

REFINEMENT OF CRYSTAL STRUCTURE OF ANCYLITE-(CE) FROM Khibiny Alkaline Massive (Russia) by Rietveld Method

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Ancylite-(Ce) specimen from Khibiny alkaline massive (Kola peninsula, Russia) was studied. Its composition: $(\text{Sr}_{1.01}\text{Ca}_{0.02}\text{Ba}_{0.01})_{1.04}(\text{Ce}_{0.52}\text{La}_{0.28}\text{Nd}_{0.11}\text{Pr}_{0.04}\text{Sm}_{0.01})_{0.96}(\text{CO}_3)_2(\text{OH}_{0.83}\text{F}_{0.13})_{0.96} \cdot 0.91(\text{H}_2\text{O})$. Its composition: The mineral forms the aggregate of bright-yellow lamellar crystals, which make the porous pseudomorphosis upon hexagonal-prismatic mineral. In association with ancylite there are feldspar, natrolite, eudialite, aegirine, astrophyllite and apatite. The crystal structure of ancylite-(Ce) was refined by the Rietveld method in space group Pmcn. RWP=1.89%, anisotropic, $a=5.0632(1)$, $b=8.5902(2)$, $c=7.2781(1)\text{\AA}$. In x-ray powder pattern of ancylite-(Ce) two visible reflections ($d=8.579\text{\AA}$, $l=1$ and $d=5.072\text{\AA}$, $l=1$) have the indexes hkl (010) and (100), correspondingly, that cannot become apparent in space group Pmcn. These reflections indeed belong to ancylite because they are divisible to cell parameters a and b . Possibly there are several causes of their presence: 1) reduction of space symmetry (perhaps to monoclinic); 2) formation the superstructure, i. e. the double increasing of cell parameters a and b with division of cation position into two different sites - position of 2-valency cations and position of REE.