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Supporting Information

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Nanoporous Poly(Melamine Formaldehyde) Networks by Aqueous Dispersion Polycondensation – Synthesis and Adsorption Properties[a]

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[a] **Supporting Information** is available online from the Wiley Online Library or from the author.

1. Photographs of Reaction Mixture & Dispersion

Photographs (from left to right): of the MF oligomer diluted in EtOH; basic reaction mixture upon addition of aqueous LUDOX HS-40 and the final dispersion.

2. Thermogravimetric Analysis

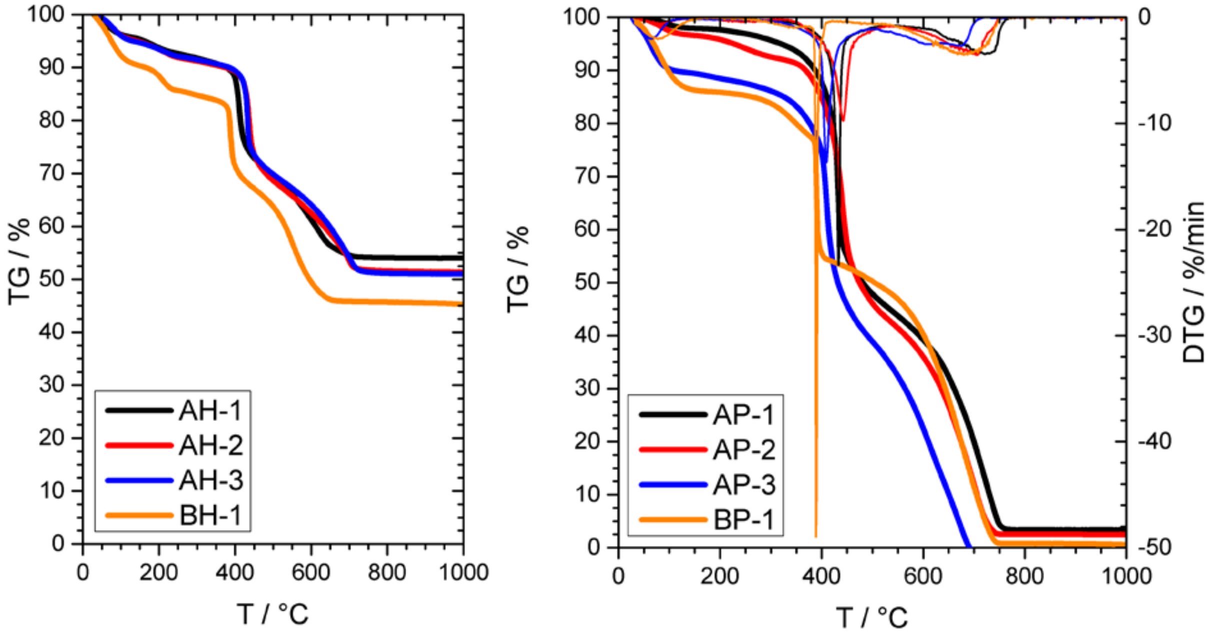


Figure S1. TGA analysis of hybrid (left hand side) and polymer (right hand side, together with DTG curves (thin lines)) materials.

