

Supplementary Materials

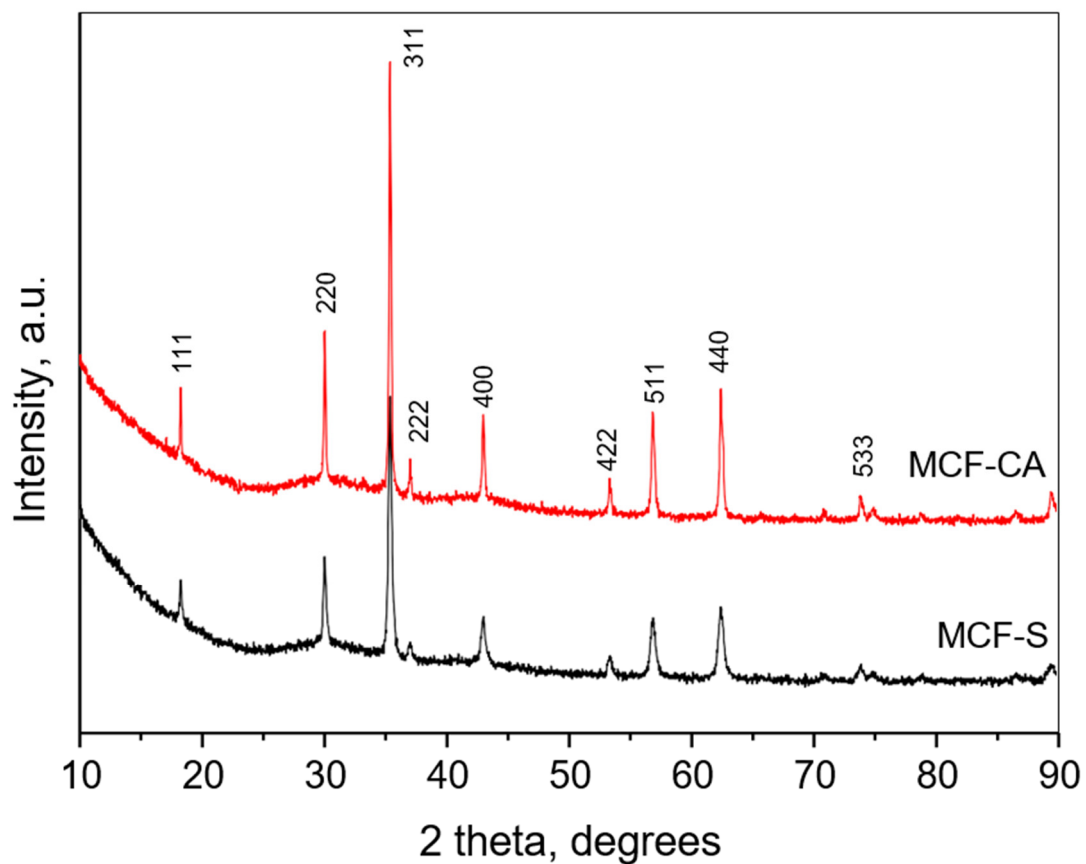


Figure S1. XRD patterns of MCF-S (black) and MCF-CA (red) after the thermal analysis up to 800°C. Crystallites size for MCF-S - 36 nm, unit cell parameter $a=8.4163(8)$ Å, Crystallites size for MCF-CA - 77 nm, unit cell parameter $a=8.4113(4)$ Å

