

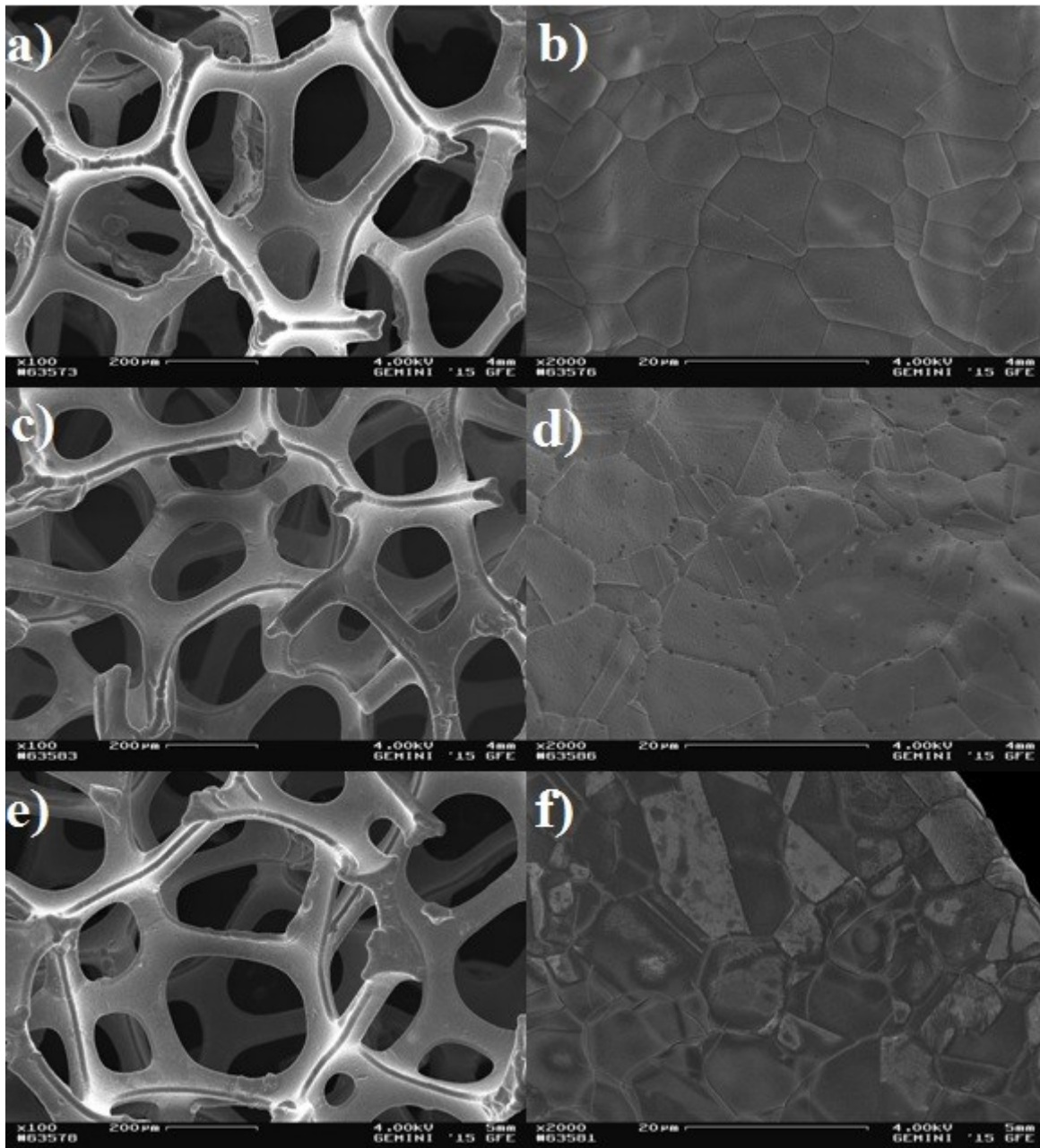
Supporting Information for

Design of modular Ni-foam based catalysts for dry reforming
of methane

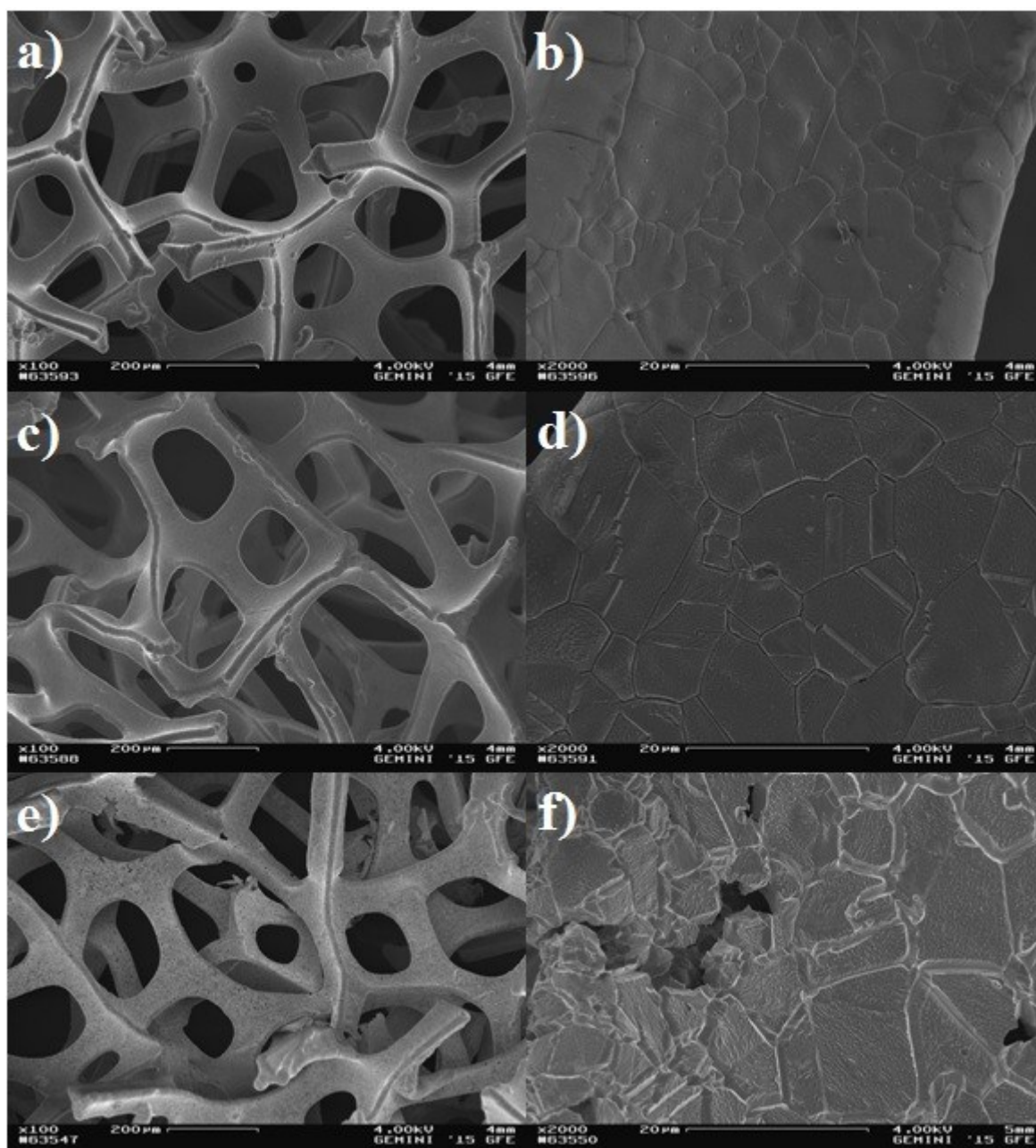
