Framework phosphates with $\text{Sc}_2(\text{WO}_4)_3$ (SW) type structures, due to their structural peculiarities and a wide variety of iso- and heterovalent chemical substitutions at all crystallographic positions of the structure, allow for the preparation of a large number of closely related compounds and for the selection of SW-compositions to create new materials with desired properties.

Selected results of complex investigations of thermophysical properties (thermal expansion, thermal conductivity, and heat capacity) of the phosphate $\text{Mg}_{0.5}\text{Zr}_2(\text{PO}_4)_3$ are presented. The phosphate crystallizes in an SW structure in the $\text{P}2_1/n$ space group. The thermal expansion behavior of the compound was investigated by high-temperature X-ray powder diffractometry. The thermal expansion coefficients were determined between room temperature and 1023 K. They vary from $-3 \times 10^{-6}$ to $7 \times 10^{-6}$ K$^{-1}$. The observed axial thermal expansion and contraction behavior is explained on the basis of the crystal chemistry of the SW family of compounds.