3. AFM microscopy

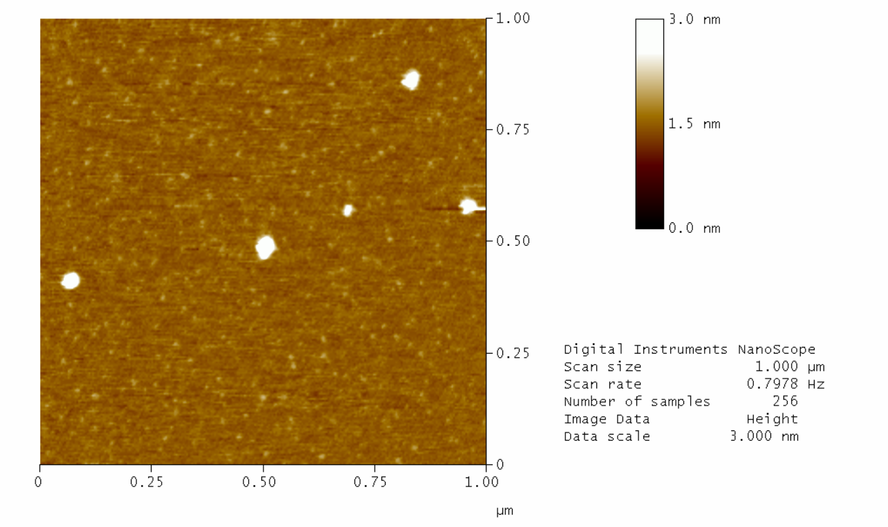


Figure S2. AFM height image of diluted (factor 150), crude disperions of AH-1 type material.

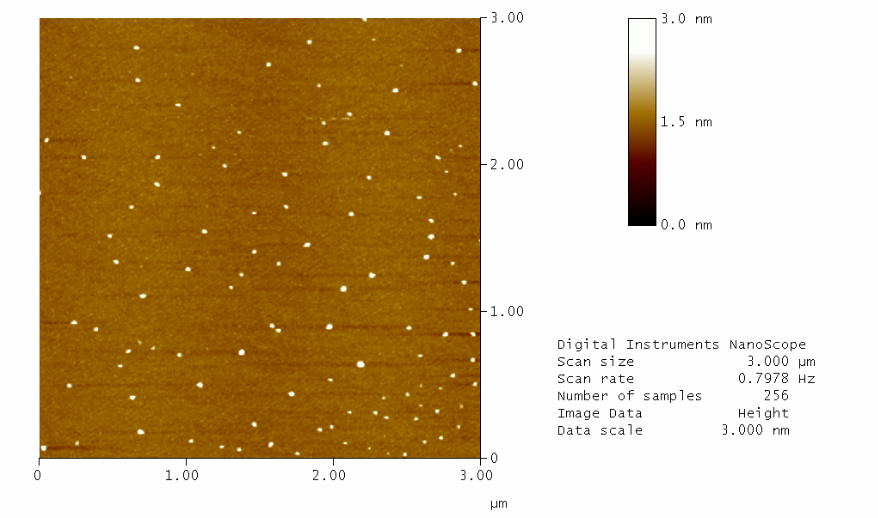


Figure S3. AFM height image of diluted (factor 150), crude disperions of AH-2 type material.

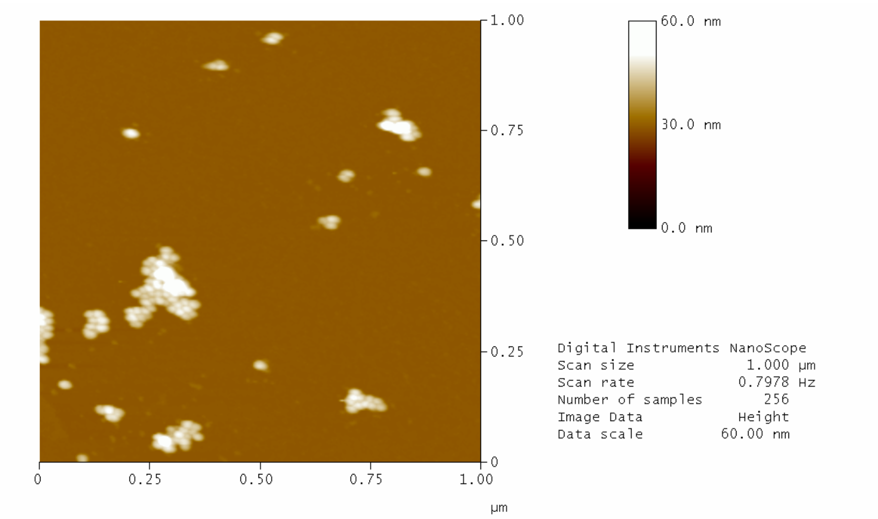


Figure S4. AFM height image of diluted (factor 150), crude disperions of AH-3 type material. Please note the largely different height scaling compared to AH-1 and AH-3

