

Chiral Surfactant Templated Hierarchical ZSM-5 Type Zeolite

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Hierarchical ZSM-5 (HTA-ZSM-5) type zeolites has been successfully synthesized using chiral tartaric acid based surfactant. ZSM-5 nuclei were prepared by ageing synthesis gels at 25 °C. A chiral anionic surfactant was added to these seeding gels, which were subsequently crystallized at 100, 130 or 165 °C. Samples were thoroughly characterized with X-ray diffraction, field emission scanning electron microscopy, thermogravimetric analysis, N₂ adsorption at 77 K, as well as FT-IR spectroscopy and transmission electron microscopy. The mesoporous ZSM-5 zeolites have additional mesopores of 4 nm and 10-40nm in widths, besides their perfect inherent micropores. The additional mesopores can be attributed to softtemplated pore and intercrystalline of 10 nm in average zeolites particles.