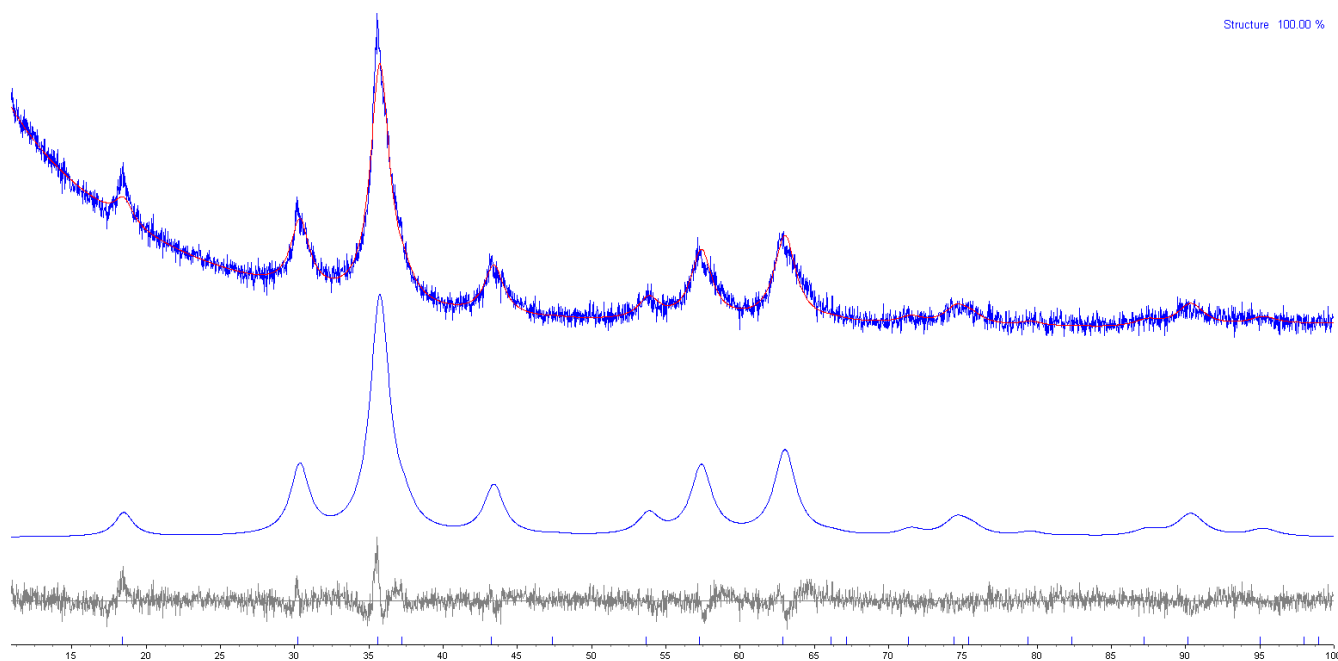


Figure S2. Rietveld plot of the MCF-S using one spinel phase. Upper blue line – experimental, red and lower blue line-calculated and grey line-difference plot.

