Electronic Supplementary Information

to article entitled"

"Studies of adsorption of α,β–unsaturated carbonyl compounds on heterogeneous Au/CeO_2, Au/TiO_2 and Au/SiO_2 catalysts during reduction by hydrogen"

by

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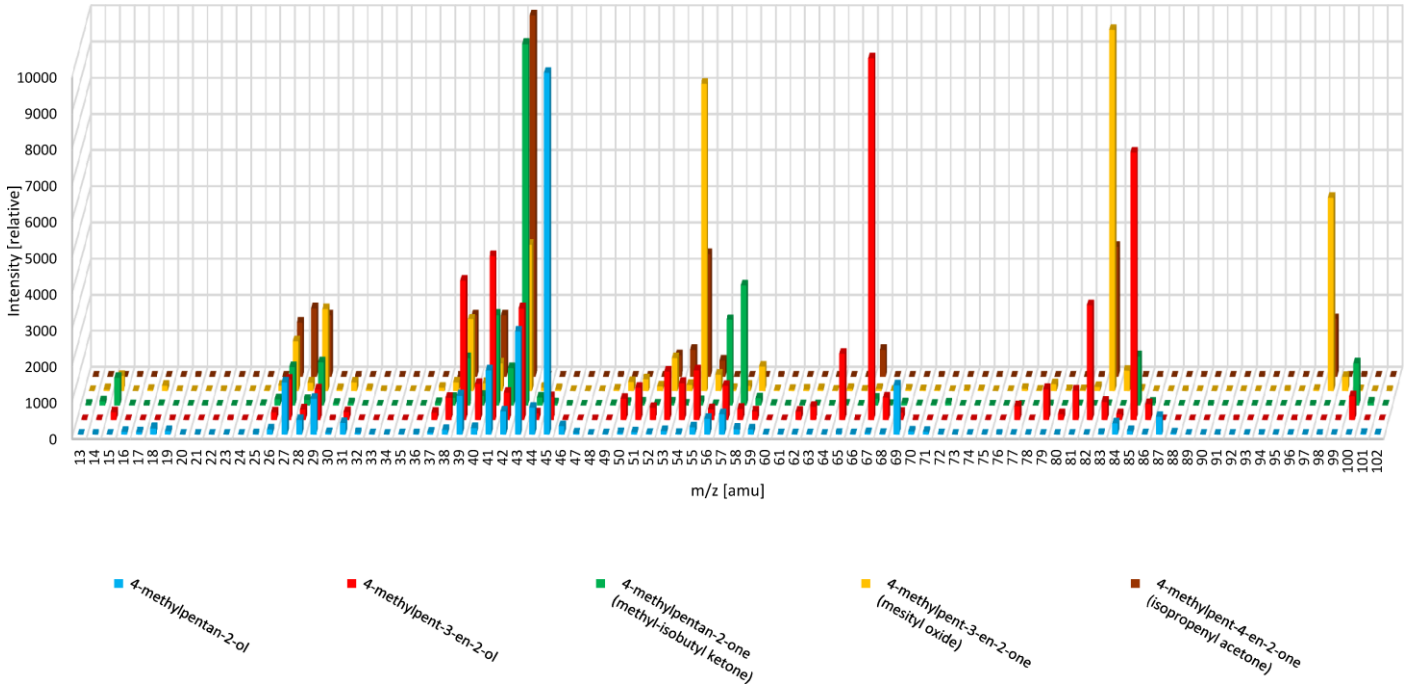

Figure S 1. The bar chart presenting the reference mass spectrometry signals (atomic mass units [amu] divided by the ion charge, m/z) and their intensities of mesityl oxide (4-methylpent-3-en-2-one) and its hydrogenation derivatives as reported by National Institute of Standards and Technology (NIST, https://webbook.nist.gov).

