In the Romanian Carpathian area it is known a large pegmatite Province (CPP), consisting of several subprovinces, as follows: Preluca (PPS), Rodna (RPS), Gilău-Muntele Mare (G-MMPS), and Getică (GPS). The pegmatites (lenses, concordant veins, nests, dykes) are hosted within Precambrian metamorphic rocks, typical of amphibolitic facies: paragneises, micaschists, amphibolites, crystalline marbles, usually associated with migmatites, which belong to the mesometamorphic series: Rebra, Baia de Arieş, Someş, Sebeş-Lotru.

The pegmatites from the Carpathian Province have a simple mineralogy and low rare-elements contents, which are characteristic of the metamorphic type pegmatites.

The main mineral phase of the pegmatites consists of quartz + acid plagioclase + microcline + muscovite + spodumene. As accessory minerals occur: biotite, garnets, tourmaline, beryl, apatite, columbit + tantalite, montebrasite, rutil, purpurite, cassiterite, ilmenite, kyanite, sillimanite etc.

On the basis of mineralogical and geochemical features, the pegmatites from Carpathian Province belong to the following classes: (1) feldspar pegmatites; (2) mica-bearing pegmatites and (3) rare-element pegmatites, which include two types: (3a) beryl type and (3b) albite – spodumen type (Murariu, 2001).

The REE content (ICP-MS analyses) of pegmatites is controlled by their mineralogy, especially by the contents of plagioclase and some accessory minerals (apatite, garnets, biotite etc). The REE contents between the limit values of isomorphic accumulation.

In the CPP, the lanthanides contents (ppm REE+Y) are evidently increasing from the graphic pegmatites (5.25), mica-bearing pegmatites (25.53) to feldspar (Na-Ca) pegmatites (58.8). The pegmatites examined are low concentrations of HREEs and negative Eu anomalies.

The geochemical distribution of REE+Y (ppm) in the pegmatitic minerals revealed the higher values in apatite (4547.37), almandine-spessartine garnets (540.75), biotite (520.27) and lower content in muscovite (101.31). The presence of lanthanides in the analyzed pegmatitic minerals is the result of the following isomorphous substitutions: REE Si (Ca, P), REE Na (Ca), YREE Al (Mn, Si), and REE Si (Ti, Al). In the apatite and in the mica, LREE > HREE, while in the garnets, LREE < HREE. The negative Eu anomalies in pegmatitic minerals as well as the low oxidation ratio can be explained by a low oxygen fugacity during crystallization.

The REE concentrations in the country rocks (75.24 – 278.01 ppm) are higher as well as in the pegmatites. The values are typical of sedimentary rocks and their metamorphosed equivalents.