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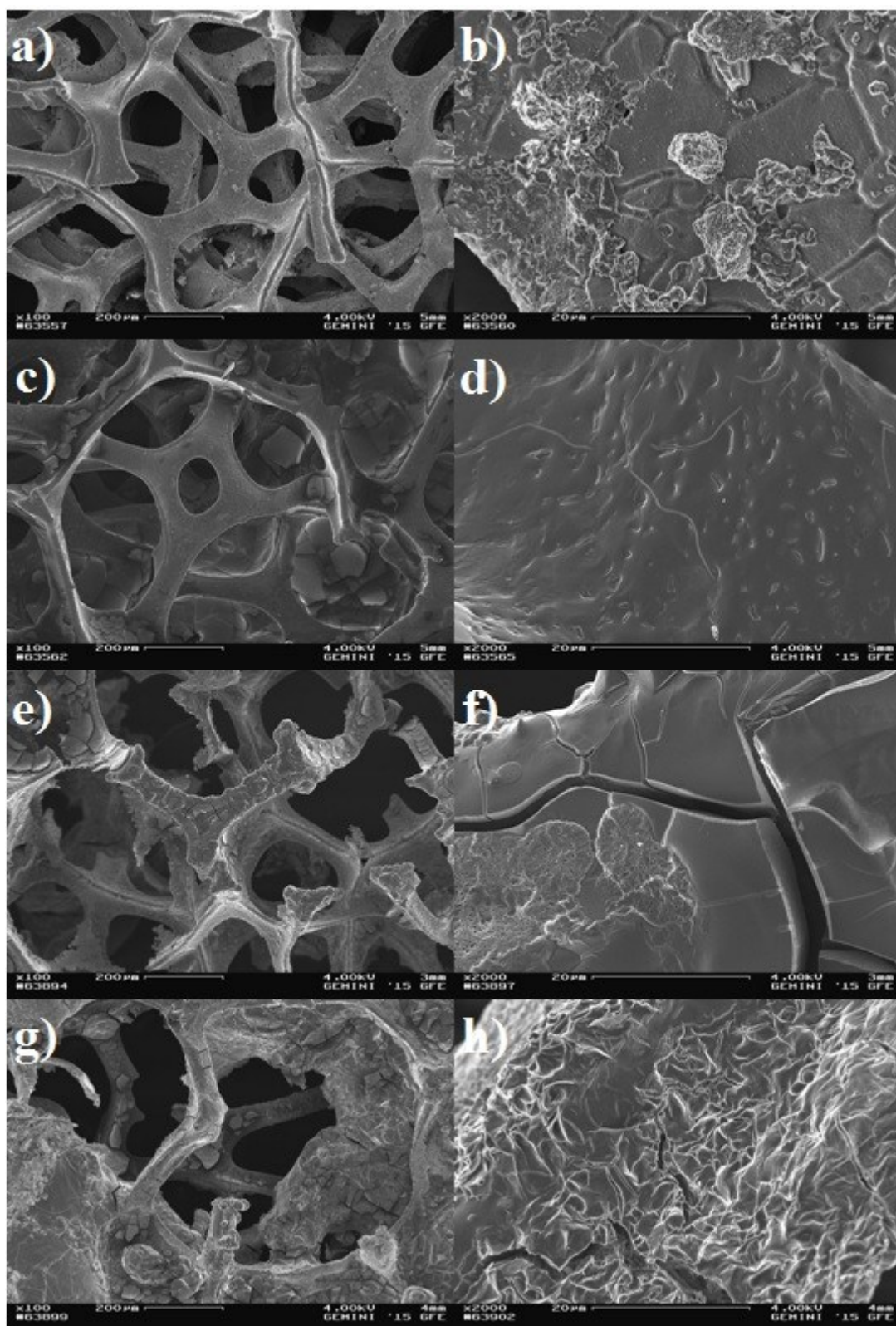
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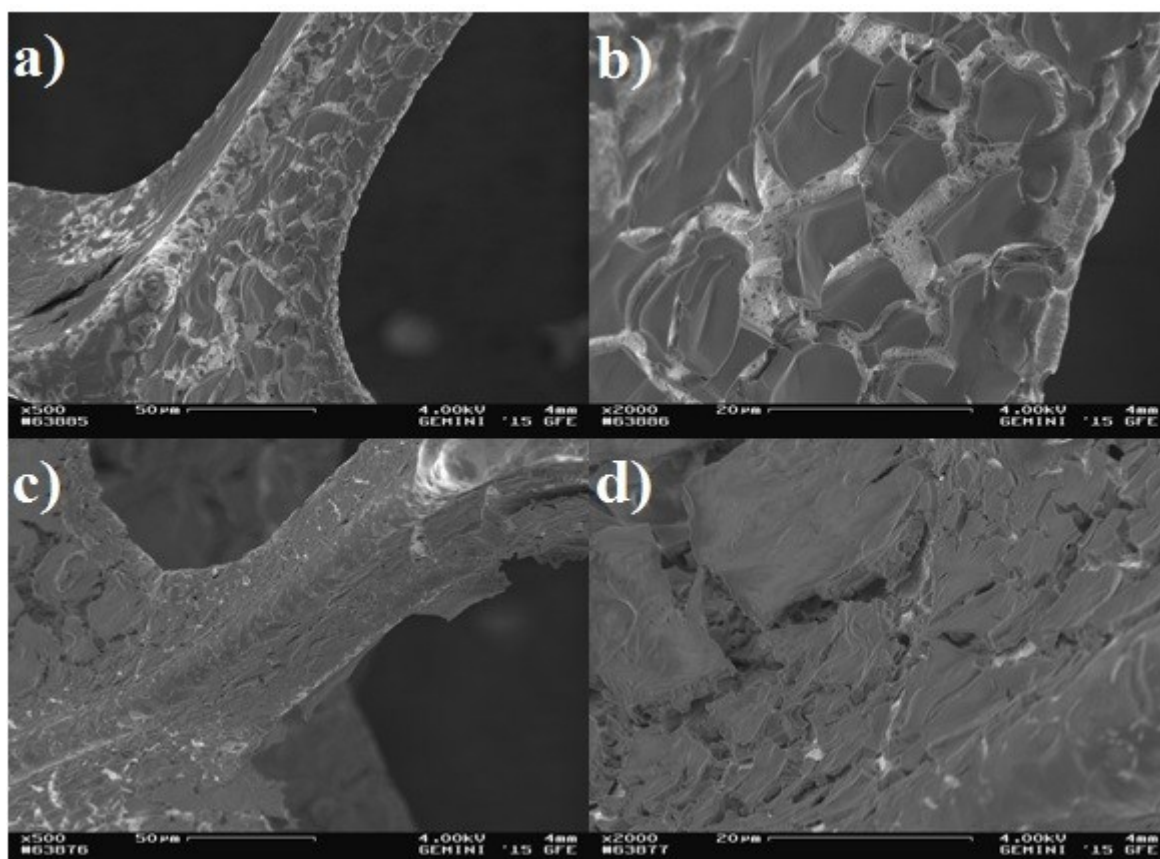
S.Fig. 1: SEM images under two different magnifications of a) and b) Ni foam etched at 45 °C in 6 M HCl ultrasonically stirred for 15 min, c) and d) Ni-foam etched at 60°C in 3M HCl for 15min, and e) and f) Ni-foam etched at 60°C in 6M HCl for 15min.