4. Transmission Electron Microscopy

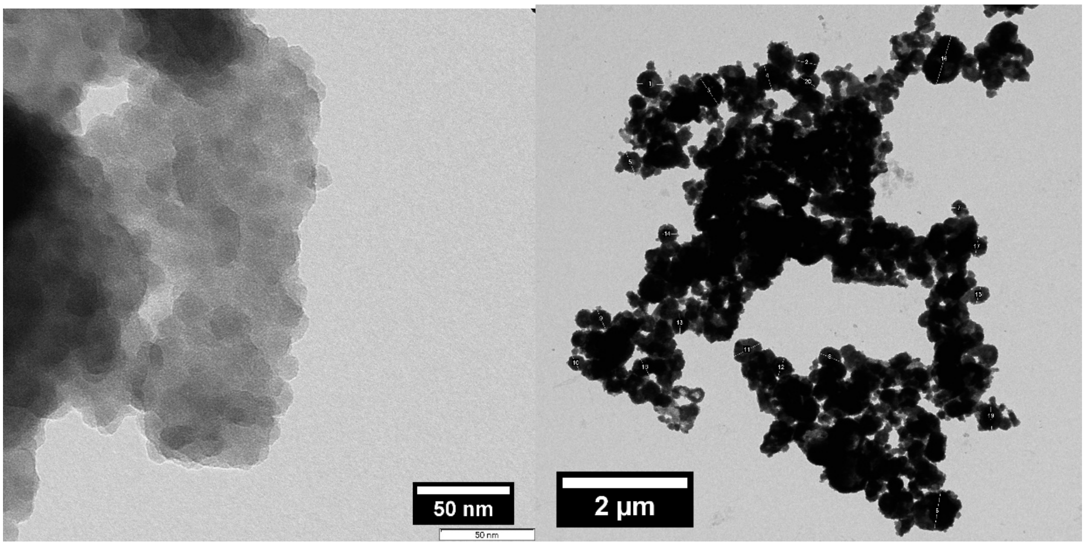


Figure S5. TEM micrographs of crude disperions of AH-1 type material.

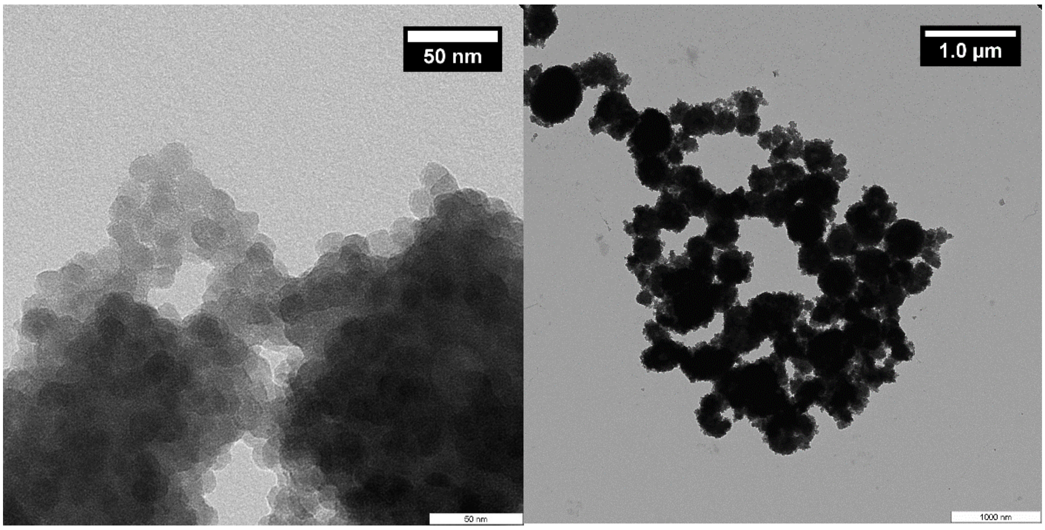


Figure S6. TEM micrographs of crude disperions of AH-2 type material.

