The compound NiBi$_2$Se$_4$ has been discovered earlier in NiBi$_2$Se-Se investigation of physico-chemical interaction between Bi$_2$Se$_3$ and NiSe. Type of the compound crystallization has been established as tetradinamical one with romboedric lattice parameters: $A=4,08$; $c=27,18$ Å. The region of the first crystallization of the compound has been determined only in the section Bi$_2$Se$_3$-NiSe. In the present work are shown the results of investigations of two sections NiBi$_2$Se$_4$-Se and NiBi$_2$Se$_4$-Bi aimed to determine the first crystallization borders of the ternary compound NiBi$_2$Se$_4$ in other directions.

The alloys have been synthesized from especially pure elements (Bi and Se marked B-4, Ni-electrolitical-base component-99,9%) in vacuum (-0,1 Pa) quartz containers at the temperature 1100-1200 K during 8 hours. The balanced alloys have been studied by the methods of differential-termical, X-ray diffraction, microstructure analyses.

In accordance with total data obtained from the analyses carried out the phase diagrams of the systems NiBi$_2$Se$_4$-Se and NiBi$_2$Se$_4$-Bi have been built and determined the quasi-binary of these systems. In the system NiBi$_2$Se$_4$-Se the extensive region (from 50 to 99 mole % Se) of exfoliation of the phases in liquid condition has been obtained. In this case monothectic process takes place on isothermic line at 1020 K. The eutectic of the system degenerated both by the composition and temperature at Se. The region of the first crystallization NiBi$_2$Se$_4$ practically reach Se.

The system NiBi$_2$Se$_4$-Bi in simple eutectic one. The eutectic and the region of the Bi first crystallization are degenerated. The liquids of this section consists of the only branch, where the first crystallization of the compound NiBi$_2$Se$_4$ takes place.

In this way the region of the first crystallization of the compound NiBi$_2$Se$_4$ envelops quite large part of the ternary system Ni-Bi-Se.