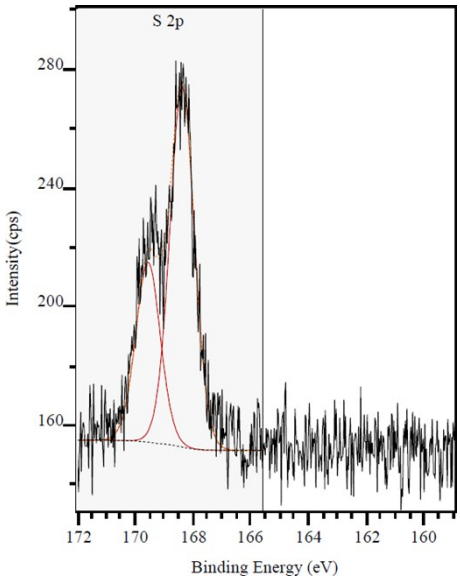


Fig. S 8 S 2p region of the XPS measurement of **(2)**@cellulose@SiO_2.

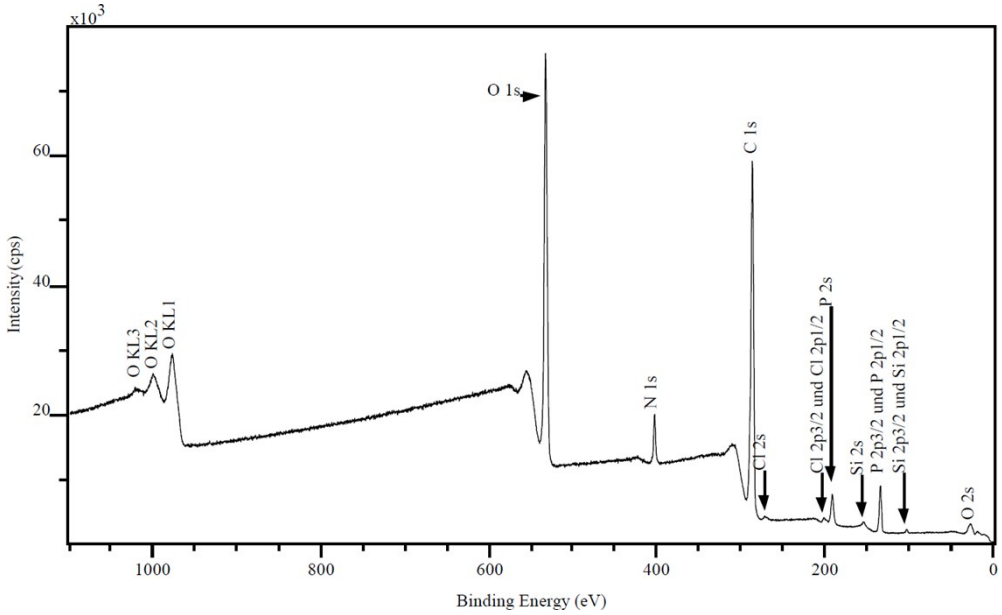


Fig. S 9 Wide-scan spectrum of **(3)**@cellulose@SiO_2.

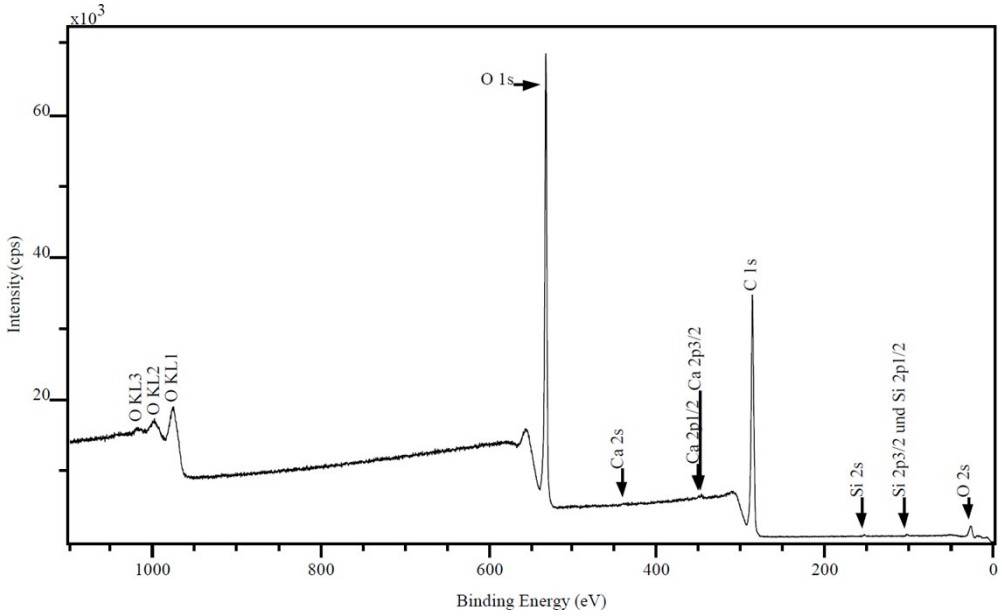


Fig. S 10 Wide-scan spectrum of the used filter paper.

