catalysts

MDPI

Supplementary Materials

Catalytic Cracking of n-Hexadecane Using Carbon Nanostructures/Nano Zeolite-Y Composite Catalyst

Botagoz Zhuman [1], Shaheen Fatima Anis [2], Saepurahman [3], Gnanapragasam Singravel [4] and Raed Hashaikeh [2,*]

[1] Department of Chemical Engineering, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates, PO 127788; botagoz.zhuman@ku.ac.ae
[2] New York University Abu Dhabi (NYUAD) Water Research Center, NYUAD, Abu Dhabi, United Arab Emirates, PO 129188; sfa5@nyu.edu
[3] Department of Chemistry, Institut Teknologi Bandung, Jl. Ganesha no. 10 Bandung, Indonesia, 40132; saepurahman@chem.itb.ac.id
[4] ADNOC Refinery Research Centre (ARRC), Abu Dhabi, United Arab Emirates, PO 123593; gnana@adnoc.ae
* Correspondence: raed.hashaikeh@nyu.edu; Tel.:0097126284626

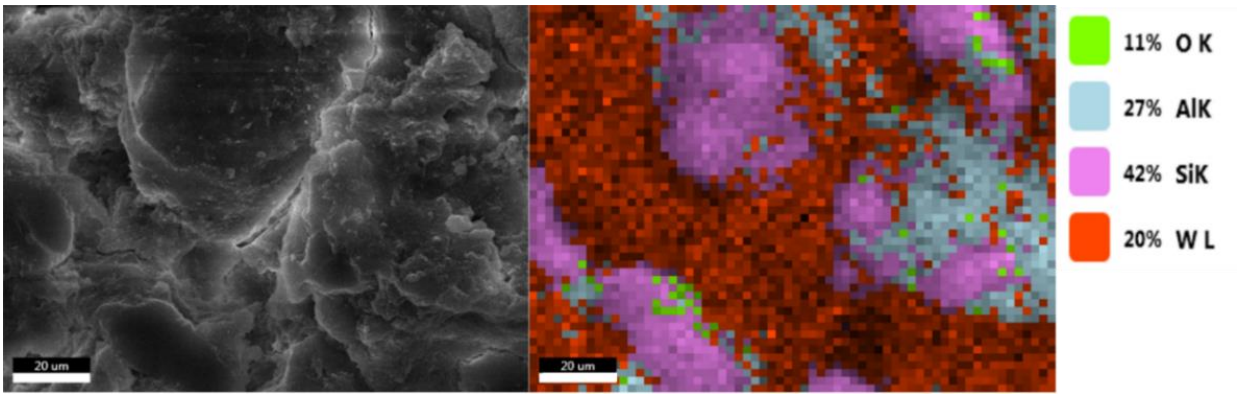

Figure S1. EDS analysis of an industrial hydrocracking catalyst extrudate received from local refinery in Abu Dhabi, United Arab Emirates, Scale bar = 20 μm.

Table S1. Paraffins Carbon number in of NHYZ/CNS and NHYZ catalysts.

Carbon number	NHYZ	NHYZ/CNS
	1 hour	
C1	1.86	2.05
C2	0.85	1.15
C3	6.04	5.47
iC4	12.49	4.52
C5	4.74	0.58
iC5	4.8	0.65
C6+1	3.76	0.51
	2 hour	
C1	1.63	0.51
C2	0.79	0.29
C3	5.68	1.89
iC4	10.88	3.08
C5	4.76	1.41
iC5	4.03	1.12
C6+1	3.3	0.58
	3 hour	
C1	1.24	0.5
C2	0.62	0.29
C3	4.51	1.86
iC4	8.59	3.03
C5	4.32	1.39
iC5	3.15	1.1
C6+1	2.77	0.57

Table S2. Olefins Carbon number in of NHYZ/CNS and NHYZ catalysts.

Carbon number	NHYZ	NHYZ/CNS
	1 hour	
C2	1.34	1.66
C3	11.89	9.66
iC4	7.95	1.66
	2 hour	
C2	1.27	0.42
C3	11.8	4.04
iC4	8.06	2.72
	3 hour	

C2	1.03	0.42
C3	10	3.98
iC4	7.07	2.67

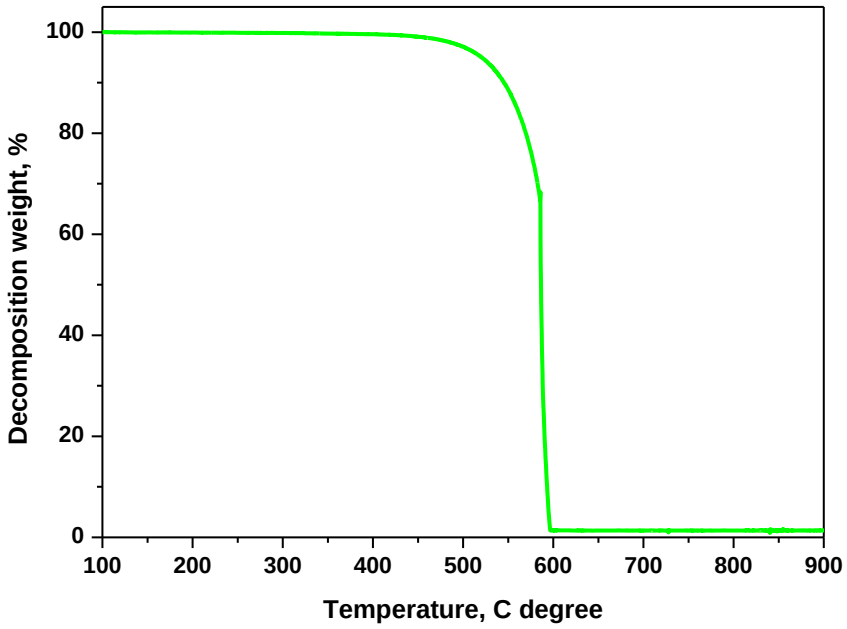

Figure S2. TGA graph of CNS.

Table S3. Decomposition Temperature of CNS.

Material	Decomposition Temperature, °C
CNS	**581**