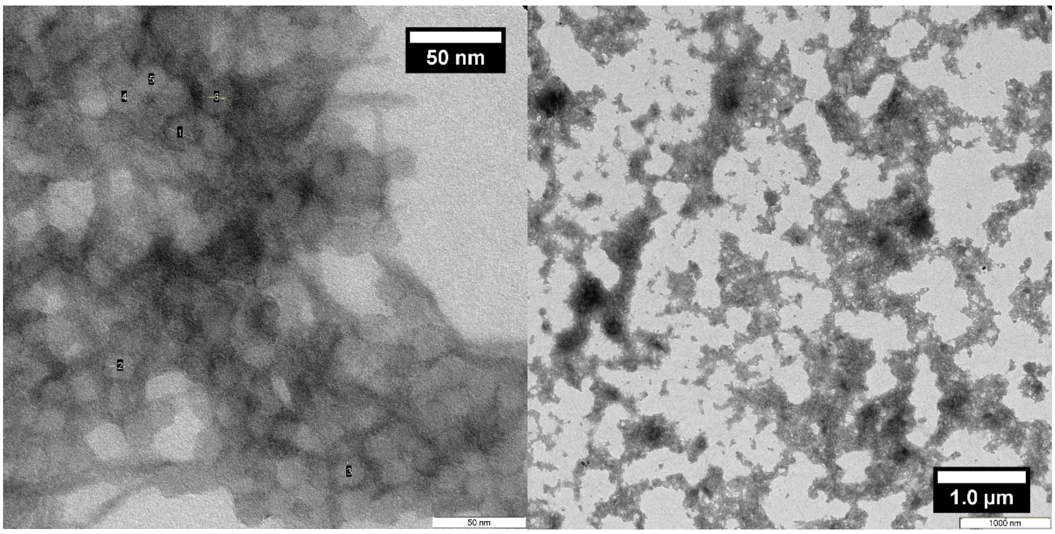


Figure S7. TEM micrographs of crude disperions of AH-3 type material.