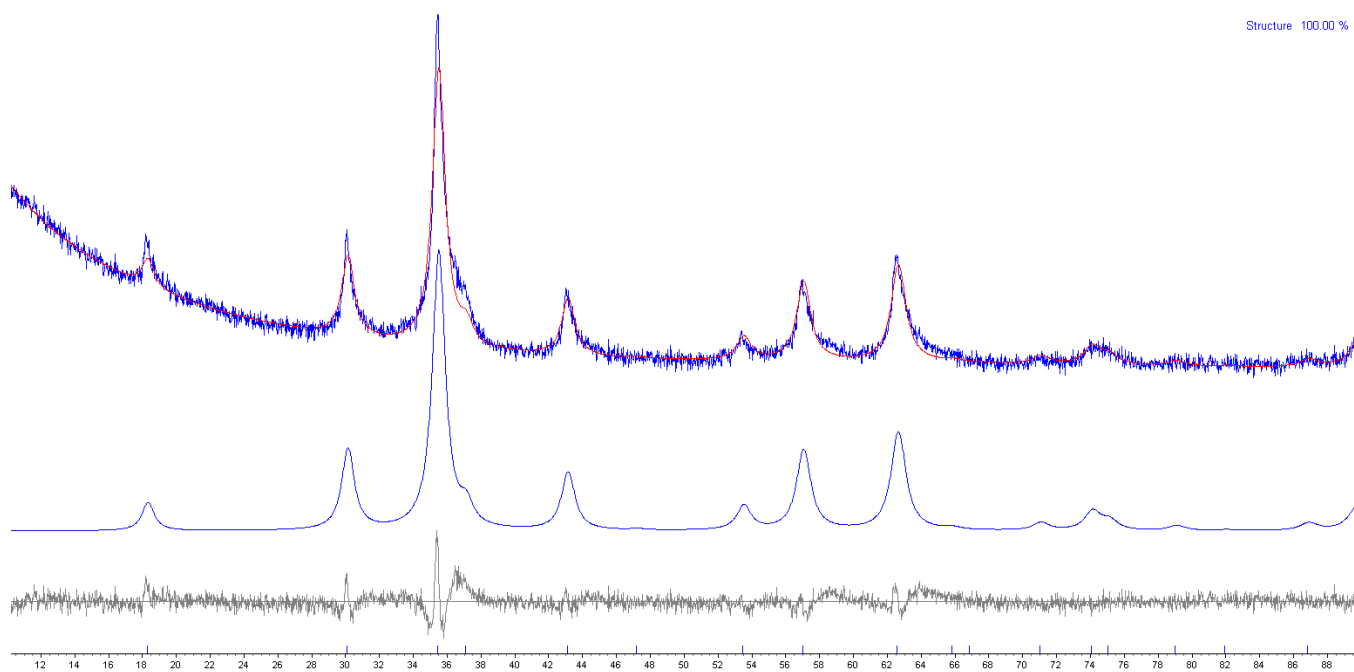


Figure S3. Rietveld plot of the MCF-CA using one spinel phase. Upper blue line – experimental, red and lower blue line-calculated and grey line-difference plot.

