at 800°C) was established by the Lacorre et al. [1]. There is no such a compound in the Nd₂O₃ - MoO₃ system, but there is one with the fluorite-like structure near the Nd₄Mo₂O₁₁ [2], [3], [4]. Chemical composition and crystal structure of the Nd₂MoO₆₀ compound were studied before on polycrystals [4] as well as similar structure of Pr₂MoO₆₀ [5]. It was found that the Pr₂MoO₆₀ crystals have a fluorite-like superstructure in Pn-3n space group. There are Pr1 at 12e position, Pr2 at 8c, Mo at 16f, and two kinds of oxygen atoms O1 at 48i and O2 at 16f. Over thermal parameters are given in [5] for the Pr2 (B<eq>=1.32(16) Å²) and Mo (B<eq>=0.98(7) Å²) atoms, while B<sub>2</sub>=0.71(4) Å² for the O2 atom.

Single-crystal structure refinement of Nd₅MoO₂₄ and study of the physical properties have been performed. Dark-violet cubic Nd₅MoO₂₄ single crystals were grown by spontaneous flux crystallization. The conductivity of the compound is hypothetically anionic and reaches approximately 10<sup>−10</sup> S/cm at 800°C.

The structure of Nd₅MoO₂₄ single crystal was studied by the X-ray techniques (XCalibur S CCD-diffractometer, T=293 K). The unit cell was found to be cubic with a=11.028(1) Å, which relates to that of fluorite CaF₂ as a=2a<sub>f</sub>. The structure was solved using the Pn-3n symmetry group. It was found that the Nd1 and Mo atoms are shifted from their positions on the 4-fold axis with the formation of 4 positions (0.25 occupation) around it. The Nd2 atoms are not disordered; they are located on the 3-fold axis and are surrounded by oxygens with 6 Nd2-O2 distances equal to 2.597 Å and 2 distances Nd2-O1 equal to 2.294 Å (coordination polyhedron of Nd2 – slightly distorted cube). Inclusion of Mo atoms into Nd₅MoO₂₄ structure, which are surrounded by O2 atoms (Mo-O2 distances from 1.695 to 1.892 Å) lead to the strong distortion of the Nd1 – polyhedron and to the deviation of the structure framework from the fluorite-like. Some shift of the Nd1 and Mo atoms from the axis appears as a result, which was established in the present work (R=3.6%, R<sub>W</sub>=3.27%, S=1.99, B<sub>2</sub>=0.24(1) Å² for the Pr2 atom).

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**Keywords:** coordination compounds, vanadium, Schiff-base

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**Synthesis and structure of new vanadium(IV) complex based on isonicotinic hydrazide**

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Although the biological significance of vanadium was recognized long ago, the coordination chemistry of this element continues to attract the attention of researchers, not least because of the discovery of some peroxidases, as models for bromoperoxidase, nitrogenases and other biological systems.

The crystalline coordination compound VO₂L₂H₂O has been obtained as the result of interaction of 2,4-pentanedione isonicotinic hydrazone (HL) with VO₂SO₃H₂O. This compound is soluble in chloroform, dimethylformamide, less soluble in EtOH and MeOH.

The product VO₂L₂H₂O is characterized using IR spectroscopy, elemental analysis and X-ray method.

The disappearance of the band at 1624 cm⁻¹ (ν(C=O)) and the absence of oscillations bands at 1065-960 cm⁻¹ attributed to vibrations of =C=NH in the spectrum of VO₂L₂H₂O as compared to that of the uncoordinated ligand, indicates upon the coordination L<sub>2</sub>- to vibrations of =C=NH

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**X-Ray studies in a manganese lawsonite coordination polymer**

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Lawsonite (2-hydroxy-1,4-naphthoquinone) is a natural spin carrier in metal complexes molecules. The redox properties of quinones and their complexes have been explored for applications such as the development of new drugs for cancer [1] and switches for molecular electronics [2]. Here, we describe the synthesis and the characterization of [Mn(C₇H₅NO₃)$_{4}$] by infrared and ultraviolet spectroscopy, thermogravimetric analysis and single-crystal X-ray diffraction. X-ray data shows the formation of a coordination polymer with the manganese atom in a center of a fully distorted octahedron (C2/c). The carbonyl and the phenoxy oxygens (O1 and O2, respectively) chelate to the manganese, and the other carbonyl oxygen (O3) bridges to another metal center forming a 2D arrangement. Temperature dependent X-ray studies (225 K and 110 K) shows a significantly variation in bond distances around the metal center, which indicates change in the bond

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**C714**