5. SAXS Analysis

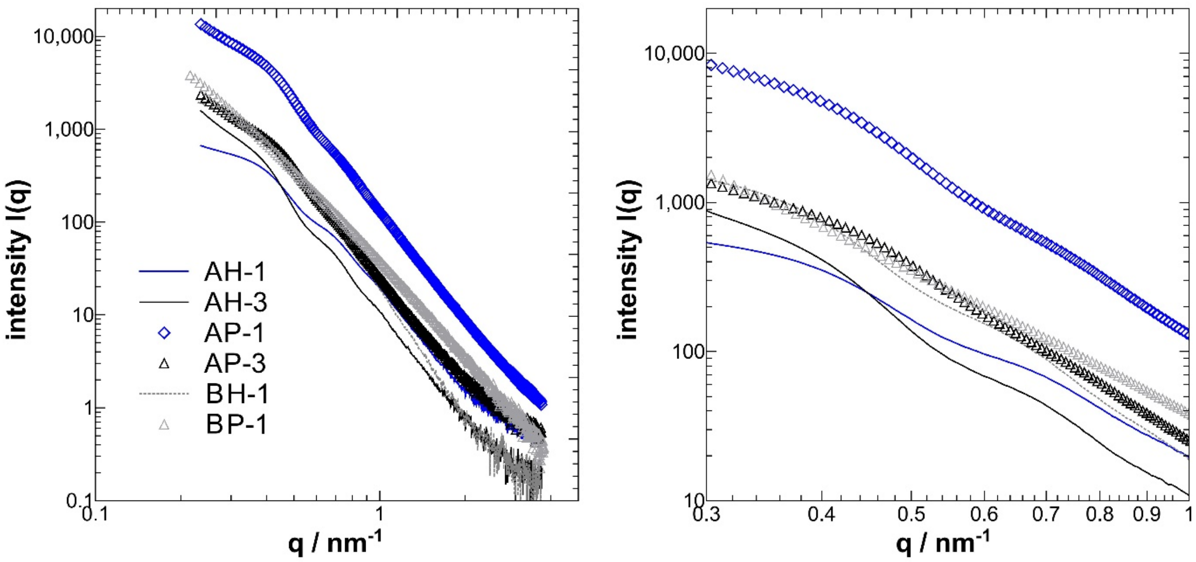


Figure S8. *left-hand side*: SAXS patterns of various materials, *right-hand side*: zoom-in to q-vector 0.3 to 1 nm^{-1}, the difference between the polymeric materials AP-1, AP-3 vs. BP-1 are obvious. While dispersion-type materials show well-defined undulations (between q = 0.4 and q = 1 nm^{-1}) due to the presence of spherical pores, such undulations are not visible anymore for BP-1. Contrary, BP-1 shows a featureless decay of the scattering intensity, indicating the presence of ill-defined pores only.

6. Reproducibility of AP-1

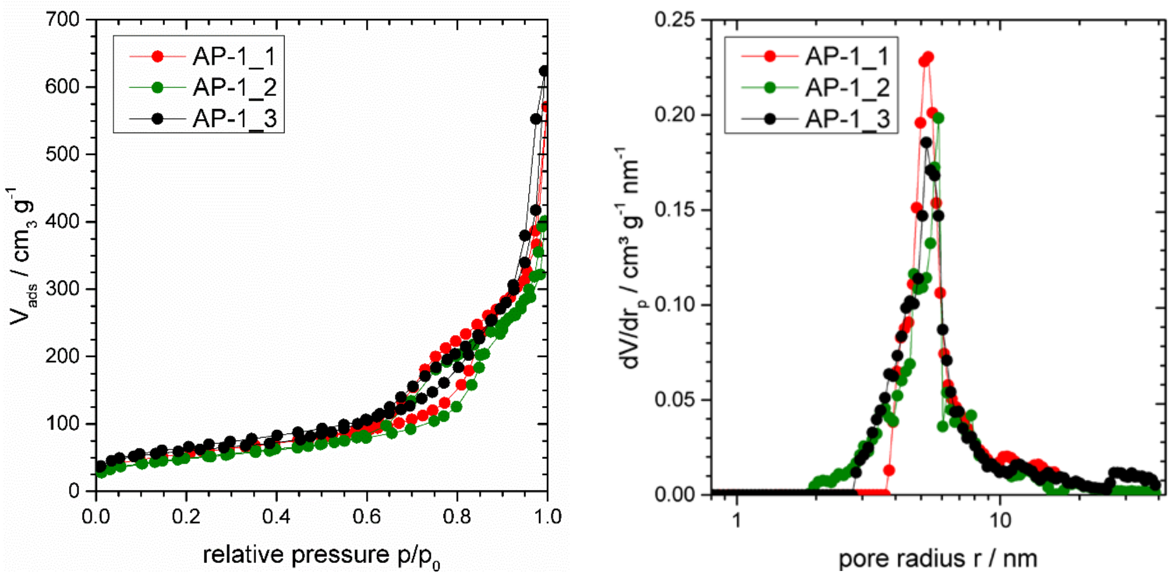


Figure S9. N_2 adsorption/desorption isotherms of three-different batches of AP-1 type materials, showing the good reproducibility of the approach.

