

# CHEMICAL PREPARATION, CRYSTALLOGRAPHIC CHARACTERIZATION AND VIBRATIONAL STUDY OF TWO NEW CONDENSED PHOSPHATES

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## Abstract

Chemical preparation, crystallographic characterization and vibrational studies are reported for two new condensed phosphates associated to nickel-rubidium  $\text{NiRb}_4(\text{P}_3\text{O}_9)_2$  and strontium-thallium  $\text{SrTl}_4(\text{P}_3\text{O}_9)_2$ .  $\text{SrTl}_4(\text{P}_3\text{O}_9)_2$  was prepared by the method of ion-exchange resin and  $\text{NiRb}_4(\text{P}_3\text{O}_9)_2$  was obtained by total thermal dehydration of  $\text{NiRb}_4(\text{P}_3\text{O}_9)_2 \cdot 6\text{H}_2\text{O}$ .  $\text{SrTl}_4(\text{P}_3\text{O}_9)_2$  is rhombohedral,  $Z = 2$ , space group  $P\bar{3}1c$ , with the following unit-cell parameters:  $a = 7,424(1) \text{ \AA}$ ,  $c = 20,176(2) \text{ \AA}$  and  $V = 2807.46(2) \text{ (\AA}^3\text{)}$ .  $\text{NiRb}_4(\text{P}_3\text{O}_9)_2$  is triclinic,  $Z = 2$ , space group  $P\bar{1}$ , with the following unit-cell parameters:  $a = 8,046(9) \text{ \AA}$ ,  $b = 9,733(0) \text{ \AA}$ ,  $c = 4,327(5) \text{ \AA}$ ,  $\alpha = 98.053^\circ$ ,  $\beta = 88.616^\circ$ ,  $\gamma = 84.761^\circ$  and  $V = 333,95(2) \text{ (\AA}^3\text{)}$ . Vibrational study is also reported for the title compounds.

**Keywords:** Chemical preparation, crystallographic characterization, infrared spectrometry,  $\text{NiRb}_4(\text{P}_3\text{O}_9)_2$ ,  $\text{SrTl}_4(\text{P}_3\text{O}_9)_2$ .