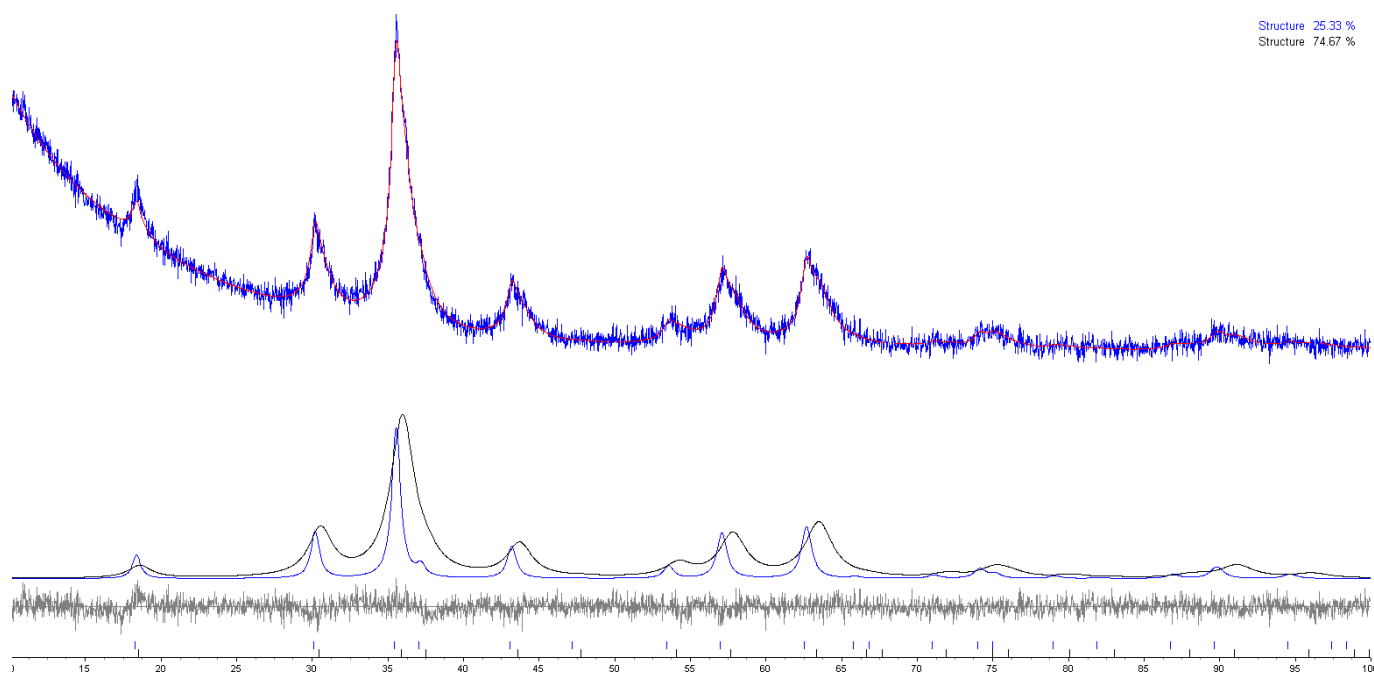


Figure S4. Rietveld plot of the MCF-S using two spinel phase. Upper blue line – experimental, red line – sum of the calculated, lower blue and black line-calculated and grey line-difference plot.

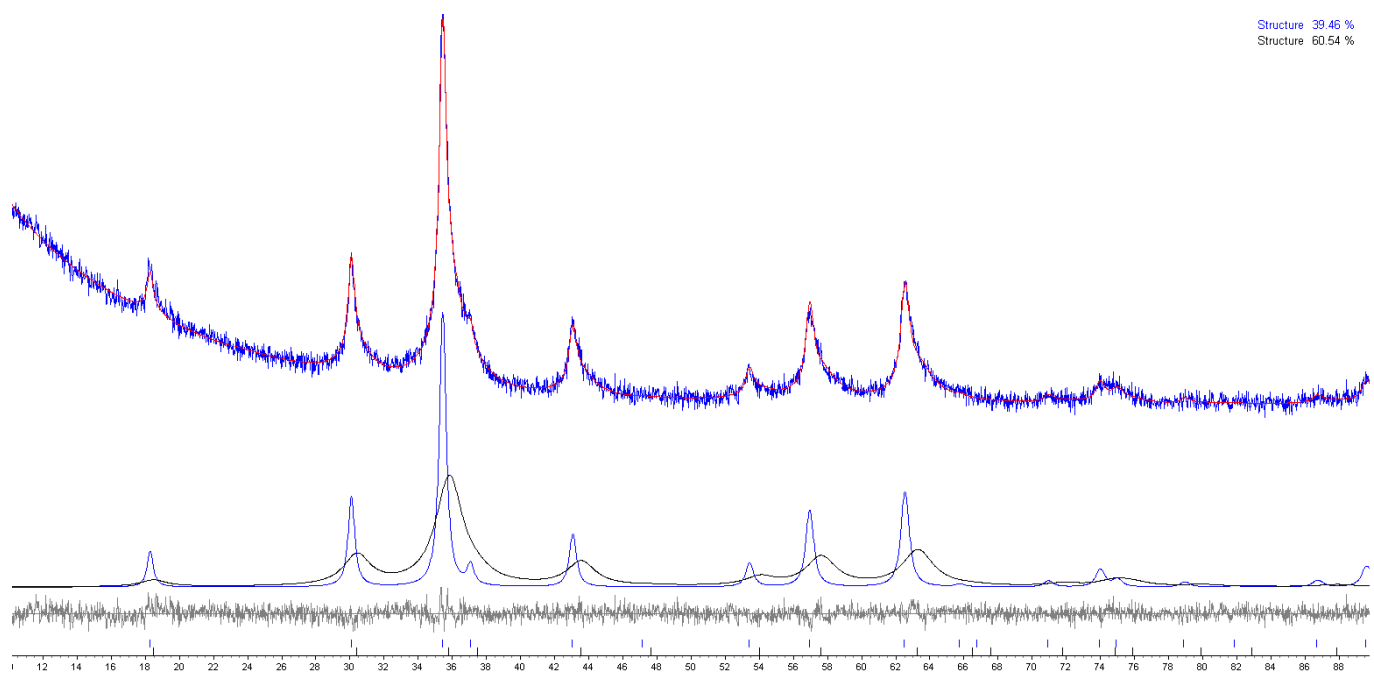


Figure S5. Rietveld plot of the MCF-CA using two spinel phase. Upper blue line – experimental, red line – sum of the calculated, lower blue and black line-calculated and grey line-difference plot.

