A. HYDROCRAKING UNIT

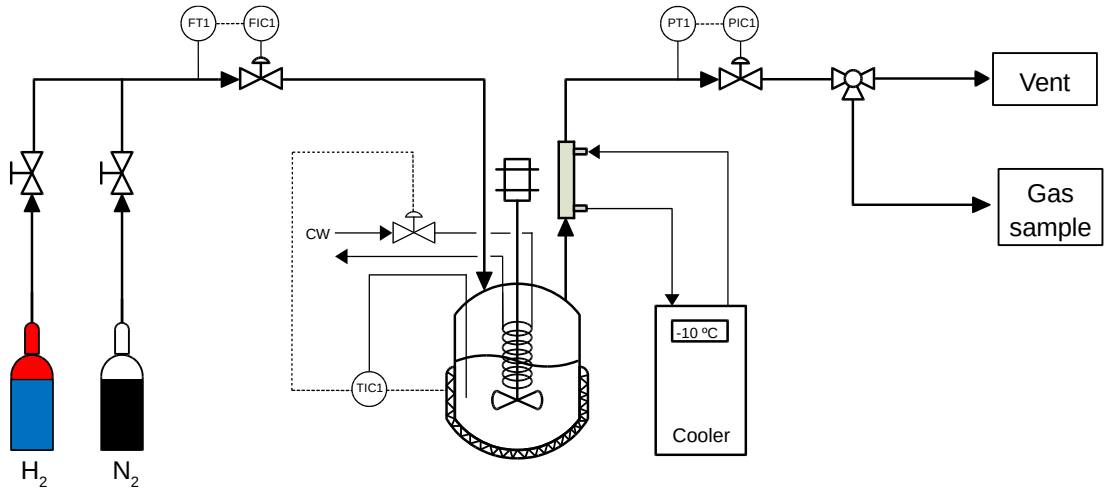

Figure S1. Schematic representation of the hydrocracking unit.

B. SOLVENT FRACTIONATION METHOD

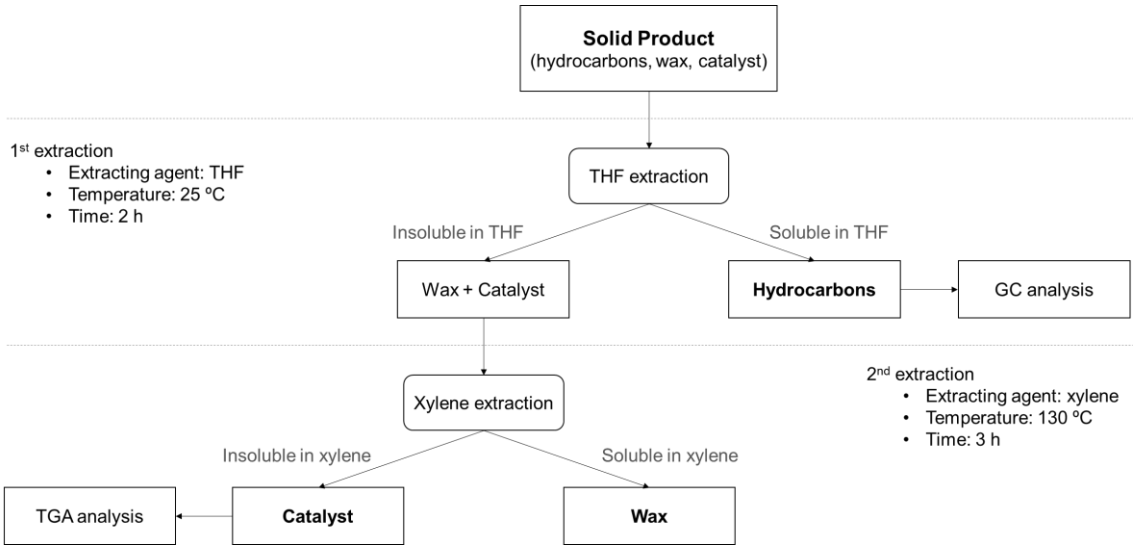

Figure S2. Solvent fractionation method followed.

C. CHARACTERIZATION OF THE FEEDS

Table S1. Properties of vacuum gas oil (VGO) and high-density polyethylene (HDPE).

Properties	VGO	HDPE
Physical properties		
Density at 15 ºC (kg L^{-1})	0.89	0.94
Viscosity at 37.8 °C (kg L^{-1})	34.2	–
IBP-FBP (°C)	314–519	–
Average molecular weight (g mol^{-1})	377	46,200
Dispersity	–	2.89
Higher heating value (MJ kg^{-1})	45	43
Simulated distillation (°C)		
IBP-FBP	156-519	–
T_{50}-T_{95}	415–491	–
Distillation fractions (wt%)		
Naphtha (< 216 °C)	0.17	–
LCO (215-350 °C)	4.48	–
HCO (> 350 °C)	95.4	–
Elemental analysis (wt%)		
C	87.3	85.7
H	12.5	14.3
N	–	–
S (ppm)	510	–
Composition (wt%)		
Paraffins	14.0	–
Naphthenes	35.3	–
Mono-aromatics	20.3	–
Di-aromatics	12.4	–
Poly-aromatics	15.7	–
Sulfur-containing compounds	2.3	