- Supplementary Material -

Surfactant-assisted synthesis of Mo-V mixed oxide catalysts for upgraded one-step conversion of glycerol to acrylic acid

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Table S1. Crystalline phases detected in the diffractograms of the fresh and spent catalysts and the stoichiometric oxidation states of the vanadium and molybdenum oxides.

Crystalline compounds	JCPDS PDF	Mo/(Mo+V) mole ratio	Stoichiometric oxidation state	
			V	Mo
$Mo_{4.65}V_{0.35}O_{14}$	31-1437	0.93	5.6	5.6
MoV_2O_8	74-0050/74-2366	0.33	5	6
MoO_3	89-5108	1.00	-	6
$MoVO_5$	77-0649	0.50	4	6

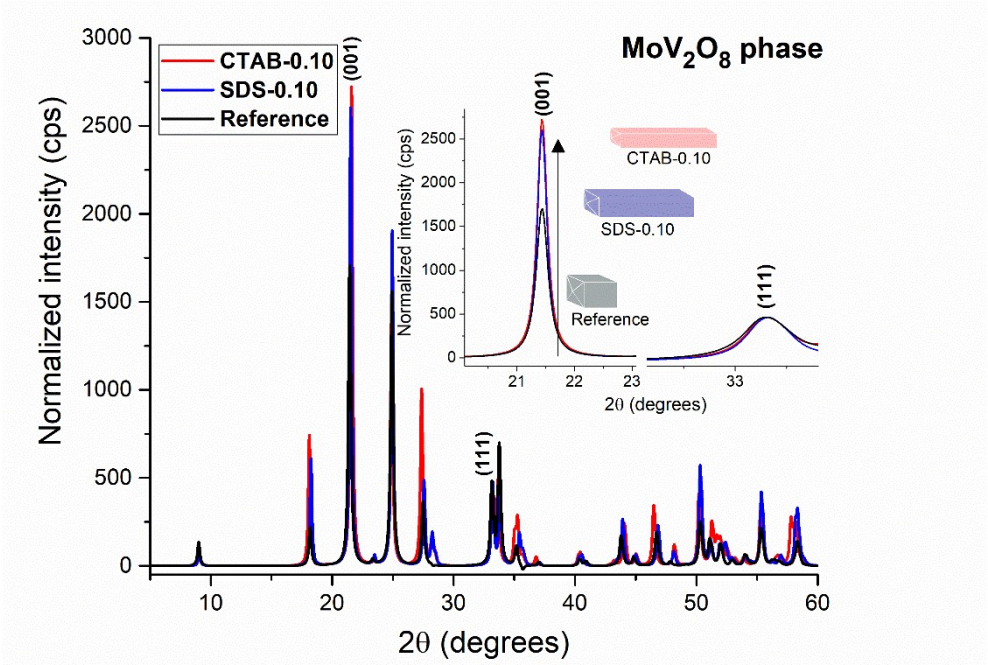

Figure S1. MoV_2O_8 phase diffractograms extracted from total X-ray patterns of catalysts Reference, CTAB-0.10 and SDS-0.10. Relation between (001) peak intensity and the crystal morphology. Intensities were normalized in relation (111) diffraction peak.

