Journal of Applied Geochemistry
Vol. 18, No. 2 (2016). pp. 132-136

MAJOR, MINOR AND TRACE ELEMENTAL DATA FOR FIFTY NINE ELEMENTS IN THREE GEOLOGICAL SURVEY OF INDIA IN-HOUSE GEOCHEMICAL REFERENCE MATERIALS

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Abstract

In order to meet the needs of geochemical mapping and geochemical exploration, three geochemical reference materials have been successfully prepared by the Geological Survey of India (GSI) since 2005. They include reference materials of stream sediments PKSS-1 (Palakkad Kerala Stream Sediment-1), AASS-2 (Anantapur Andhra Pradesh Stream Sediment-2) and soil PKS-1 (Palakkad Kerala Soil-1). A multi-laboratory collaborative analysis scheme was adopted in the certification procedure of fifty nine major oxides and trace elements [SiO_2, Fe_2O_3, Al_2O_3, MnO, MgO, P_2O_5, CaO, Na_2O, K_2O, TiO_2 , Ba, Ga, Sc, V, Th, Pb, Ni, Co, Rb, Sr, Y, Zr, Nb, Cr, Cu, Zn, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Be, Ge, Hf, Ta , U, Mo, W, Sn, Li, Cs, In, Tl, As, Sb, Bi, Se, Te, Hg and F] and Loss On Ignition (LOI). These samples have been supplied to more than fifteen laboratories comprising of both regional and operational levels.

These in-house geochemical reference materials are intended to be used for the calibration of measuring apparatus, evaluation of analytical methods, certification studies, quality control and laboratory accreditation programs.

Keywords: Reference materials, GSI, Geochemical mapping, Analytical techniques, Certification, Uncertainty, Calibration.