

Catalytic *n*-pentane Conversion on H-ZSM-5 at High Pressure

Supporting Information

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Key Words

Alkane cracking

Endothermic Cooling

Reaction Mechanism

Bronsted Acid Catalysis

Supercritical Fluids

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Table 1: Product carbon selectivity at 15 min time on stream from high pressure conversion of *n*-pentane on H-[Al]ZSM-5. Reaction conditions: T = 633 – 723 K, P = 40 bar, and WHSV = 1120 g_{C5}g_{cat}⁻¹h⁻¹.

Pressure	40 bar		
Temperature	633 K	673 K	723 K
Conversion	4.29	12.20	29.57
methane	0.05	0.05	0.13
ethane	0.28	0.36	0.86
ethene	0.21	0.30	0.45
propane	23.47	29.18	35.67
propene	1.21	1.38	1.71
<i>iso</i> -butane	15.87	15.55	14.25
<i>n</i> -butane	26.04	27.90	26.25
<i>trans</i> -2-butene	0.65	0.69	0.71
1-butene	0.33	0.38	0.45
<i>iso</i> -butene	1.72	1.57	1.46
<i>cis</i> -2-butene	1.38	0.93	0.77
pentenes	5.22	3.97	3.19
hexanes	5.97	10.93	7.10
hexenes	11.70	1.97	1.72
heptanes	2.24	1.67	1.17
heptenes	3.71	2.75	2.06
Other	0.00	0.39	2.05
P/O Ratio	2.83	6.14	6.83