7. Upscaling of AP-1:

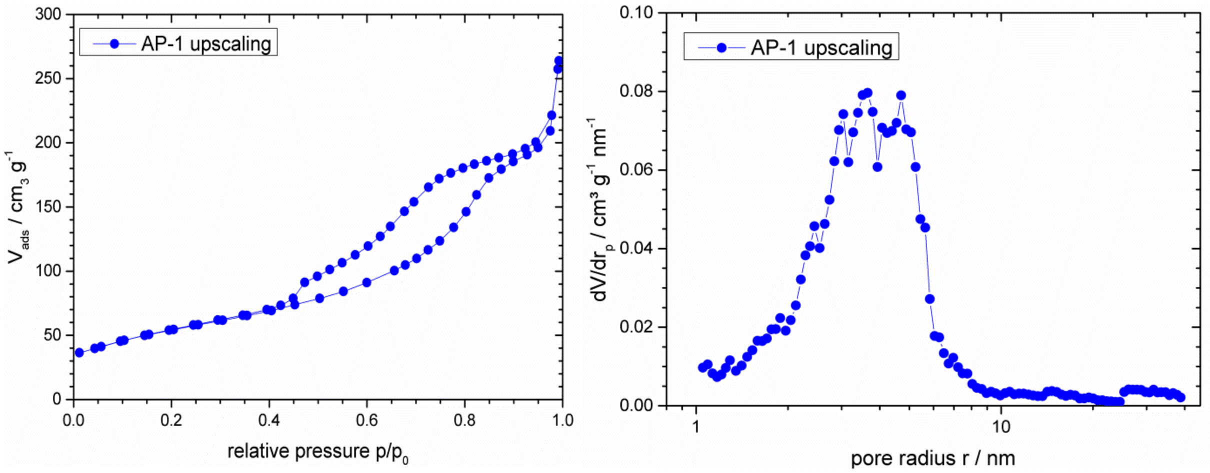
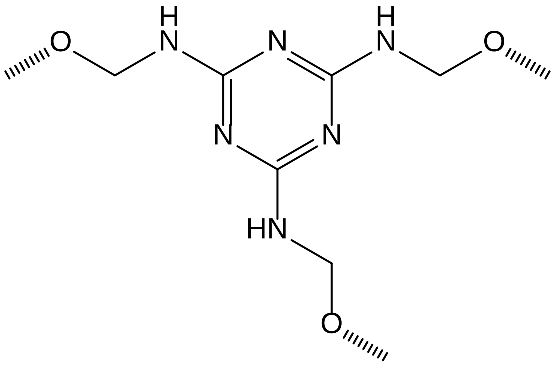
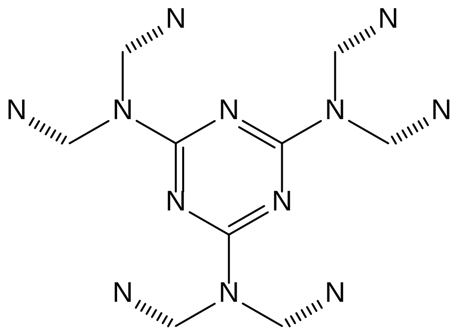


Figure S10. N_2 adsorption/desorption isotherm (77.4 K) an AP-1sample prepared on a 25 g MF oligomer scale and the respective pore size distribution (NLDFT, adsorption, cylinder pores); S_{BET} = 190 m^2/g^{-1}

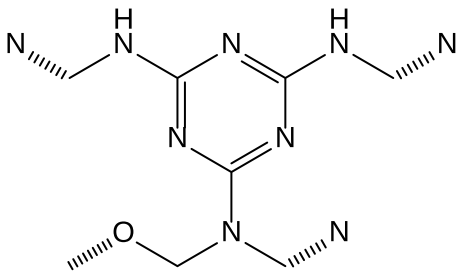
8. Potential chemical structures of MF resins and according C/N ratios



