Supplementary Materials

Highly Porous Para-Aramid Aerogel as a Heterogeneous Catalyst for Selective Hydrogenation of Unsaturated Organic Compounds

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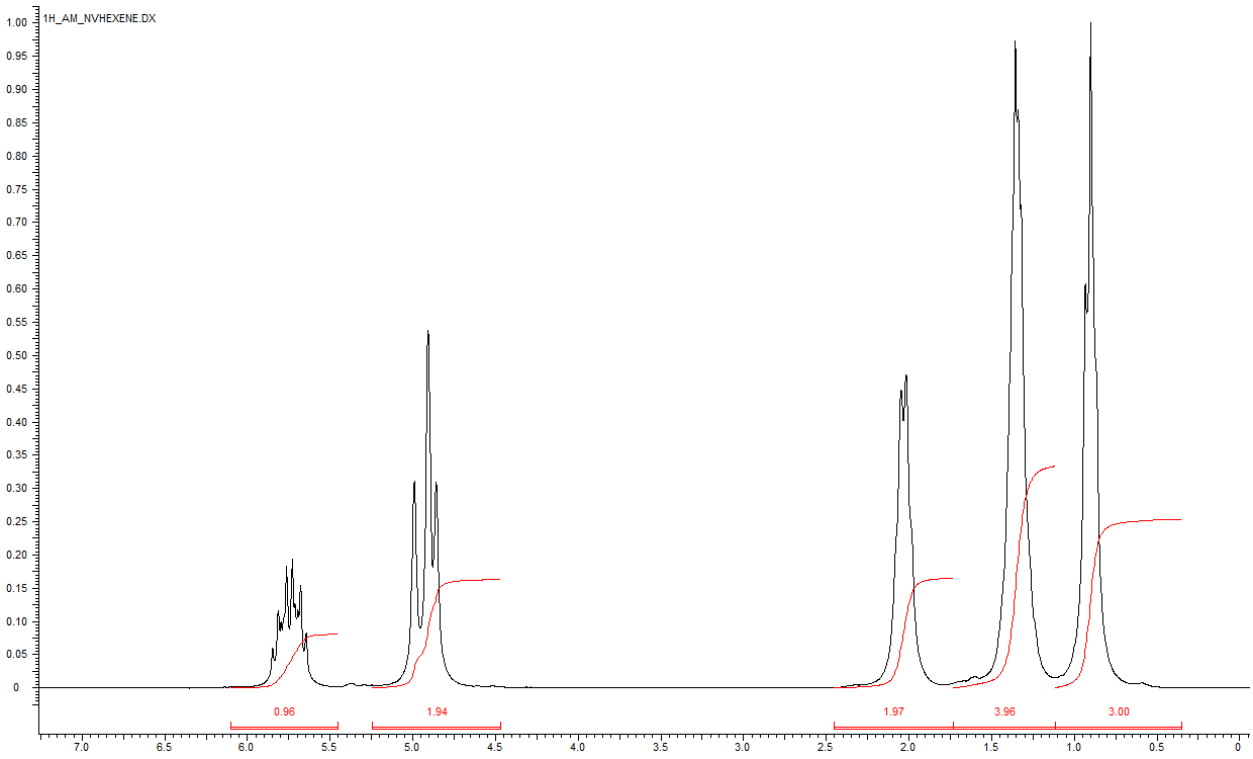


Figure S1. ^{1}H NMR spectrum of initial hexene-1.

Two groups of signals (4.7 - 5.8 ppm, 2:1 integral intensity) refer to CH_2=CH protons - a complex $ABCX_2$ spin system. Three groups (0.7 - 2.2 ppm, 3:4:2 integral intensity) refer to CH_3, (CH_2-CH_2) and CH_2-Csp2 protons respectively.

