Reflectance spectra of Mercury analogue materials between 0.5 and 17 microns

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To facilitate the development of the MERTIS instrument for ESA’s BepiColombo mission, a list of Mercury analogue materials has been compiled (Helbert et al., submitted to Adv. Space. Res.). MERTIS (Helbert et al., this meeting) will map emissivity of Mercury between 7 and 14 microns and spectral emissivity measurements of suitable analogue materials are required for its calibration (Maturilli et al., this meeting). However, cross-calibration with other instruments onboard BepiColombo (SYMBIO-SYS) and MESSENGER (MASCs) spacecraft requires spectral reflectance measurements of the same analogues in the visible and near-IR spectral ranges. Here we present the results of spectral reflectance measurements of the Mercury analogue materials between 0.5 and 17 microns, performed using the DLR Bruker IFS 88 FTIR spectrometer. The materials include plagioclase and potassium feldspars, low Ca and high Ca pyroxenes, forsterite, elemental sulfur and an Apollo 16 lunar highland soil. For each sample, except for the lunar soil, the spectra of four size separates (<25; 25-63; 63-125 and 125-150 microns) were acquired. In addition, we compared reflectance measurements in the TIR range with emissivity measurements of the same samples (Maturilli et al., this meeting) to evaluate deviations from the Kirchhoff’s law.