

Electronic Supporting Information (ESI) for Analyst

## Red stains on heritage marbles: application of micro-scale analyses to assess the presence and distribution of lead compounds

Elisa Villani<sup>a,b</sup>, Amelia Suzuki<sup>a,c</sup>, Marilena Ricci<sup>d</sup>, Barbara Salvadori<sup>a</sup>, Silvia Vettori<sup>a</sup> and Emma Cantisani<sup>a\*</sup>

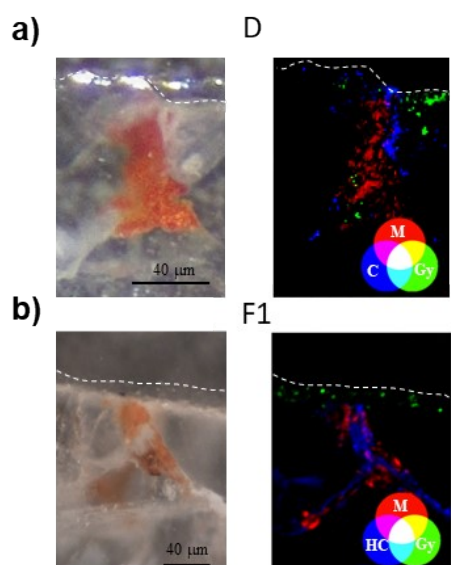


Fig. S1. OM images and  $\mu$ -XRPD maps of 2 areas near the sample surface (dashed white line) of D and F1, (a) and (b) respectively. In the false colour RGB combination maps the phase distribution of minium (M), cerussite (C), hydrocerussite (HC) and gypsum (Gy) are highlighted.

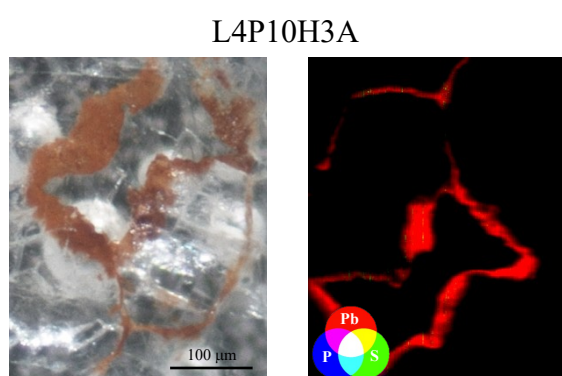
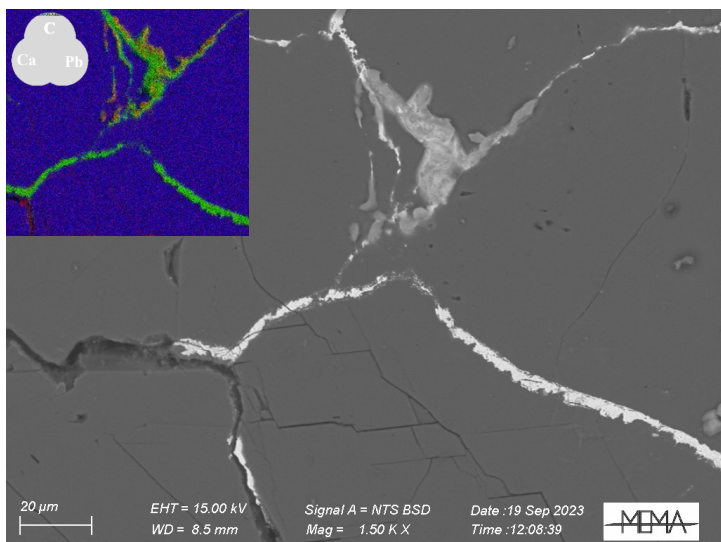


Fig. S2. OM image and  $\mu$ -XRF map of one area of L4P10H3 sample. In the false colour RGB combination map lead (Pb), phosphorous (P) and sulphur (S) are mapped.



*Fig. S3. BSE image and EDS sum map (Pb, C, Ca) of one area of F1 sample. In the false colour RGB combination map lead (Pb), calcium (Ca) and carbon (C). Lead is the main visible element where only minium was detected with  $\mu$ -XRPD and  $\mu$ -Raman. Where the lead carbonates presence was confirmed, a superimposition of carbon and lead (resulting in yellow) is visible.*