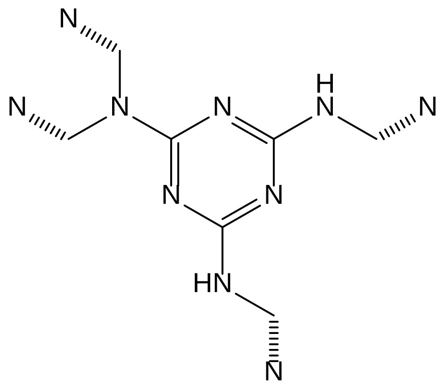
(a) R(C/N) = 1



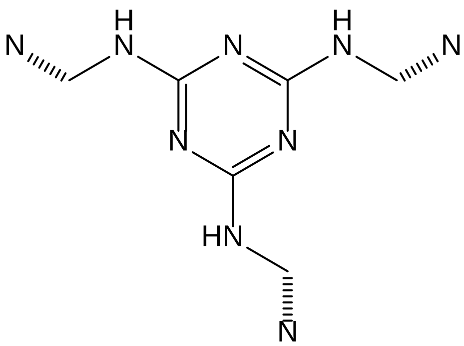
(b) R(C/N) = 1



(c) R(C/N) = 0.92



(d) R(C/N) = 0.83



(e) R(C/N) = 0.75

9. SEM micrographs of AH-3 and AP-3 – magnifications

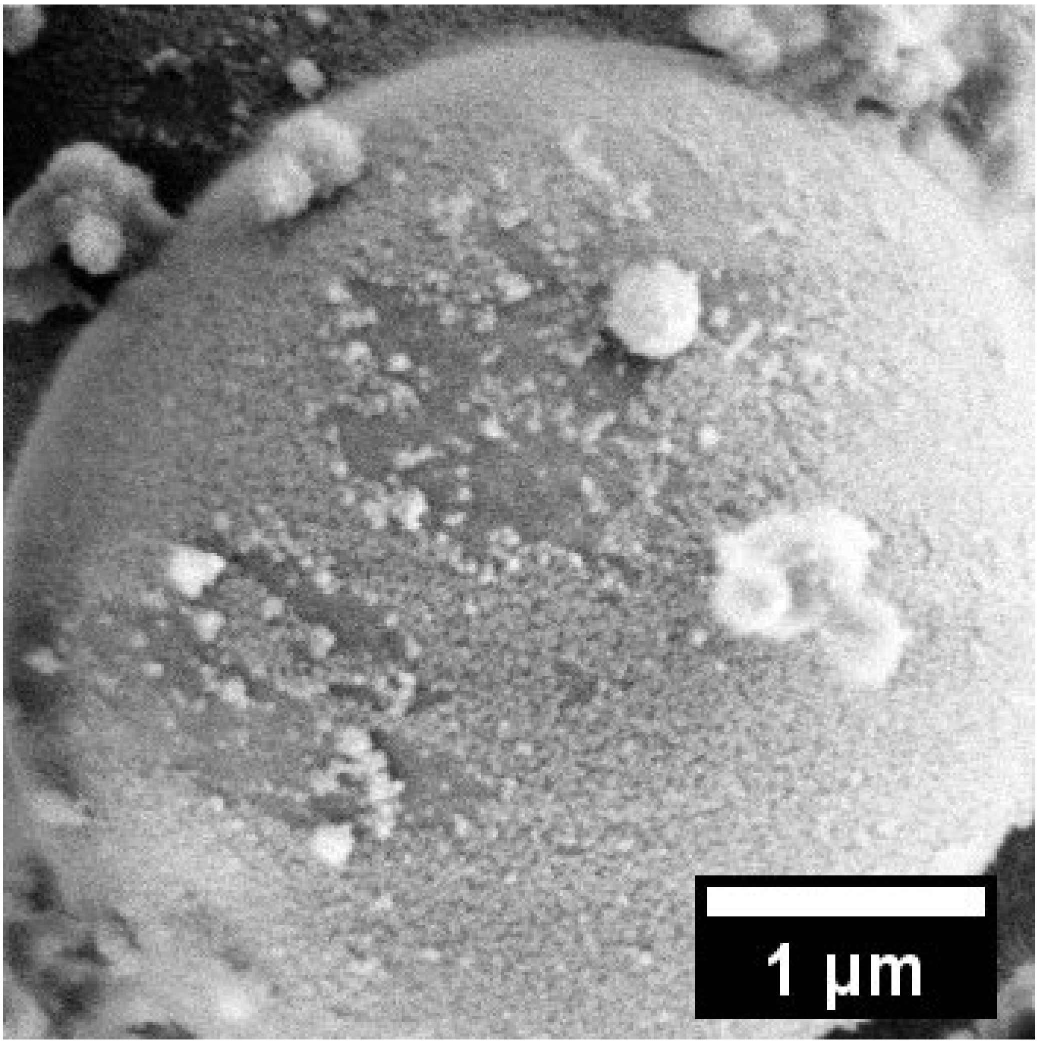