S.Fig. 2: SEM images under two different magnifications of a) and b) Ni foam etched at 80 °C in 2 M HCl for 15 min, c) and d) Ni-foam etched at 80°C in 3M HCl for 15min, and e) and f) Ni-foam etched at 85°C in 6M HCl for 15min.



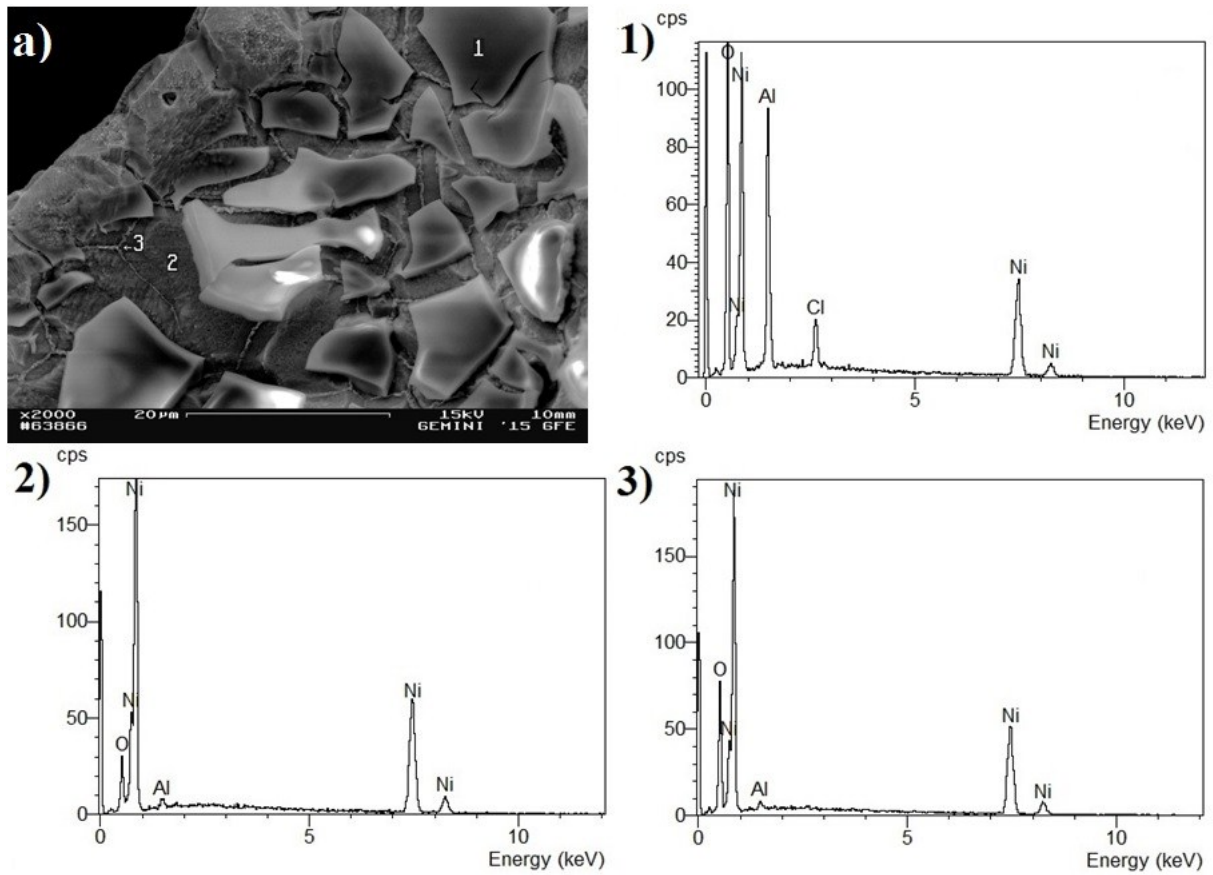
S.Fig. 3: SEM images under two different magnifications of a) and b) Ni foam coated with AIIP uncalcined, c) and d) Ni foam coated with AISB uncalcined, e) and f) Ni foam coated with AISB+MgO uncalcined and g) and h) Ni foam coated with AISB+SiO₂ uncalcined.



