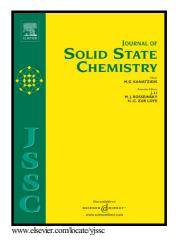
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Hydrothermal syntheses and characterization of phenyl- and benzyl-phosphonates and ethylene- and propylene-diphosphonates of cobalt(II), $ACo(O_3PR)_2 \cdot xH_2O$ and $ACo(O_3P-R-PO_3) \cdot 2H_2O$ (A = Ca, Sr, Ba; R = Ph, CH₂Ph, -CH₂CH₂-, -CH₂CH₂CH₂-)



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Abstract

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Eight new mono- and diphosphonates of cobalt(II), $ACo(O_3PPh)_2 H_2O$ (A = Ca(1), Sr(2)), BaCo(O₃PPh)₂·2H₂O(**3**), $ACo((O_3PCH_2Ph)_2 H_2O)$ (A = Sr(4), Ba(**5**), $ACo(O_3P(CH_2)_2PO_3)_2 H_2O$ (A = Ca(6), Sr(7) and $SrCo(O_3P(CH_2)_3PO_3)_2 H_2O(8)$, were isolated by hydrothermal method and structurally characterized by single crystal X-ray diffraction. They contain tetrahedrally coordinated Co^{2+} ion. The five phenyl- and benzylphosphonates, **1-5** have layered structures, wherein the cobalt and alkaline earth metal ions are ordered, confined approximately to a crystallographic plane and bonded to oxygen atoms of phenyl- or benzylphoshonate moieties and water of crystallization. The diphosphophonates **6-8** have pillared-layered structures and the magnetic susceptibilities of compounds **7** and **8** vary with temperature as per the Curie-Weiss law above 10 K. Download English Version:

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