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BOOK OF ABSTRACTS

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DETERMINATION OF NICKEL, COBALT, AND CHROMIUM IN A SODA-LIME GLASS BY USING LIBS BASED ON PULSED IR LASER

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ABSTRACT
This work presents a study of the applicability of laser-induced breakdown spectroscopy (LIBS), based on Infrared Transversally Excited Atmospheric CO_2 pulsed laser (TEA CO_2), to determine nickel, cobalt, and chromium in a window glass samples. Estimated limits of detection (LODs) for Ni, Co, and Cr, were 2.1, 3.2, and 0.4 ppm, respectively. In addition, two main plasma parameters, electron number density and temperature, were determined to characterize the laser-induced plasma. The electron number density (N_e) was determined from the measured Stark width of the Al I 396.15 nm line, and the intensity ratio of two atomic iron lines (342.71 nm and 344.06 nm) was used to determine the excitation temperature (T_{exc}). The obtained values were $N_e = 8.3 \cdot 10^{16}$ cm^{-3} and $T_{exc} = 7700$ K.