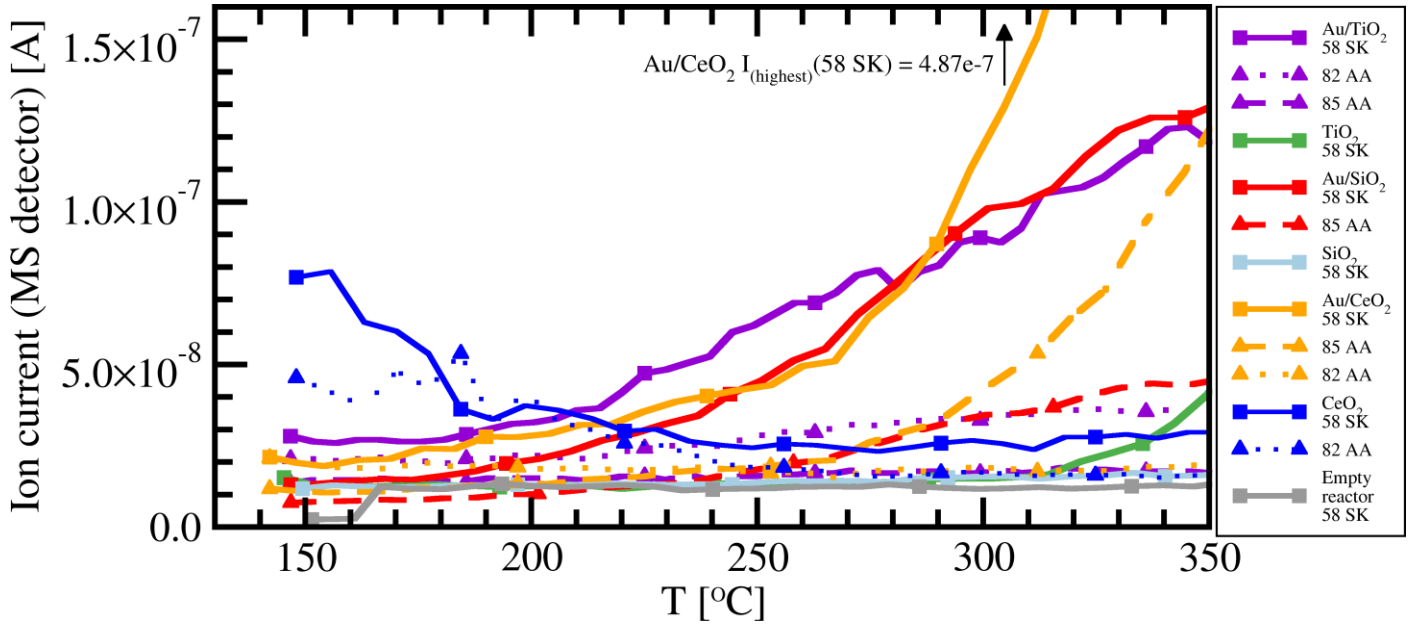

Figure S 2. The plot presenting changes of intensity (ion current) of mass spectrometry signals while probing the outlet stream of the reactor fed with vapours of mesityl oxide and a H_2/He mixture. The reactor's bed was filled with a layer of a catalyst or a pure oxide support. According to Figure S 1 signal m/z = 58 amu best represents the concentration of sole saturated ketone (SK, i.e. 4-methylpentan-2-one also known as methyl-isobutyl ketone). Signals m/z = 82 and 85 amu best represent the concentration of sole allylic alcohol (4-methylpent-3-en-2-ol).

Table S 1. Summary of the composition analysed by gas chromatography of the outlet stream of the reactor containing a layer of a catalyst fed with vapours of mesityl oxide (α-MesOx, 4-methylpent-3-en-2-one, α isomer C=C double bond position) and a H_2/He mixture. Meaning of the abbreviations in the columns headers: SK = saturated ketone (4-methylpentan-2-one, methyl-isobutyl ketone); SA = saturated alcohol (4-methylpentan-2-ol); AA = allyl alcohol (4-methylpent-3-en-2-ol); iso = β isomer of MesOx (4-methylpent-4-en-2-one, isopropenyl acetone)

Sample	% FID signal (peak) area					Conversion of α-MesOx [%]
	SK	SA	AA	iso	α-MesOx	
8.7%$_{wt.}$ Au/CeO_2	15.20	0.00	0.00	9.13	75.67	24.33
0.5%$_{wt.}$ Au/TiO_2	3.41	0.00	0.00	12.72	83.87	16.13
10.0%$_{wt.}$ Au/SiO_2	4.86	0.00	0.00	5.01	90.14	9.86