

Crystallographic Aspect of the Phase Transitions in Na₂CO₃. Alla Arakcheeva* and Gervais Chapuis, *Laboratory of Crystallography, , Swiss Federal School of Technology (EPFL), Lausanne, Switzerland.* E-mail: Alla.Arakcheeva@epfl.ch

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From the published data related to the structure determination of phases α (hexagonal; 756 - 972 K) [1], β (monoclinic; 605 - 746 K) [1], γ (incommensurate, monoclinic; 295 K) and δ (lock-in, monoclinic; 110 K) [2] of Na₂CO₃, it appears that Na - C and Na - Na interactions are the driving forces of the phase transitions. The evolution of these interactions with temperature in phase β is reproduced along t in the incommensurate phase γ and relates different atomic groups, which are symmetrically equivalents in phase α . The triangular CO₃ anion is not a rigid unit: the C - O distances depend on additional C - Na bonds.

[1] Swainson, I. P., Dove, M. T. and Harris, M. J. (1995). J. Phys.: Condens. Matter **7**, 4395-4417.

[2] M. Dusek, G. Chapuis, M. Meyer and V. Petricek. Acta Cryst. (2003), **B59** 337-352 .