

Chemical composition of the Tertiary black shales of West Sabah, East Malaysia

Abstract

The X-ray fluorescence and ICP methods were used to analyze 60 outcrop samples of black shale, of which 15 were collected from Belait, 15 from the Setap Shale, 15 from Temburong, and 15 from the Trusmadi formations. The average compositions of the shales from the study area are 64.62%, 63.95%, 62.32%, 63.84% SiO₂, 1.84%, 2.14%, 2.04%, 1.99% MgO, 2.55%, 3.12%, 2.89%, 2.72% K₂O, 0.32%, 0.30%, 0.32%, 0.53% CaO, 5.86%, 6.06%, 7.14%, 6.60% Fe₂O₃, 207×10^{-6} , 180×10^{-6} , 213×10^{-6} , 200×10^{-6} Rb, and 56×10^{-6} , 49×10^{-6} , 50×10^{-6} , 32×10^{-6} Sr for the Setap Shale, Temburong, Belait and Trusmadi samples, respectively. The high Rb/Sr ratios of 3.8, 3.7, 4.2, and 6.1 are attributed to the lowest contents of Sr due to reducing conditions prevailing. The high Rb/K ratio suggests either brackish marine or rapid deposition that prevented equilibrium between Rb and K in the shales and marine waters. © Science Press 2008.