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## Medieval Papermaking Characteristics and Similar Recording Qualities Required for Art Working Papers

This work develops the study of medieval paper samples, in particular those showing Hispano-Arabic characteristics produced before 1350 in the Iberian Peninsula, and those showing new Italian characteristics produced after 1350 from Italian improved production. The quality of the paper obtained with ancient recipes has meant that these manufacturing procedures are preserved for the production of papers for artistic purposes. The good paper quality shown in the early Hispano-Arabic or in the early Italian paper was later required for art paper purposes.

The study of both types of papers from original ancient samples is complemented by making and reproducing sheets following the two procedures, taking into account the wide and detailed description offered by Józef Dabrowsky in "The Genuinely European Technique of Making Paper by Hand Developed in Fabriano: an Interpretation through the Mirror of Paper Technology".

The original medieval samples will be compared to the new sheets obtained when applying the making process described above, by using material characterization techniques. The principal techniques applied are Scanning Electron Microscopy with Energy Dispersive X-ray Spectroscopy (SEM-EDX) and Infrared analysis (IR Spectroscopy).

SEM allows seeing microscopic surface structures and topography of the samples with high precision.

Complementary light microscopy images for both types of samples were also used. EDX allows the detection of elemental composition in the SEM image surface of the sample.

Infrared analysis (IR Spectroscopy) allows inorganic and organic compounds identification in both types of ancient samples due to the different functional groups. Fourier Transform Infrared (FTIR) analysis of fibres from both types of samples mostly allows the determination of the functional groups in fibres and other materials in papers. FTIR allows easy identification of starch characteristic sizing for Arab paper, or gelatin sizing used in the novel process from Italy.

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