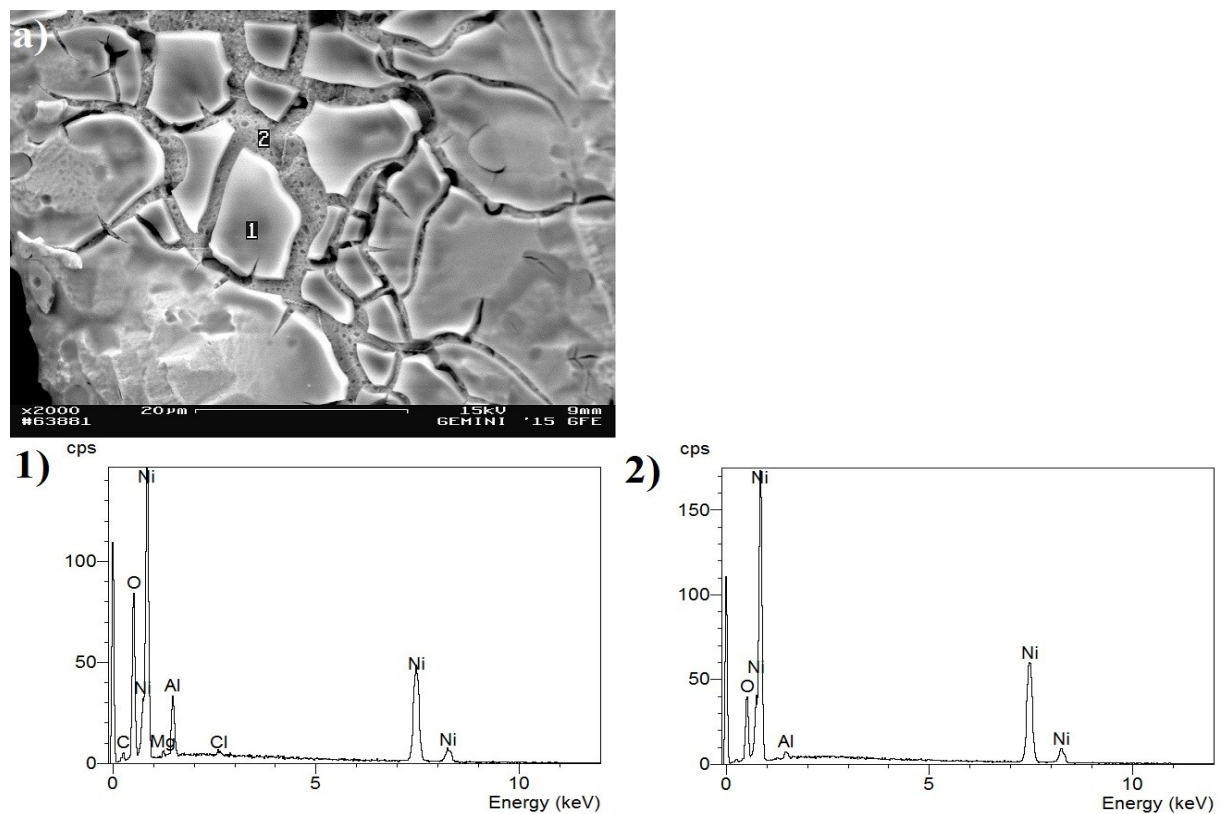
S.Fig. 4: SEM images under two different magnifications of a) and b) AISB/MgO@Ni, c) and d) AISB/SiO₂@Ni.



