

Thematic course: Amorphous opal-cristobalite silica as renewable stuff for organosilicon and silicate synthesis. Part 4.

Synthesis and structural characteristics of tris(2-hydroxyethyl)ammonium maleate

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Abstract

Crystalline protatranic structure features of triethanolamine and maleic acid salt were studied.

Crystalline structure of tris(2-hydroxyethyl)ammonium maleate was detected ($a = 5.5882(6) \text{ \AA}$, $b = 10.4152(13) \text{ \AA}$, $c = 12.2523(17) \text{ \AA}$; $\alpha = 68.284(10)^\circ$, $\beta = 85.301(10)^\circ$, $\gamma = 82.432(10)^\circ$; $Z = 2$, group P-1). Crystalline structural subunits – pseudocyclic acidic maleate anion, protatranic tris(2-hydroxyethyl)ammonium cation – form the chair structure, stabilized by hydrogen bonds system, electrostatic and π - π interactions.

There was shown the impact of direct electrostatic interactions and anion structure on protatranic structure stabilization and monosubstituted product formation for maleic acid triethanolammonium salt.