DIFFERENTIAL AND THERMAL INVESTIGATION OF ZEOLITES SYNTHETISED FROM NATURAL RAW MATERIALS

B. Cekova*, D. Kocev

School of Chemistry and Technology "M. Curie-Sklodovska" 1000 Skopje,
REPUBLIC OF MACEDONIA

Zeolites are shown with the formula:
\[ x/M' \cdot M'' \frac{1}{2} (AlO_2) \cdot ySiO_2 \cdot zH_2O, \]
where:
- \( M' = Li, Na, K \ldots \), \( M'' = Mg, Ca, Sr, Ba \ldots \)

Zeolite NaA is shown with the formula (1): \( Na_{12}(AlO_2)_{12} \cdot (SiO_2)_{12} \cdot 27H_2O \)

The zeolites of NaA type are described with double \( \beta \)-rings (2). In inside of the eighth \( \beta \)-rings have one big hollow, \( \alpha \)-rings. The lattice of elemental cell is cubic with constant of the lattice \( a_0 = 24.4A \).

From the NaA type in which the ratio of Si/Al in low can be obtain zeolite N-A or \( \alpha \)-type with high ratio of Si/Al and the formula:
\[ Na_4(TMA)_{3} \cdot (AlO_2)_{7} \cdot (SiO_2)_{17} \cdot 21H_2O, \]
where TMA is tetramethylammonium.

Thanking in matter the use of zeolite NaA and ZMS, especially of the zeolite type 4A in the industry of detergents, paper, gum, plastic and pigments in this work are synthetised the zeolites of natural raw material. Thermal transformations of the synthetised zeolites are followed with DTA, DTG and TGA.

* Editorial note: Recognized by Greece as FYROM

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