

Mineral analysis of sediments from bulk chemistry (MINLITH-Program)

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The algorithm of that MS Program is based on 600 modal bulk mineral analyses published elsewhere and on adopted mineral formulas to obtain a resemblance between modal and normative compositions (in wt.%). Firstly the Accessory minerals are to be calculated, secondly - Aluminosilicates (plagioclase, K-feldspar, illite, smectite, chlorite a.o.th.) and thirdly - Other minerals including quartz, goethite, or carbonates if excess of Ca appears. The results characterize mature sedimentary rock undergone deep diagenesis. Control statistics on 115 published analyses of highest precision exhibits errors in normative contents mostly of $\pm 5-15$ rel.% and in some cases for feldspars up to 40 rel.%. When modal mineral content is less than 5 wt.%, the error increases up to 60-70 rel.% and that normative data may be used as semiquantitative estimations.

A great number of chemical analyses of main rock types in platform covers on ancient cratons have been averaged to calculate and compare their mineral composition. Sandstones in the Russian, North-American and China Platforms reveal various proportions of Quartz/Feldspars/Pelite (Q/F/P) as 5/1/2, 4/1/0.5 and 3/1/1 respectively, whereas Plagioclase/Feldspars ratios (P/F) accordingly are 0.69, 0.58 and 0.85. Pelites are rather sandy and display equal ratios of Q/F/P = 2/1/3, but P/F vary as 0.5, 0.5, and 0.7, respectively. Carbonates contain about 10 wt % of mostly pelitic admixture with Q/F/P = 2/1/2. Cover clastics of the China craton are found to be of the least maturity.

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