SYSTEM OF EMPIRICAL EQUATIONS FOR CALCULATION OF FORMATION CONDITIONS OF MAGMATIC PARAGENESIS

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The article provides data on a set of equations (about 600 equations) created using a database of experimental data called «INFOREX». Along with traditional equations such as thermometers and barometers, the authors created meltometers to calculate element content in a melt and equilibrometers to calculate composition equilibrium of studied paragenesis. The article presents examples for each type of equations with their properties. Investigation of interphase distribution of elements allowed distinguishing pressure-sensitive and temperature-sensitive elements, peculiarities of distribution of silica, aluminium, magnesium, and calcium, magnesium − alkali sum in basic iltrabasic melt system − is a rock-forming mineral. Equations and a number of regularities used to distinguish genesis of natural paragenesis allowed evaluation of melt ascent rate in rift valleys of Mid-Ocean Ridge, as well as provided evidence for non-magmatic genesis of diamonds and increasing in magnesium content in komatiites during secondary alterations.

Keywords: paragenesis, equilibrium, geothermometer, geobarometer, meltmometer, equilibrometer.