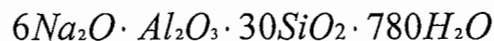


Synthesis of Mordenite

Adapted from Kim and Ahn, Zeolites 11, 745 (1991).

We want to prepare, according to the "oxide ratio":

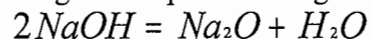


Starting Materials:

Alumina Trihydrate	65.4% Al_2O_3 , 34.6% H_2O
Silicic Acid	82.71% SiO_2 , 17.29% H_2O
NaOH Pellets (5% H_2O)	73.63% Na_2O , 26.37% H_2O

Calculation for Na_2O :

100g NaOH pellets = 95g NaOH + 5g H_2O



95gNaOH/(2 x 40g/mole) = 1.1875 moles Na_2O

1.1875 x 62g/mole 73.63g Na_2O (the remainder of the 100g is H_2O)

Take a basis of 1g of Aluminum Trihydrate

wt(g)	Material	moles Na_2O	moles Al_2O_3	moles SiO_2	moles H_2O
1.00	Aluminum Trihydrate	-	0.006412	-	0.01922
3.24	NaOH pellets	0.03847	-	-	0.04747
13.95	Silicic Acid	-	-	0.1924	0.1340
86.41	Water	-	-	-	4.800
104.6	total	0.03847	0.006412	0.1924	5.001

Rescale to 120g to fill the reactor

wt(g)	Material
1.15	Aluminum Trihydrate
3.72	NaOH pellets
16.00	Silicic Acid
99.13	Water
120.0	total

48 hours at 150°C, non-stirred reactor.