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DETERMINATION OF UNKNOW ANALYTE CONCENTRATION IN GLASS SAMPLES USING THE LIBS METHOD

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Abstract. Laser induced breakdown spectroscopy, based on TEA CO_2 laser, was used for determining the unknown concentration of cadmium and copper in glass samples by calibration curve method. The intensity ratios of the analyte lines and the internal standard were used to construct the calibration curves. An internal standard in the LIBS is typically one of the major components of the sample, such is silicon in glass. The calibration curves of Cd and Cu are shown in Figure 1. Based on the obtained calibration graphs, concentrations of Cd and Cu in three glass samples were determined. Sample 1 contains 359 ppm Cd and 1925 ppm Cu, Sample 2 contains 1250 ppm Cd and 365 ppm Cu and Sample 3 contains 1700 ppm Cd and 1160 ppm Cu. XRF method was used as a control method and results obtained by LIBS showed good agreement with the concentrations determined by XRF.

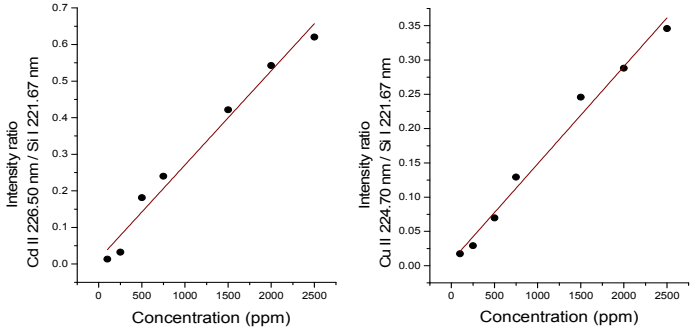

Figure 1: LIBS calibration curves of Cd and Cu

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