

# IMPACT OF METAL CONTENT ON THE DEACTIVATION OF A BIFUNCTIONAL HYDROCRACKING CATALYST

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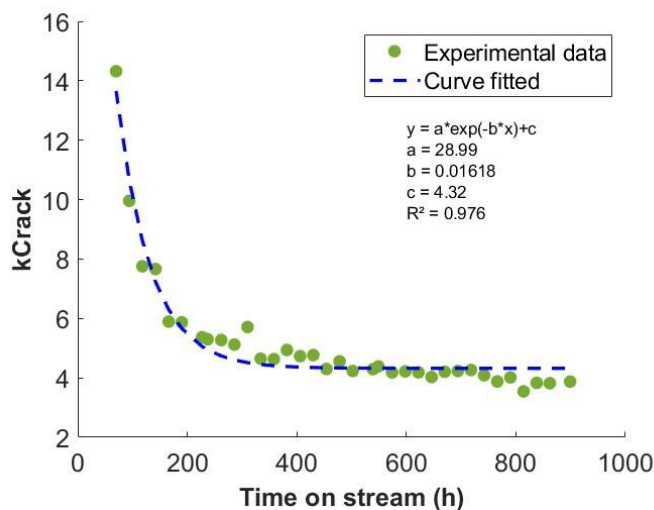
## SUPPORTING INFORMATION

An exponential decay model was assumed to dissociate the deactivation from the kinetic performance. In this model, the catalyst deactivation (Y) depends on the deactivation constant (b) and time on stream (TOS). The experimental data of the evolution of cracking kinetic constant with time was then fitted to an exponential function, the corresponding curves are shown below..

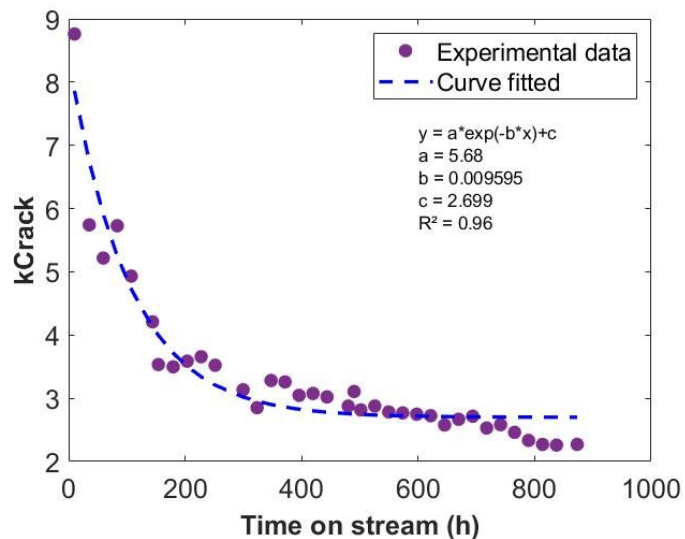
$$k_{\text{Crack}} = A * \exp(-b * \text{TOS}) + c$$

Where: (A+c) corresponds to the kinetic constant of the fresh catalyst, t=0, and c corresponds to the residual activity of the spent catalyst.

**Figure S1. Exponential decay model for test with reference catalyst.**



**Figure S2. Exponential decay model for test with the 0.5 MoO<sub>3</sub> catalyst.**



**Table S1.** Average stacking size and dispersion measured by TEM and Ni/Mo ratio in MoS<sub>2</sub> particles measured by EDX for spent catalysts with different metal contents.

	Slab length (nm)	Dispersion	Ni/Mo
<b>0.5 MoO<sub>3</sub> Bed In</b>	4.1±1.3	0.24	0.12±0.07
<b>0.5 MoO<sub>3</sub> Bed Out</b>	3.8±1.2	0.26	0.17±0.06
<b>Reference Bed In</b>	4.6±1.5	0.22	0.14±0.21
<b>Reference Bed Out</b>	4.6±1.7	0.20	0.16±0.08