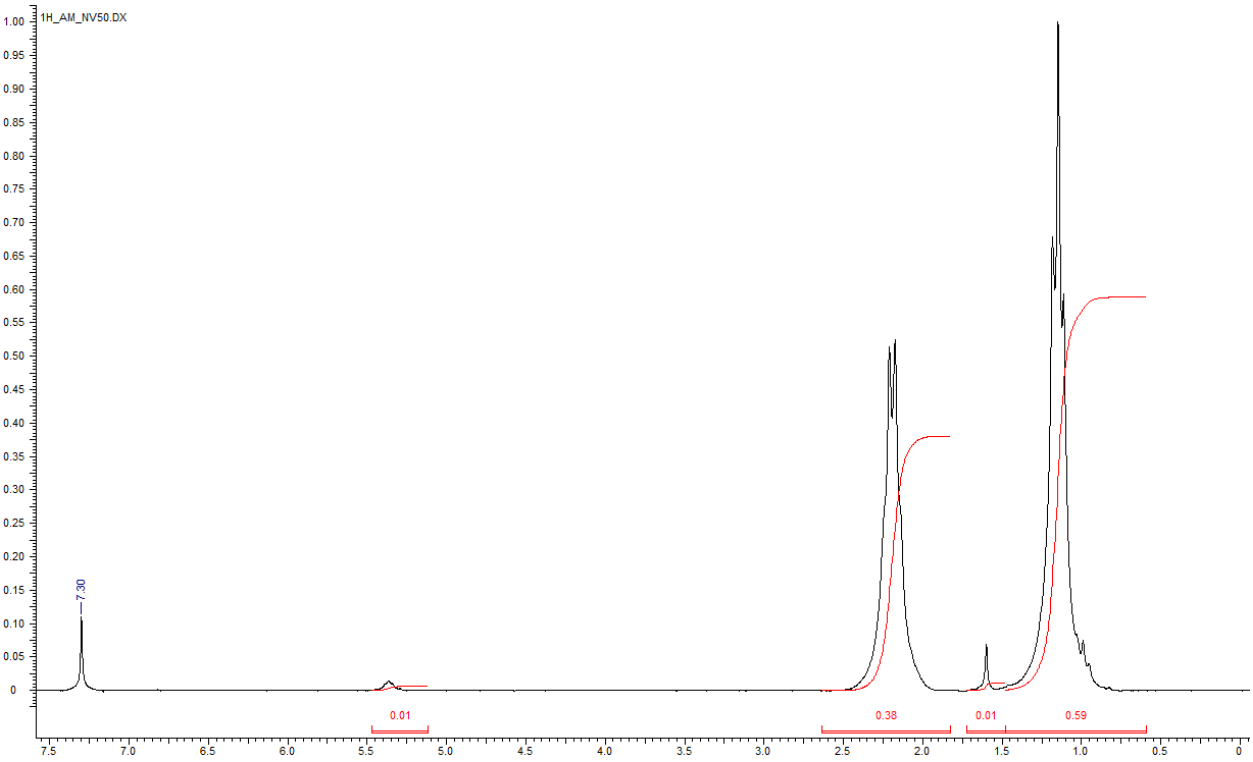


Figure S2. ^{1}H NMR spectrum of the reaction product after hexyne-3 hydrogenation at 120 C.

Two main signals (1.1 and 2.2 ppm, 3:2) refer to CH_3 and CH_2 protons in the initial hexyne-3. A small signal at 5.3 ppm best suits the Alk-CH=CH-Alk protons in hexene-3. Small signals at 1.5 and ~ 0.8 ppm best suit n-hexane protons (see **S4** below).