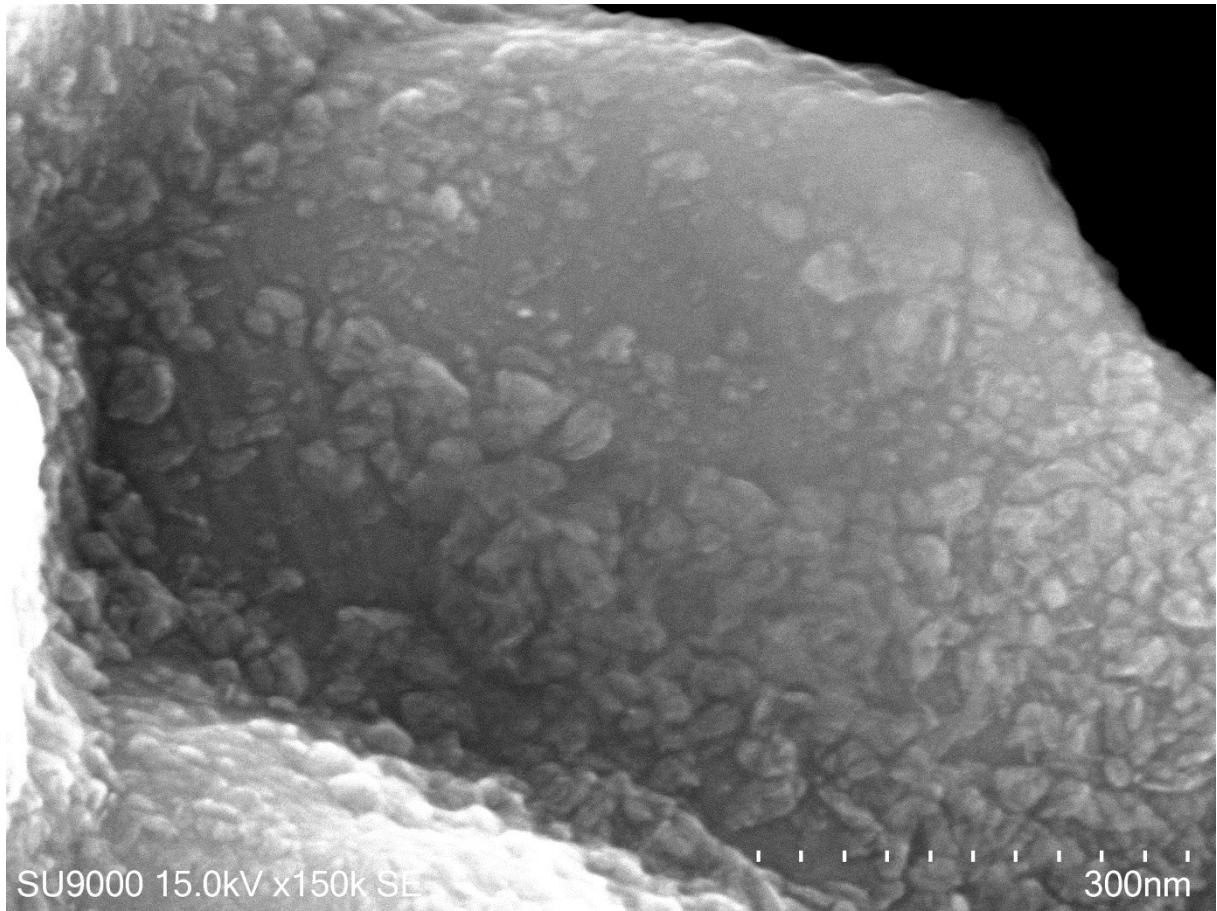
S.Fig. 5: Fresh Ni-Foam pieces loaded in the reactor.



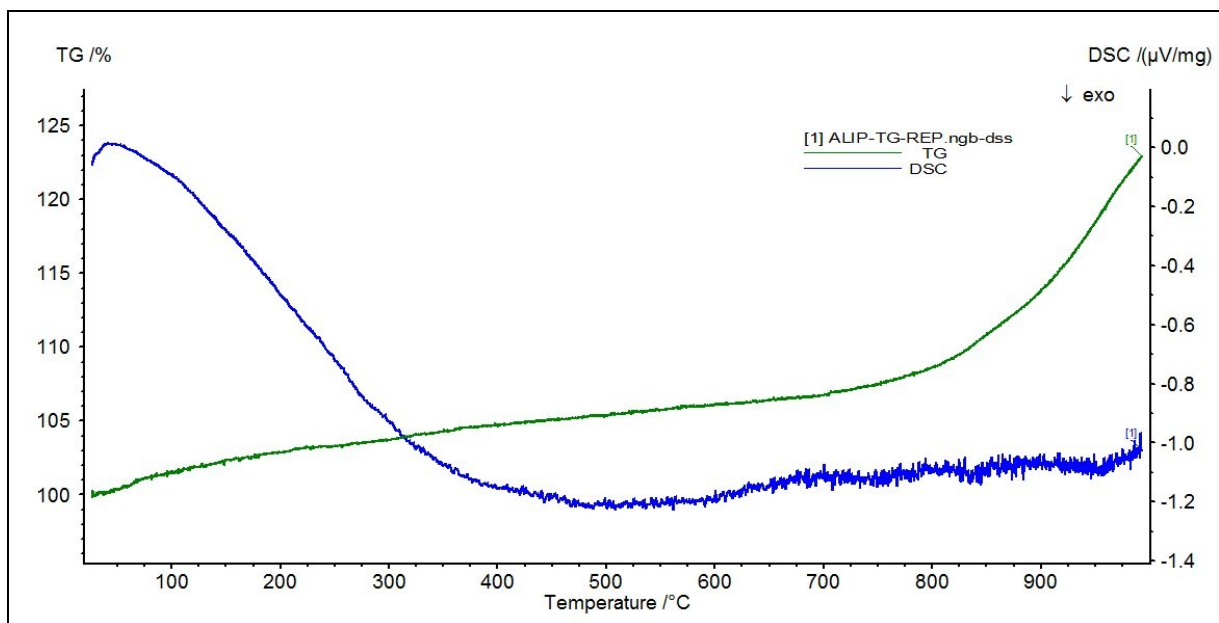
S.Fig. 6: EDX results on different spots of AISB@Ni, the spots are marked in a).



