

## THF-FER沸石的系列研究—II. 模板剂分子THF的位置

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**摘要** 用<sup>13</sup>C HPDEC MAS NMR与热分析方法表征了在四氢呋喃(THF)-Na<sub>2</sub>O-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>-H<sub>2</sub>O体系中水热合成的高硅Na-THF-FER沸石、酸交换后的H-THF-FER沸石以及吸附于Na-FER和H-FER沸石中的THF。结果证明,模板剂分子THF位于Na-THF-FER沸石骨架的FER笼内,平衡骨架阳离子Na<sup>+</sup>主要存在于十元环孔道;而吸附于FER沸石中的THF仅处于十元环孔道中,合成样品中THF的化学位移与液态THF相比,向低场移动,谱线明显变宽,表明THF分子与FER笼之间存在很强的相互作用。

**关键词** [沸石](#) [模板剂](#) [四氢呋喃](#) [水热反应](#) [分子筛](#) [催化剂](#) [化学位移](#)

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## Studies on THF-FER Zeolite II . Location of Tetrahydrofuran Molecules in the Framework of THF-FER Zeolite

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**Abstract** <sup>13</sup>C HPDEC MAS NMR, adsorption and TG/DTG/DTA were used to investigate a high-silica Na-THF-FER zeolite synthesized in the reactant system of tetrahydrofuran (THF)-Na<sub>2</sub>O-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>-H<sub>2</sub>O, H-THF-FER zeolite obtained by acid-exchange, and the THF adsorbed in Na-FER and H-FER zeolite. The results indicate that the template molecules of THF are trapped in FER cages, while sodium cations locate in 10 MR channels of the as-synthesized zeolite. The THF molecules adsorbed in FER zeolites only lie in 10 MR channels. Compared with THF in liquid state, the C-13 chemical shifts of the THF in the as-synthesized FER zeolite move to low field, especially for the resonance of 1-C (connected to the oxygen atom). Moreover, the spectra of the as-synthesized Na-THF-FER zeolite are broadened obviously, showing that the molecules of THF trapped in FER cages strongly interact with the framework of the zeolite

**Key words** [ZEOLITE](#) [TEMPLATE AGENT](#) [TETRAHYDROFURAN](#) [HYDRO-THERMAL REACTION](#) [MOLECULAR SIEVE](#) [CATALYST](#) [CHEMICAL SHIFT](#)

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