

Materials List for:

Adsorption Device Based on a Langatate Crystal Microbalance for High Temperature High Pressure Gas Adsorption in Zeolite H-ZSM-5

Wenjin Ding¹, Giulia Baracchini¹, Michael Klumpp², Wilhelm Schwieger², Roland Dittmeyer¹

¹Institute for Micro Process Engineering, Karlsruhe Institute of Technology (KIT)

²Institute of Chemical Reaction Engineering, University Erlangen-Nürnberg (FAU)

Correspondence to: Wenjin Ding at info@imvt.kit.edu

URL: <https://www.jove.com/video/54413>

DOI: [doi:10.3791/54413](https://doi.org/10.3791/54413)

Materials

Name	Company	Catalog Number	Comments
tetraethyl orthosilicate (TEOS), other name: tetraethoxysilane	Alfa Aesar	A14965	purity> 98%, acutely toxic, inflammable and explosive
aluminum nitrate nonahydrate: $\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$	Chempur	000176	purity> 98.5%
tetrapropylammonium hydroxide: (TPAOH)	Sigma-Aldrich	254533	1 mol dm ⁻³ aqueous solution, skin corrosive
sodium hydroxide: NaOH	Merck	106498	purity> 99%, skin corrosive
Ammonium chloride: NH_4Cl	Merck	101145	purity> 99.8%, harmful
Carbon dioxide (CO_2)	Air Liquide	---	purity> 99.7%
high-pressure stainless steel chamber	Büchi AG, Uster, Switzerland	Midiclave	Volume = 300 ml, up to 200 bar, 300 °C
langatate crystal microbalance sensors	C3 Prozess- and Analysentechnik GmbH, Munich, Germany	---	Diameter: 14 mm, resonant frequency: 5 MHz
high-frequency oscillating microbalance	Gamry Instruments, Warminster, USA	eQCM 10M	Frequency range: 1 MHz - 10 MHz (15 MHz), resolution: 20 mHz