Figure S11. SEM micrograph of selected area of AH-3, the larger MF particle is covered by what is believed to be SiO2 nanoparticles.

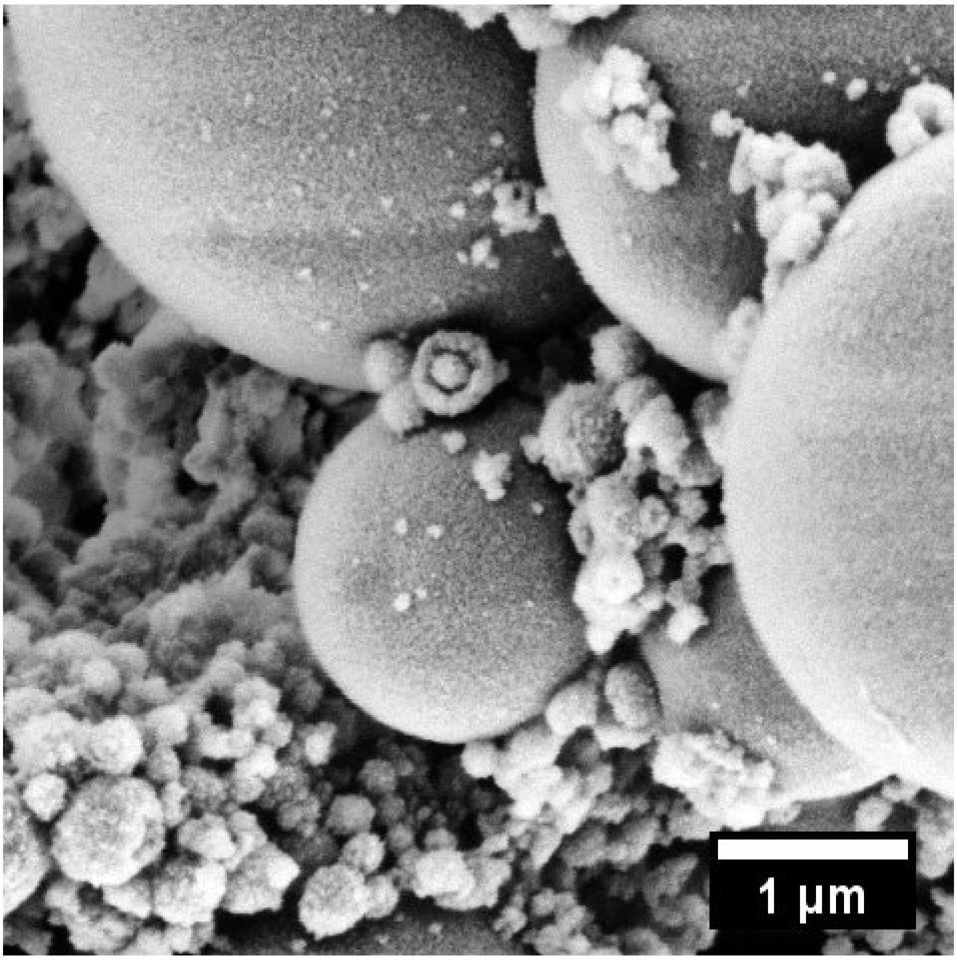


Figure S12. SEM micrograph of AP-3 (as shown in the manuscript), the larger MF particles do not seem to be covered by SiO_2 nanoparticles anymore.