

Supplementary Information:**Table 4. Elemental analysis of fresh catalysts.**

Catalyst	Metals analyzed	amount taken for preparation (mmol/g)	Actual amount present in catalyst as measured by ICP-MS (mmol/g)
MPAV ₁	V, Mo	0.43, 5.83	0.40, 4.47
FeMPA	Fe	0.52	0.339
FeMPAV ₁	Fe, V, Mo	0.52, 0.43, 5.83	0.30, 0.412, 4.47

Table 5. Elemental analysis of recycled catalysts.

Catalyst	Metals analyzed	Actual amount present as measured by ICP-MS (mmol/g) (Fe, V respectively)
FeMPAV ₁ fresh	Fe, V	0.30, 0.412
FeMPAV ₁ cycle 1	Fe, V	0.292, 0.405
FeMPAV ₁ cycle 3	Fe, V	0.285, 0.396