Supporting Information

Enhanced Hydrothermal Stability and Propylene Selectivity of Electron Beam Irradiation-Induced Hierarchical Fluid Catalytic Cracking Additives

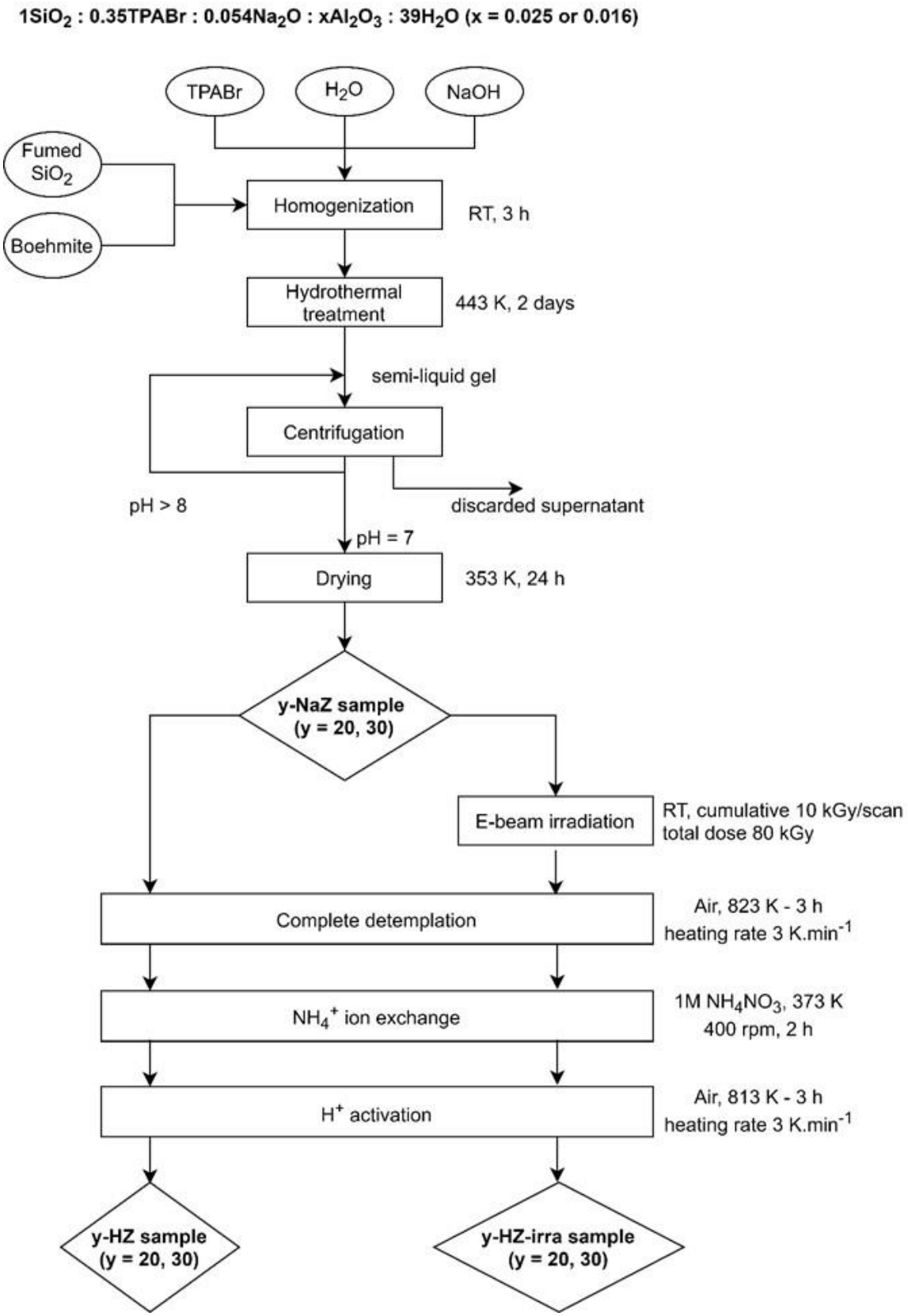


Figure S1. Experimental procedure for synthesis of fresh H-ZSM-5 samples with different Si/Al molar ratios

Table S1. Properties of equilibrium catalyst (Ecat)

Properties	**Ecat**
Physical analysis	
Zeolitic surface area, m^2/g	62.5
Matrix surface area, m^2/g	62.4
Pore volume, cc/g	0.2
Average pore size, Å	88.2
Unit cell size, Å	24.3
Apparent bulk density, g/cc	0.8
Average particle size (µm)	72.2
0-20 µm (wt.%)	0.6
0-40 µm (wt.%)	7.2
0-80 µm (wt.%)	67.8
Metals, ppm	
Ni	3503
V	327
Na	0.13
Chemical analysis, wt.%	
Rare-earth oxides	1.1
Al_2O_3	55.3

Table S2. Properties of atmospheric residue (AR) feedstock

Properties	**Atmospheric residue (AR)**
Density at 288 K, gm/cc	0.89
Sulphur, wt.%	0.08
Carbon residue, wt.%	2.9
Viscosity at 373 K, cSt	10.8
ASTM-7169 Distillation, K	
Initial boiling point	579
5%	624
10%	646
30%	696
50%	734
60%	759
Metals, ppm	
Ni	8.8
V	0.4
Ca	3.9
Fe	10.9
SARA, wt%	
Saturates	35.6
Aromatics	58.9
Asphaltenes	0.2
Resin	5.3