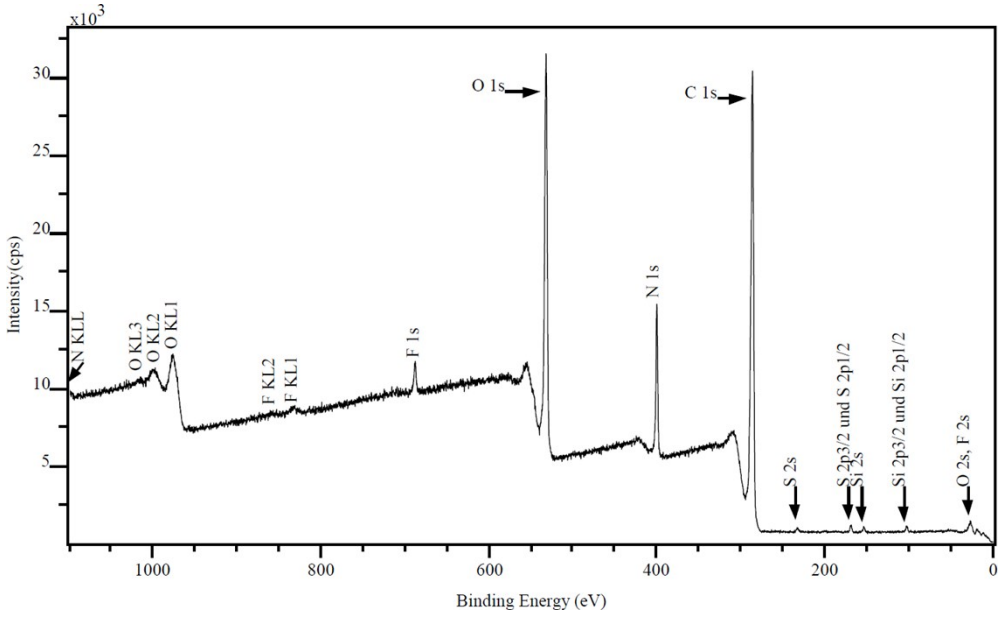


Fig. S 11 Wide-scan spectrum of **(2)**@filter.

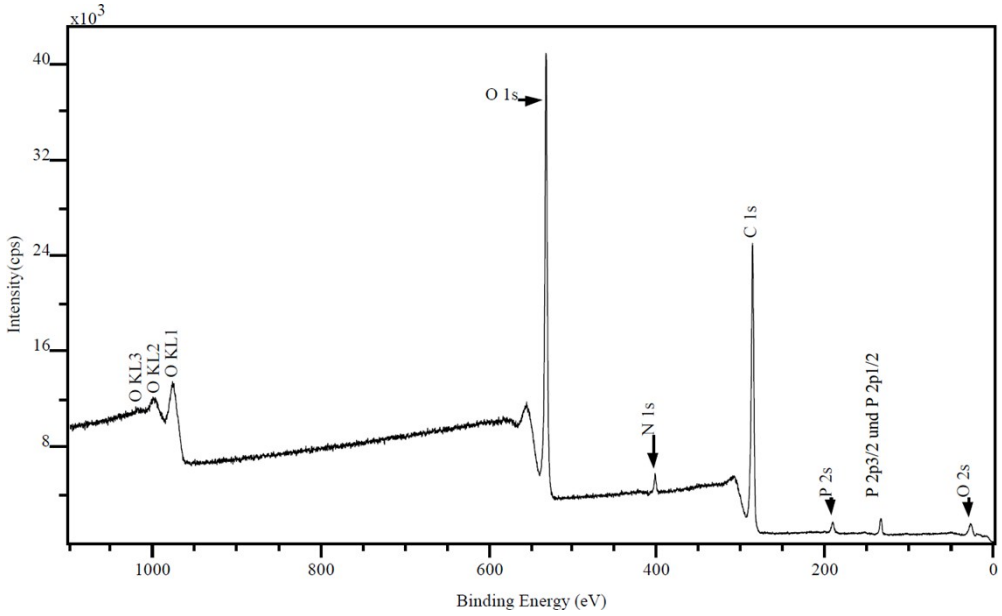


Fig. S 12 Wide-scan spectrum of **(3)**@filter.