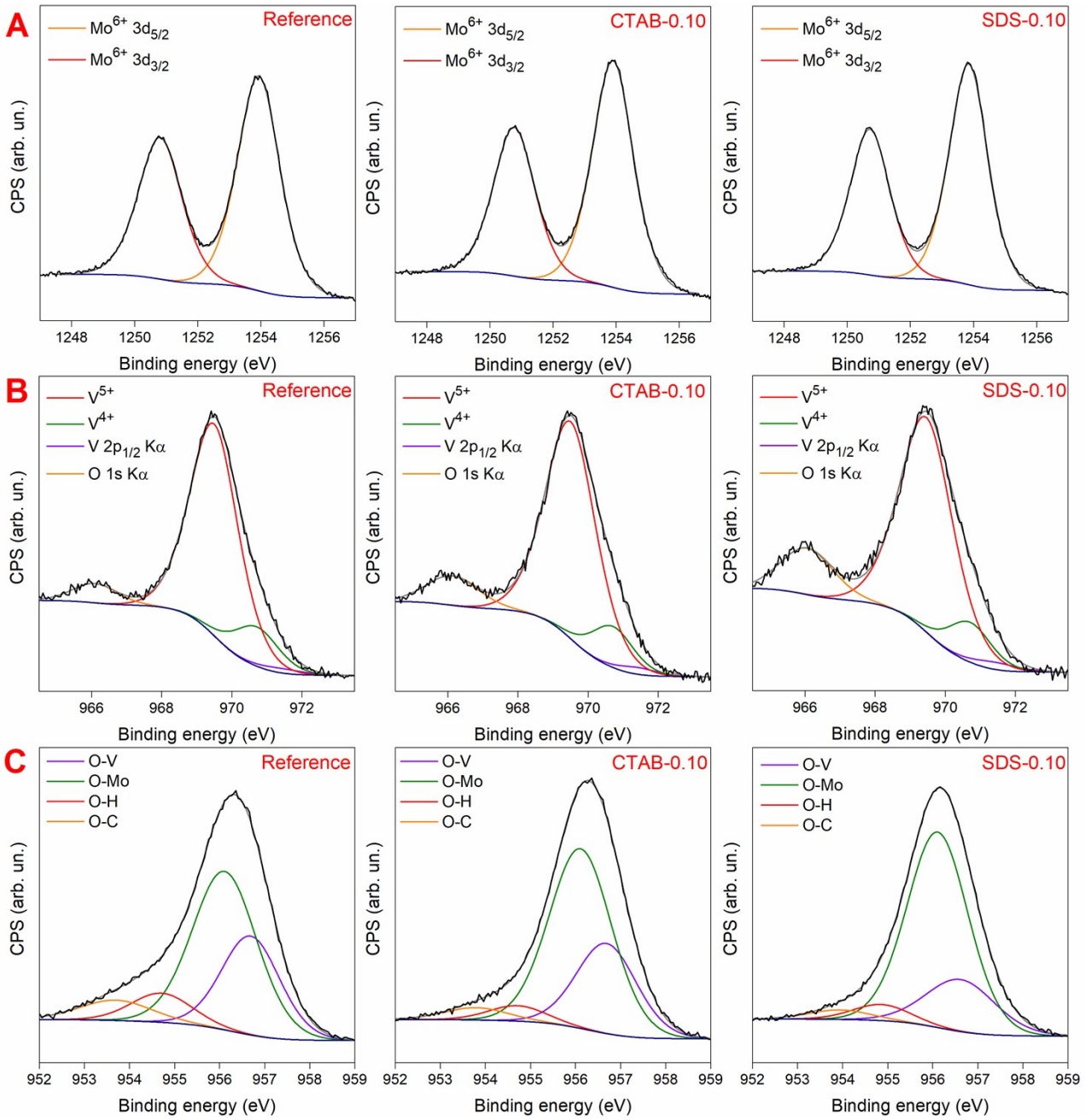

Figure S2. XPS spectra of (A) Mo 3d, (B) V 2p and (C) O 1s in Reference, CTAB-0.10 and SDS-0.10 catalysts.

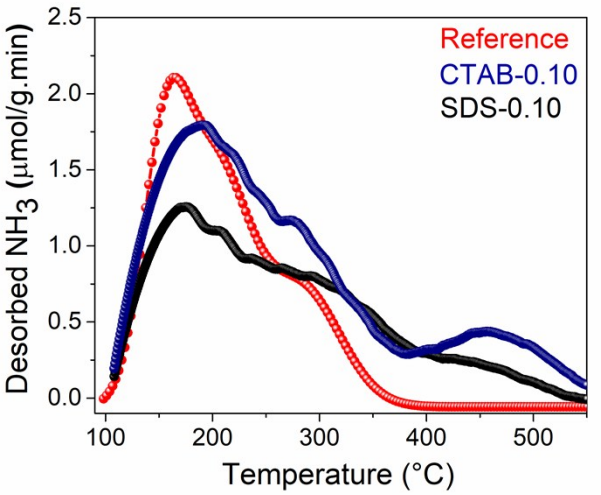

Figure S3. Temperature programmed desorption of ammonia for the catalysts Reference, CTAB-0.10 and SDS-0.10.

