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CXN天然沸石的研究**2:** 吸附性质

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复旦大学化学系.上海(200433)

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摘要 采用N~2，NH~3，CO~2，乙烯，丙烯，水，甲醇，乙醇，丙醇等作为吸附剂，研究了由我国CXN天然沸石改性制得的H-STI和Na-STI沸石的吸附性质，H-STI和Na-STI沸石的BET表面积及微孔孔体积约为420m^2/g和0.20m^3/g。根据NH~3和CO~2在H-STI沸石上的吸附等温线计算得到它们的吸附热分别为44.8和26.5kJ/mol。乙烯，丙烯，甲醇，乙醇，丙醇等在Na-STI沸石上的吸附等温线表明该沸石对有机分子的吸附具有链长选择性。在低分压下水相对于甲醇的吸附量表明沸石具有一定的疏水性质。

关键词 沸石 吸附 选择性 氮 氨 二氧化碳 乙烯 丙烯 水 甲醇 乙醇 丙醇

分类号 0612

Studies on CXN natural zeolite 2: Adsorption properties

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Fudan Univ, Dept Chem.Shanghai(200433)

Abstract The adsorption properties of H-STI and Na-STI, which were prepared from the natural CXN zeolite obtained in China, were investigated with N~2, NH~3, CO~2, ethylene, propylene, water, methanol, ethanol and 1-propanol. The BET surface area and pore volume of H-STI and Na- STI were about 420 m^2/g and 0.20 m^3/g. The adsorption heat of NH~3 and CO~2 on H-STI calculated by the adsorption isotherms at different temperature was 44.8 and 26.5 kJ/mol respectively. The investigation of the adsorption isotherms of ethylene, propylene, methanol, ethanol and 1-propanol on Na-STI reveals the unusual selectivity to the length of the carbon chain in the molecules of organics. The loading of water is lower than that of methanol in lower partial pressure, which exhibits a somewhat hydrophobic property of the zeolite.

Key words ZEOLITE ADSORPTION SELECTIVITY NITROGEN AMMONIA CARBON DIOXIDE ETHYLENE PROPENE WATER METHANOL ETHANOL PROPANOL

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