S5 pH-stability of polymer coatings

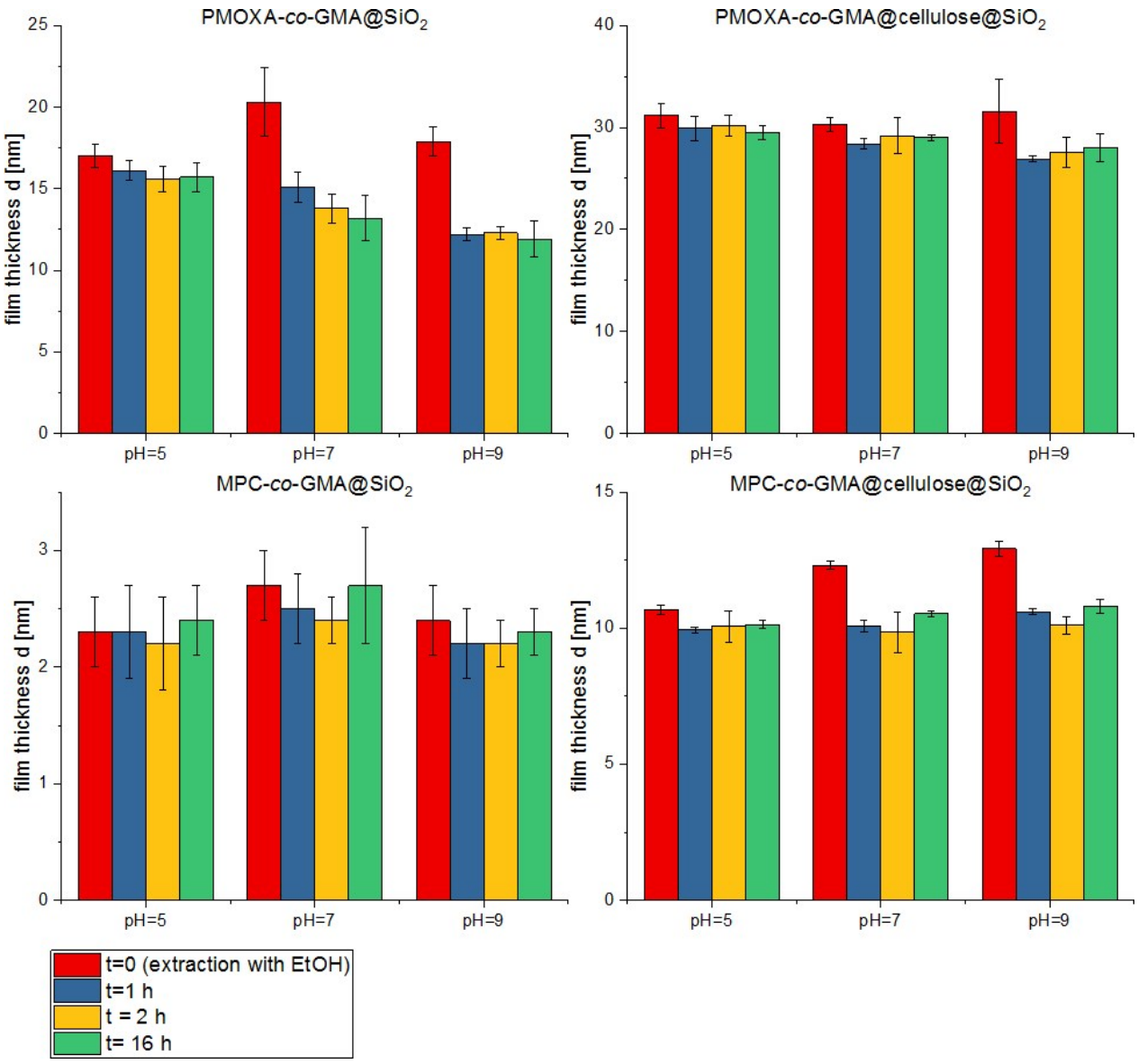


Fig. S 13 Investigation of pH-stability of PMOXA-*co*-GMA on SiO_2 and on cellulose@SiO_2 as well as MPC-*co*-GMA on SiO_2 and cellulose@SiO_2 direct after one, two and 16 hours.