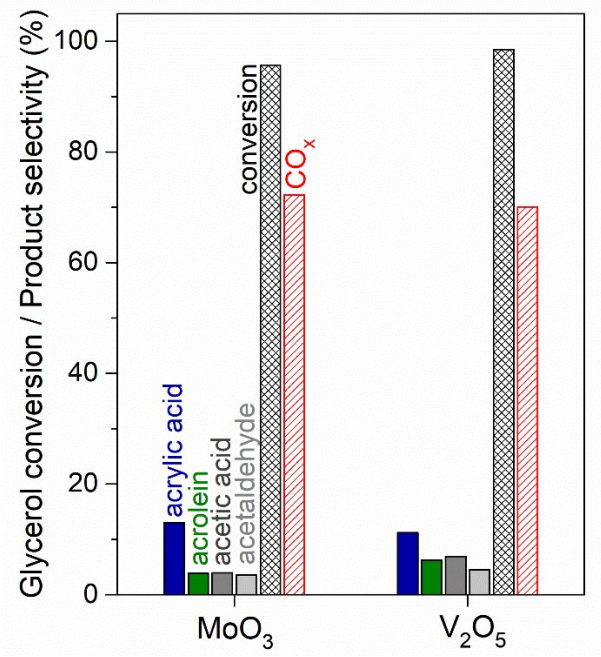

Figure S4. Catalytic results of glycerol oxydehydration performed during 1 h at 320 ºC under a flow of 100 % of O_2 for molybdenum and vanadium oxides.

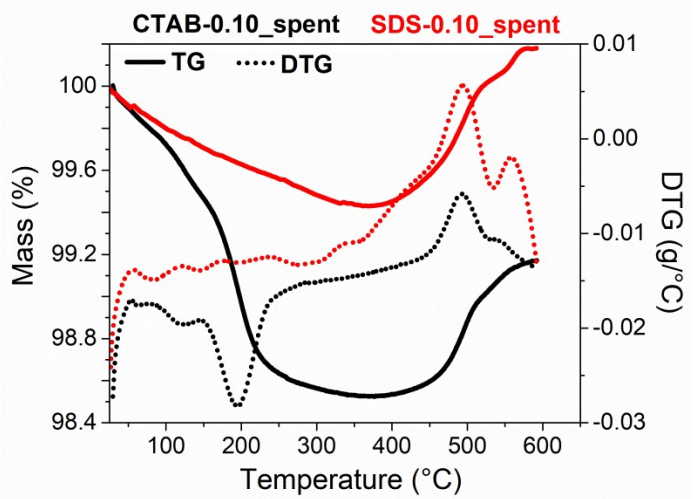

Figure S5. Thermogravimetric and derivative analysis curves of the spent catalysts.

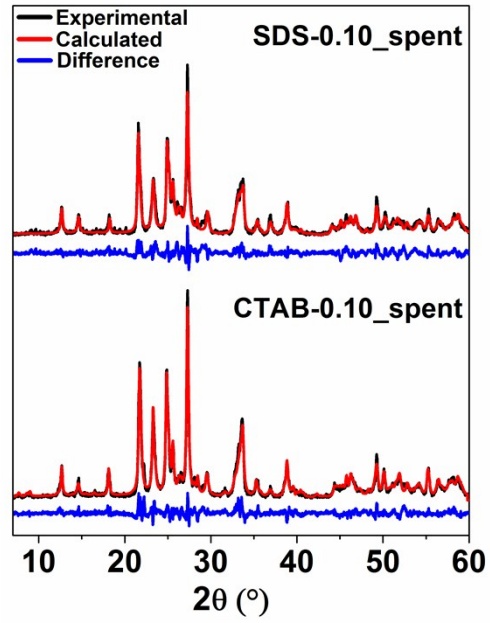

Figure S6. XRD patterns and identification of phases for the spent Mo-V mixed oxides. The net results of the Rietveld analyses are shown in red and the deviations from the measured diffractograms are in blue.