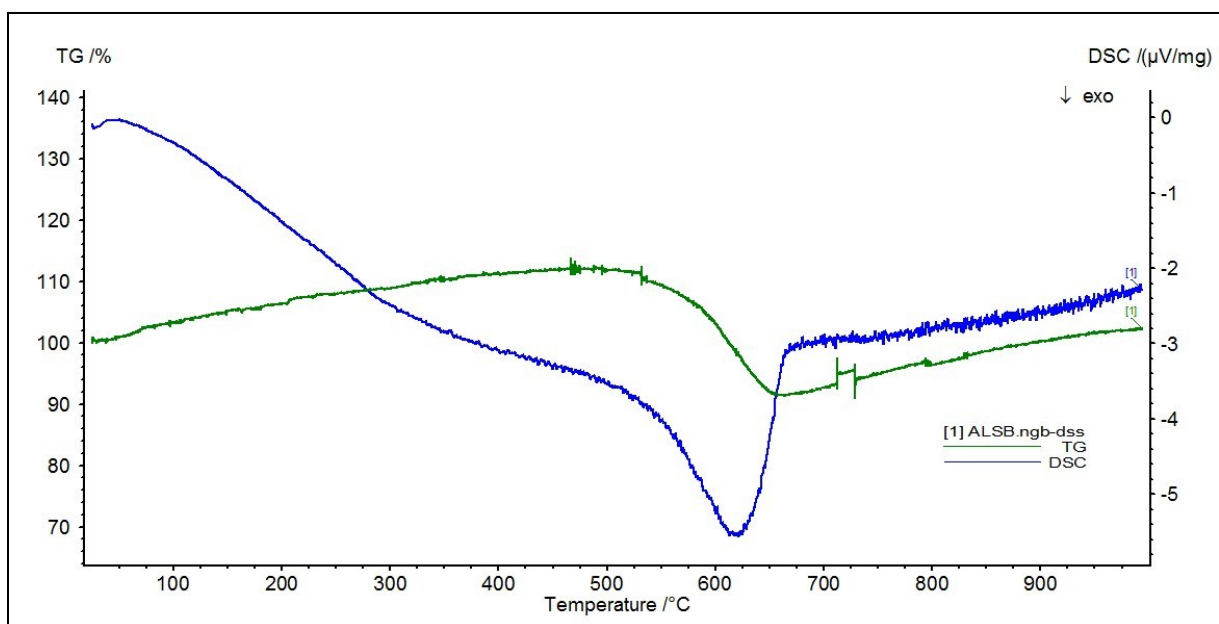
S.Fig.7: EDX analysis on different spots of a Ni strut of AISB/MgO@Ni, the spots are marked in a).



