

Supporting Information for In Situ Upgrading of Light Fluid Catalytic Cracking Naphtha for Minimum Loss

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Table S1. Influences of Boiling Range (LCN2 and LCN4) and Olefin Content (LCN1 and LCN2) on the Upgrading Process of LCNs

Table S2. Influence of Residence Time on the Upgrading Process of LCN1

Table S3. Influence of Reactor Structure on the Upgrading Process of LCN3

Table S1. Influences of Boiling Range (LCN2 and LCN4) and Olefin Content (LCN1 and LCN2) on the Upgrading Process of LCNs

feed	LCN1	LCN2	LCN4
temperature (°C)	500	500	500
CTO (kg/kg)	16	16	15
residence time (s)	2.6	2.5	1.5
conversion (wt %)	17.54	26.31	26.59
product yields (wt %)			
dry gas	1.29	1.37	1.65
LPG	13.75	19.80	18.99
C_3^-	5.42	6.74	9.22
C_4^-	6.46	10.33	7.98
diesel	0.40	2.47	2.55
coke	2.10	2.68	3.40
C_3^- / C_4^-	0.84	0.65	1.16
$S_{\text{dry gas}}$	7.35	5.21	6.21
S_{coke}	11.97	10.19	12.79
index			
CMR	2.112	1.796	2.821
evaluation indexes			
O_C (%)	63.77	55.84	74.29
S_{i-P} (%)	34.64	30.63	9.28
S_{Ar} (%)	4.27	4.16	36.65
R_L (%)	5.33	7.25	6.80
e	1.50	1.12	1.56

Table S2. Influence of Residence Time on the Upgrading Process of LCN1

residence time (s)	1.7	2.1	2.6	3.3
temperature (°C)	500	500	500	500
CTO (kg/kg)	16	16	16	16
conversion (wt %)	15.34	16.38	17.54	18.82
product yields (wt %)				
dry gas	1.01	1.13	1.29	1.43
LPG	11.47	12.61	13.75	14.89
$C_3^=$	4.57	4.99	5.42	5.63
$C_4^=$	5.26	5.89	6.46	7.25
diesel	0.94	0.62	0.40	0.27
coke	1.93	2.01	2.10	2.22
$C_3^= / C_4^=$	0.87	0.85	0.84	0.78
$S_{\text{dry gas}}$	6.58	6.90	7.35	7.60
S_{coke}	12.58	12.27	11.97	11.80
indexes				
TCI	0.275	0.284	0.300	0.304
CMR	1.853	2.029	2.112	2.220
evaluation indexes				
O_C (%)	61.65	62.51	63.77	64.75
S_{i-P} (%)	40.85	37.04	34.64	32.81
S_{Ar} (%)	2.81	4.62	4.27	2.67
R_L (%)	4.80	5.04	5.33	5.61
e	1.67	1.58	1.50	1.41

Table S3. Influence of Reactor Structure on the Upgrading Process of LCN3

item	reactor1	reactor2
temperature (°C)	480	480
CTO (kg/kg)	16	16
residence time (s)	2.8	2.8
conversion (wt %)	22.04	15.59
product yields (wt %)		
dry gas	1.36	0.71
LPG	16.48	10.82
C ₃ ⁼	6.40	3.56
C ₄ ⁼	7.74	5.20
diesel	2.31	2.54
coke	1.90	1.51
C ₃ ⁼ / C ₄ ⁼	0.83	0.68
S _{dry gas}	6.17	4.55
S _{coke}	8.62	9.69
indexes		
TCI	0.243	0.162
CMR	1.555	0.925
HTC	0.258	0.348
evaluation indexes		
O _C (%)	61.47	66.67
S _{i-P} (%)	32.63	56.14
S _{Ar} (%)	3.84	6.60
R _L (%)	5.30	3.34
e	1.33	2.24