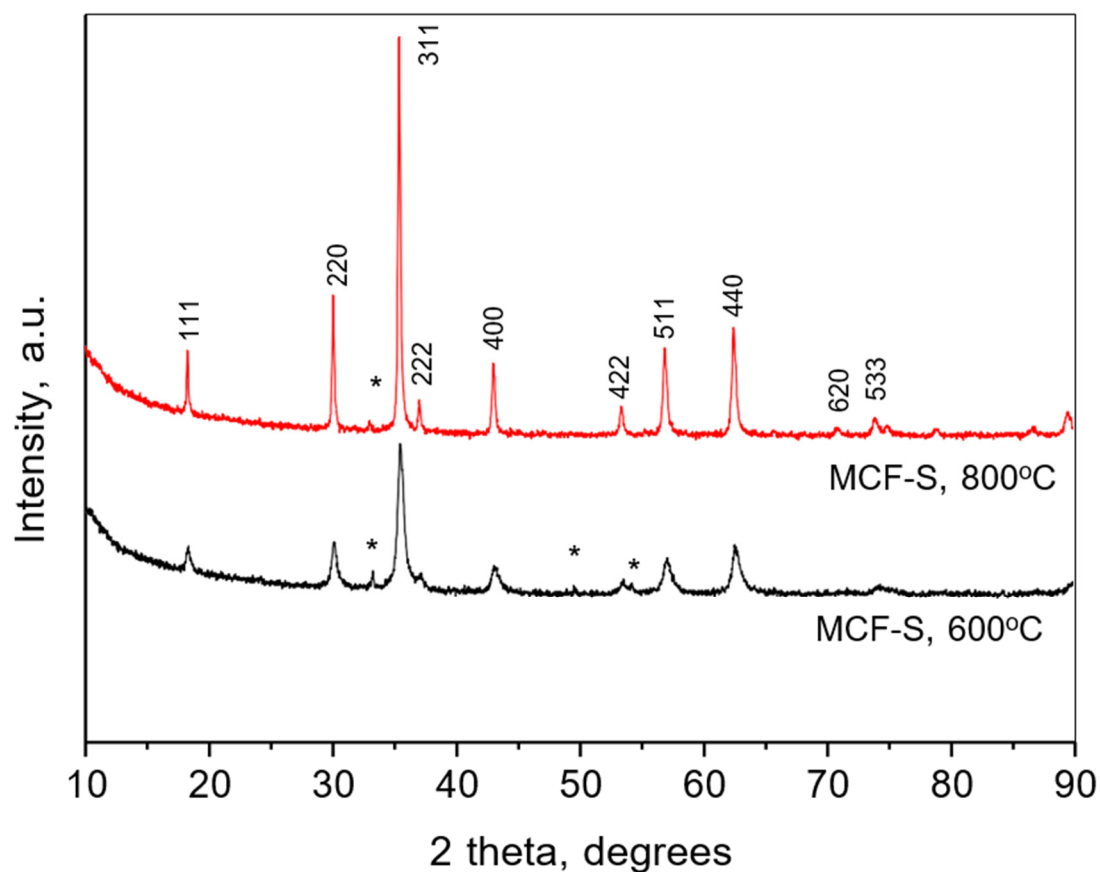


Figure S6. XRD patterns of MCF-S after the thermal treatment for 1h in air at 600°C (black) and at 800°C (red). Asterix denotes hematite (Fe_2O_3) and/or bixbyite (Mn_2O_3). Crystallites size for MCF-S at 600°C-17 nm, unit cell parameter $a=8.396(1)\text{\AA}$ Crystallites size for MCF-S at 800°C – 55 nm, unit cell parameter $a=8.4157(3)\text{\AA}$