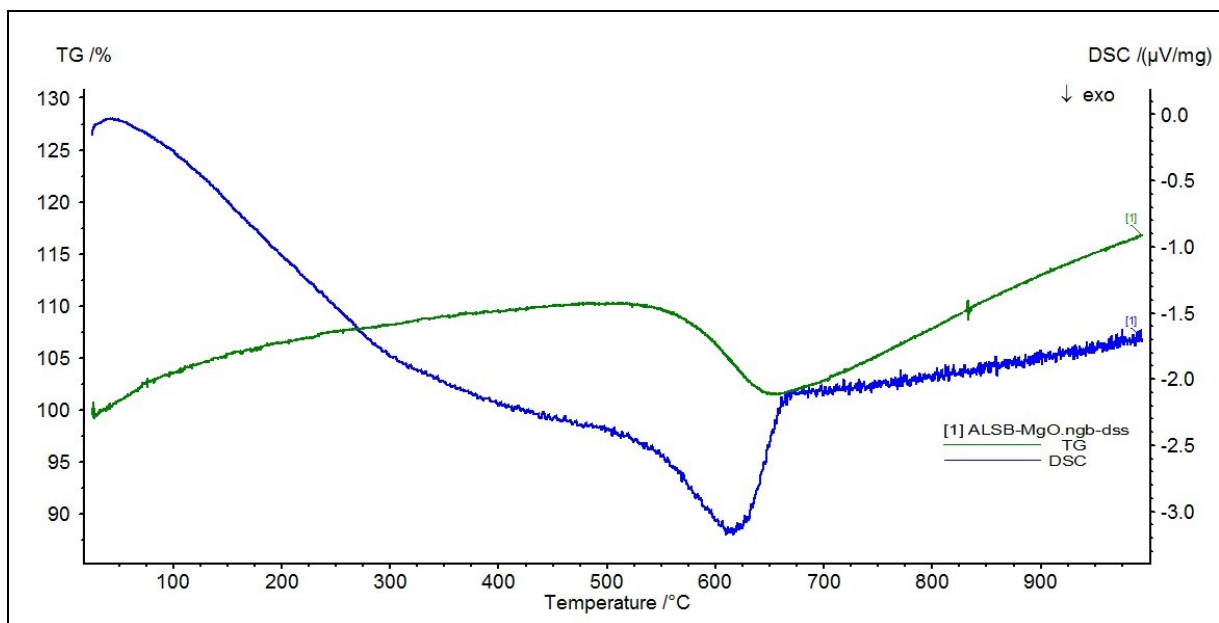
S.Fig. 8: HRSEM on spent bare Ni-foam



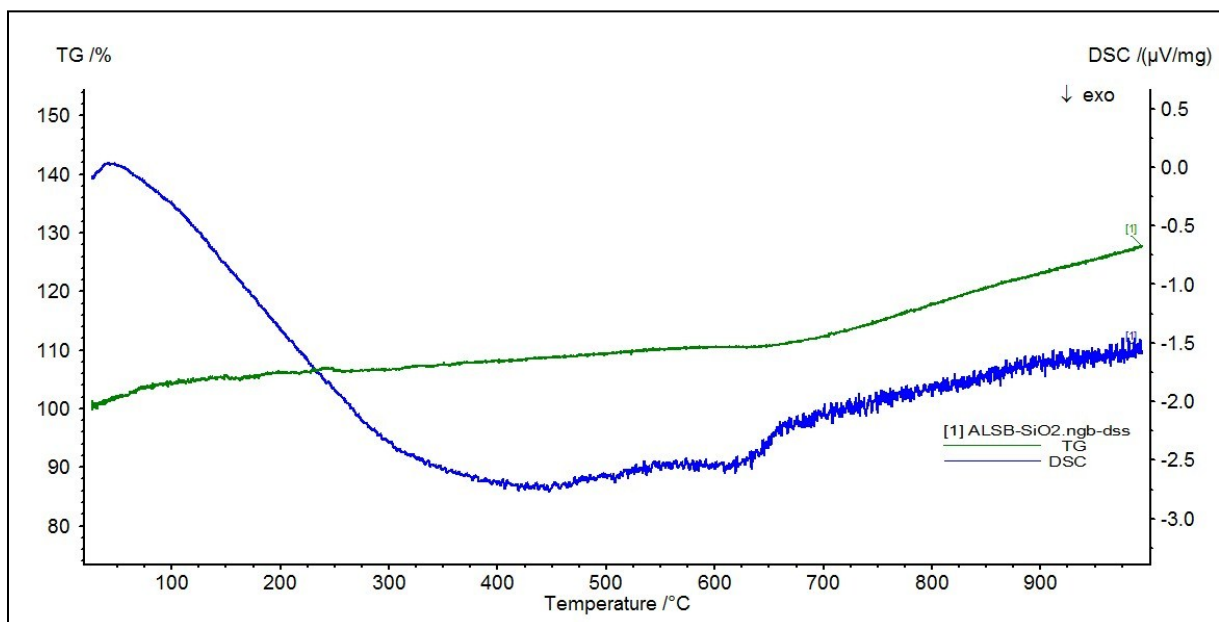
S.Fig. 9: TG/DTA profile of spent AlIP@Ni catalyst.



S.Fig. 10: TG/DTA profile of spent AlSB@Ni catalyst.



S.Fig. 11: TG/DTA profile of spent ALSB/MgO@Ni catalyst.



S.Fig. 12: TG/DTA profile of spent ALSB/SiO₂@Ni catalyst.