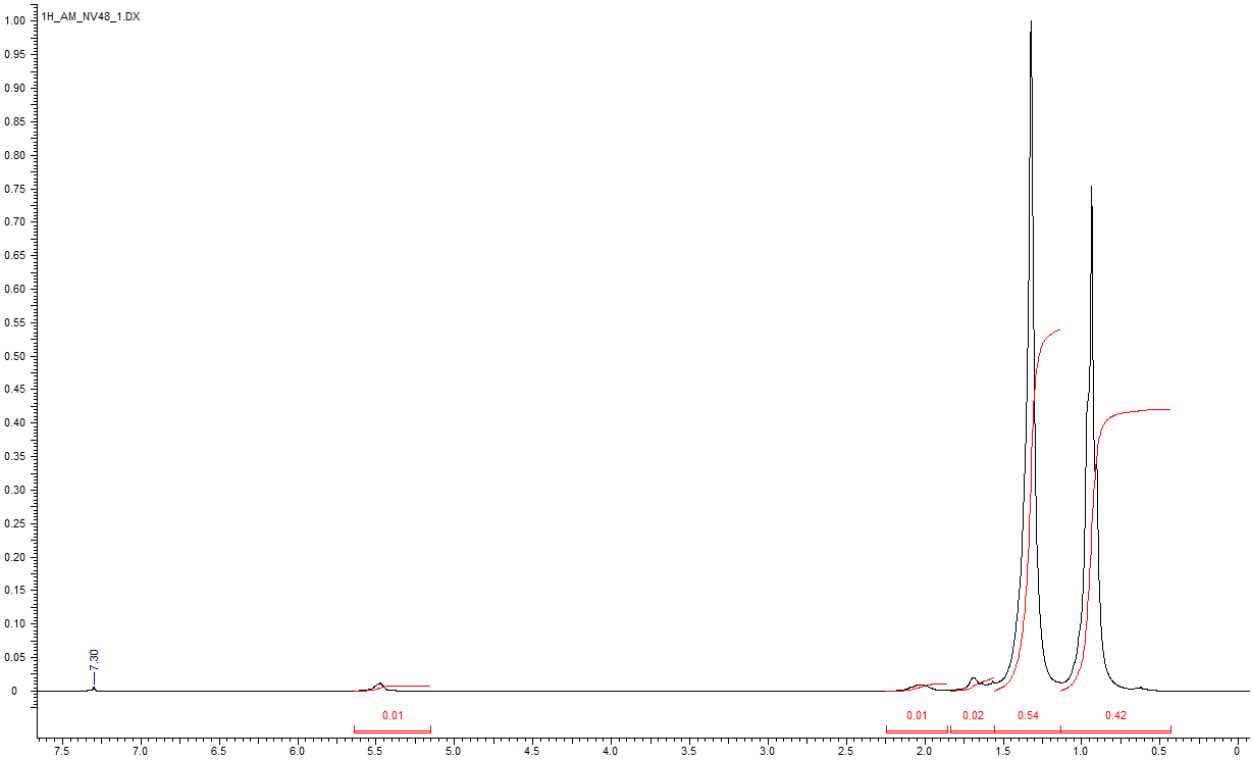


Figure S3. ^{1}H NMR spectrum of n-hexane - a hydrogenation product of hexene -1. In case of hexyne-3 the product was the same

The spectrum consists of two signals (0.8 and 1.4 ppm, 3:4 or 6:8, $2CH_3$ and $4CH_2$ protons). As seen, the spectrum dramatically differs from starting compounds by chemical shifts and signals' form. The same about cyclohexene and acrylonitrile - olefinic protons disappear, cyclohexane singlet signal or propionitrile ethyl group protons appear. All spectra are easy to unequivocally identify the products and distinguish them from starting materials even at partial conversion of substrates.

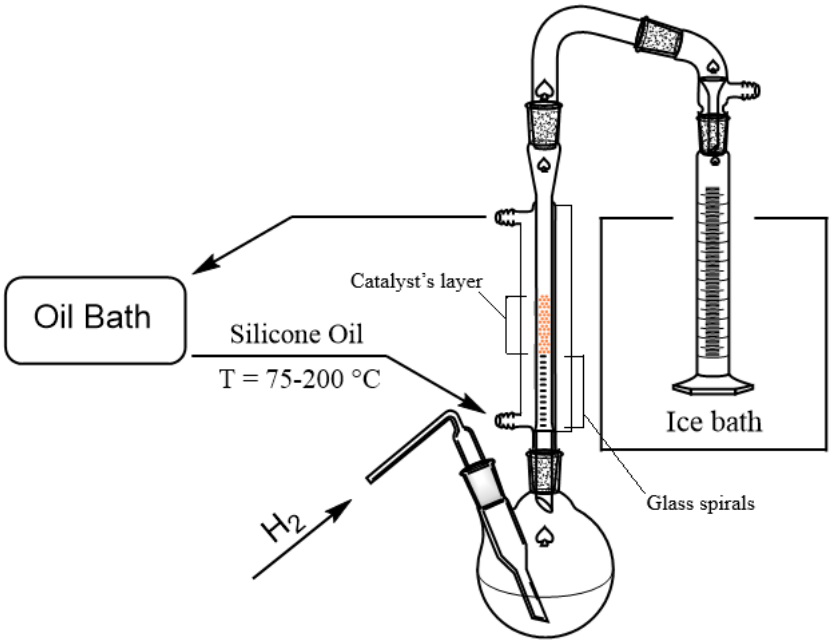


Figure S4. Schematic hydrogenation reactor.

