

ERI

Erionite

Al(25), Si(75)

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Verified by K. L. Wong, V. Georgieva

Type Material: $[\text{Na}^{+}_{14} \text{K}^{+}_{2} (\text{H}_2\text{O})_{27}] [\text{Al}_9\text{Si}_{27} \text{O}_{72}]$

Method: S. Ueda, M. Nishimura, M. Koizumi [1]

Batch Composition: 15 Na₂O : 5 K₂O : 60 SiO₂ : Al₂O₃ : 0.1 TMA₂O : 350 H₂O

Source Materials

- double distilled water (dd H₂O)
- tetramethylammonium hydroxide (10% aq. solution)
- sodium hydroxide (99%)
- potassium hydroxide (85%)
- aluminum foil (99.99%)
- colloidal silica sol (0.5278 g/ml SiO₂)

Batch Preparation

- (1) [1.95 g NaOH + 0.96 g KOH + 3.7 g H₂O], stir in a flask
- (2) [(1) + 0.13 g TMAOH + 0.08 g Al], stir until Al is dissolved
- (3) [(2) + 10 ml SiO₂]

Crystallization

- Vessel: Teflon-lined stainless steel autoclave (100 ml)
- Temperature: 100°C
- Time: 6 days

Product Recovery

- (1) Suction filtration
- (2) Washing with hot water
- (3) Drying at 110°C for 24h

Product Characterization

- XRD: ERI, Competing phase: OFF
- Crystal size and habit: particles of 1 μm, shape of hexagonal prism

Reference

- [1] S. Ueda, M. Nishimura, M. Koizumi, Elsevier Science Publishers B.V. Zeolites (1985) 105