**Table**

**Table 1.** The textural properties of four ZSM-5 samples obtained by different operating processes.

|  |  |  |  |
| --- | --- | --- | --- |
| sample | *S*BET/m2 g-1 | *V*t/cm3 g-1 | *V*mic/cm3 g-1 |
| ZSM-5-RD | 520.9 | 0.26 | 0.13 |
| ZSM-5-RS | 517.3 | 0.25 | 0.15 |
| ZSM-5-SD | 463.3 | 0.23 | 0.21 |
| ZSM-5-SS | 461.2 | 0.23 | 0.22 |

**Table 2.** Chemical composition of ZSM-5 samples analyzed by XRF and XPS.

|  |  |  |  |
| --- | --- | --- | --- |
| Sample | (Si/Al)gel | (Si/Al)XRF | (Si/Al)XPS |
| ZSM-5-RS | 200 | 142 | 138 |
| ZSM-5-RD | 200 | 138 | 134 |
| ZSM-5-SS | 200 | 178 | 167 |
| ZSM-5-SD | 200 | 167 | 164 |

**Table 3.** Quantification of acid sites according to NH3-TPD profiles.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| sample | peak 1 | | peak 2 | |
| amount*a* | temp (°C) | amount | temp (°C) |
| ZSM-5-RD | 0.33 | 190 | 0.46 | 404 |
| ZSM-5-RS | 0.33 | 187 | 0.41 | 402 |
| ZSM-5-SD | 0.31 | 185 | 0.38 | 392 |
| ZSM-5-SS | 0.28 | 185 | 0.36 | 390 |

*a*The unit of the acid amount is mmol g−1.

**Table 4.** Quantification of acid sites according to the FT-IR experiments.

|  |  |  |
| --- | --- | --- |
| sample | B*a*(µmol g−1) | L*b*(µmol g−1) |
| ZSM-5-RD | 24.52 | 169.11 |
| ZSM-5-RS | 19.52 | 136.97 |
| ZSM-5-SD | 16.29 | 114.60 |
| ZSM-5-SS | 9.71 | 71.75 |

*a*Brønsted and *b*Lewis acid amount at 200 ℃.

**Table S1.** Quantification of acid sites according to the FT-IR experiments.

|  |  |  |  |
| --- | --- | --- | --- |
| sample | temperature (℃) | B*a* | L*b* |
| ZSM-5-RD | 40 | 51.71 | 370.44 |
| 200 | 24.52 | 169.11 |
| 350 | 16.53 | 99.86 |
| ZSM-5-RS | 40 | 51.19 | 393.94 |
| 200 | 19.52 | 136.97 |
| 350 | 12.44 | 83.13 |
| ZSM-5-SD | 40 | 37.17 | 299.98 |
| 200 | 16.29 | 114.60 |
| 350 | 9.11 | 62.30 |
| ZSM-5-SS | 40 | 15.05 | 223.90 |
| 200 | 9.71 | 71.75 |
| 350 | 4.78 | 35.68 |

*a*Brønsted and *b*Lewis acid amount at estimated from the peak areas of the FT-IR profiles at different temperatures (µmol g−1).