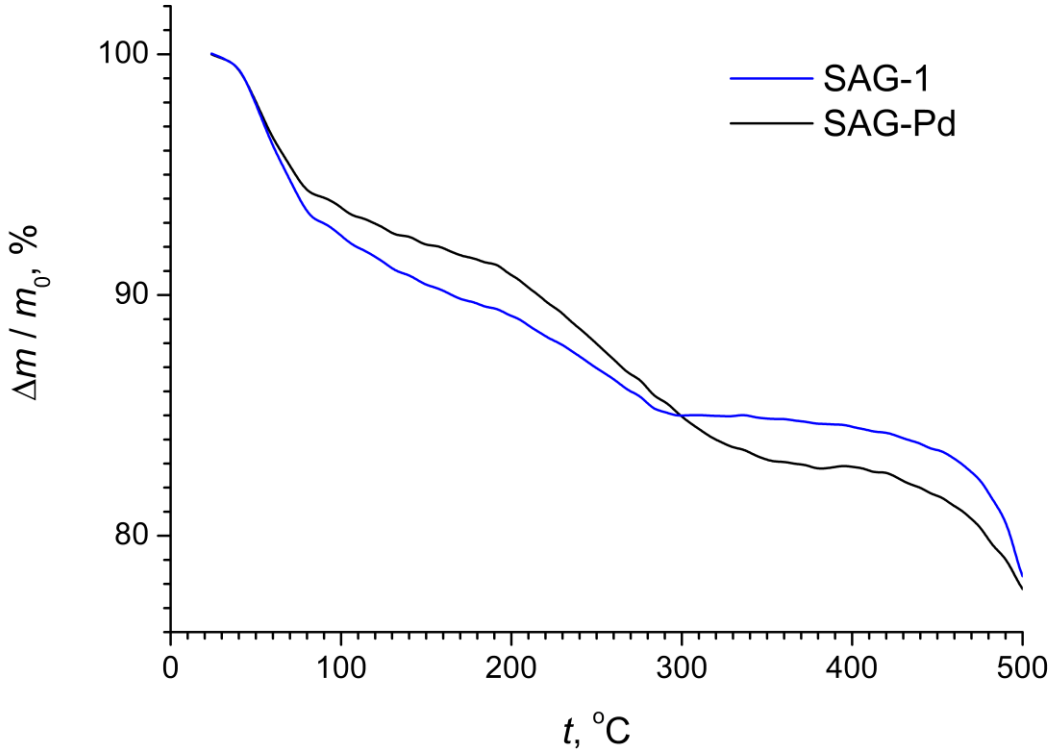


Figure S5. The thermal analysis of **SAG-1** and **SAG-Pd** samples.

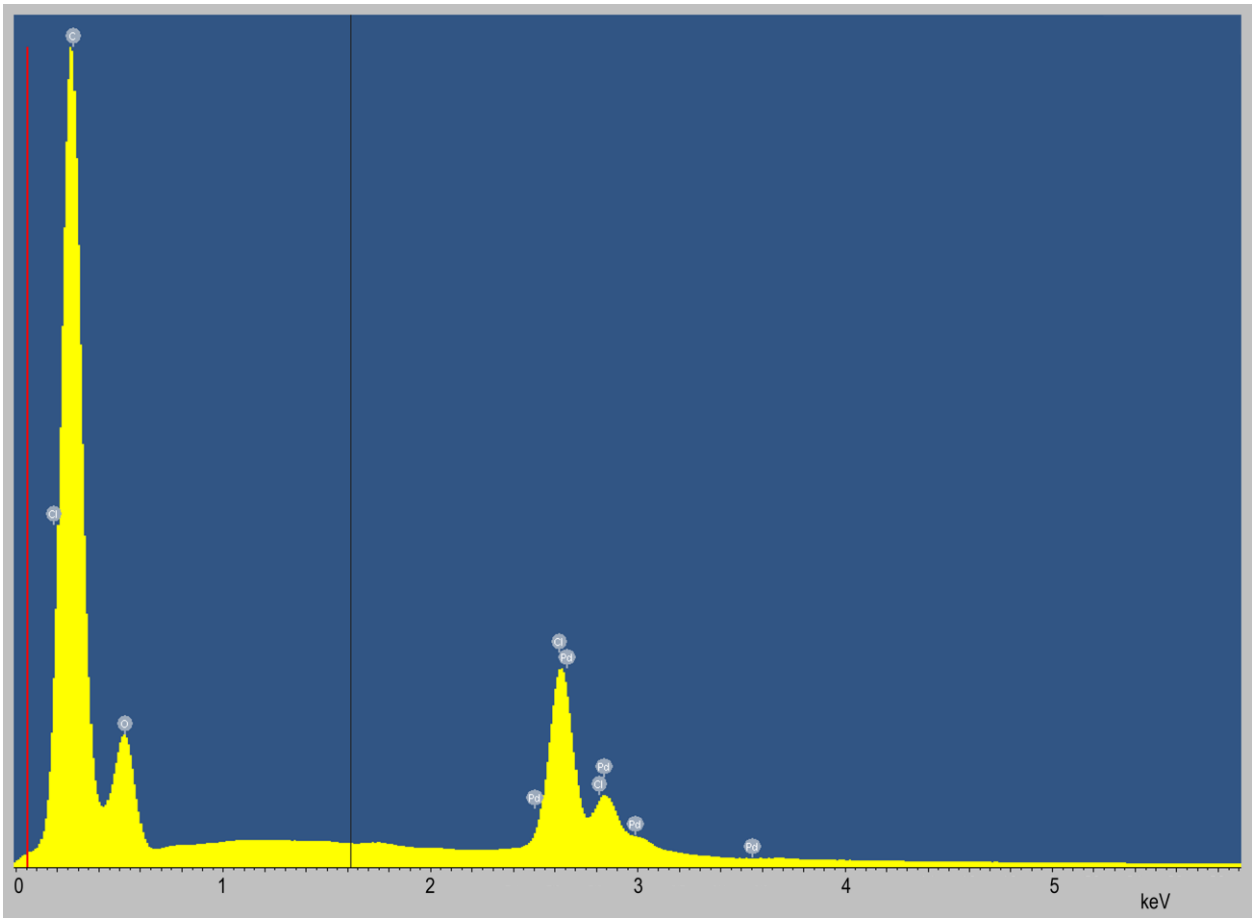
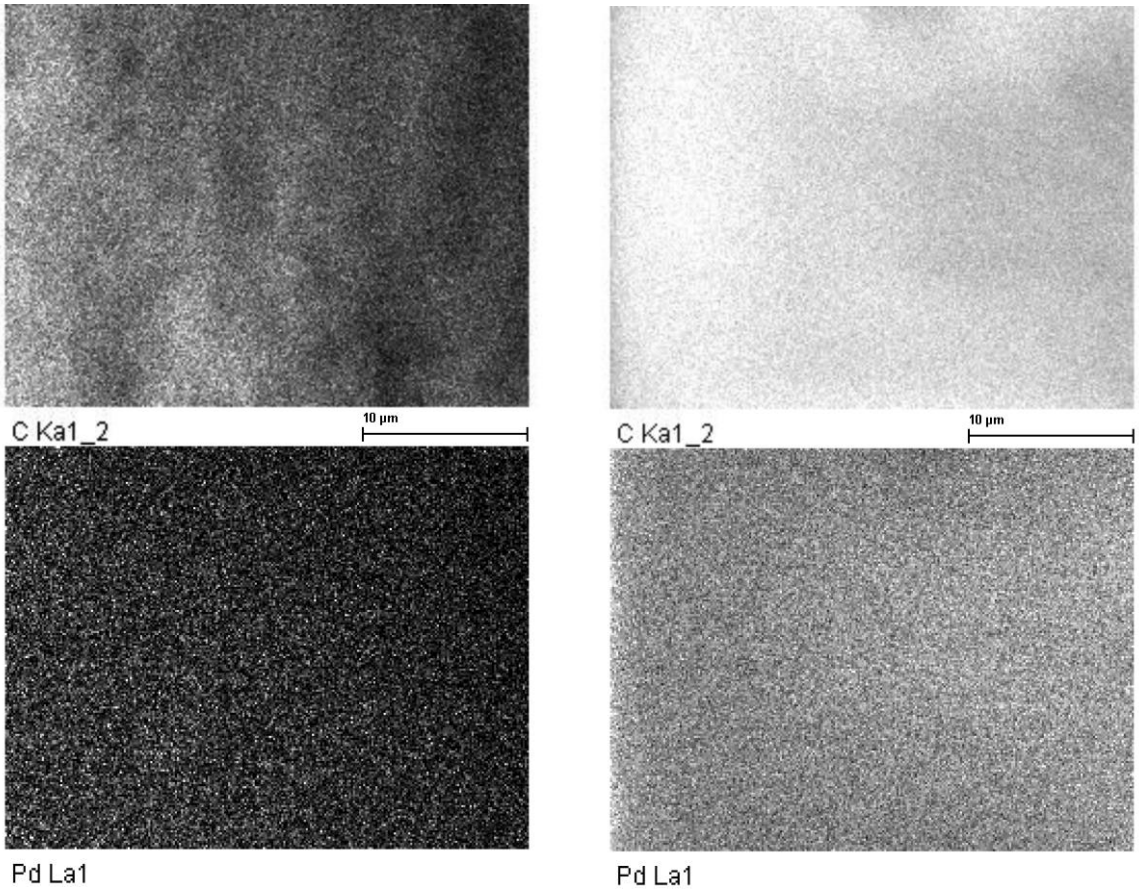


Figure S6. EDX mapping spectrum of **SAG-Pd** before hydrogenation reaction.



a **b**

Figure S7. EDX mapping of the aerogel samples (**a**) before and (**b**) after the catalytic experiment.