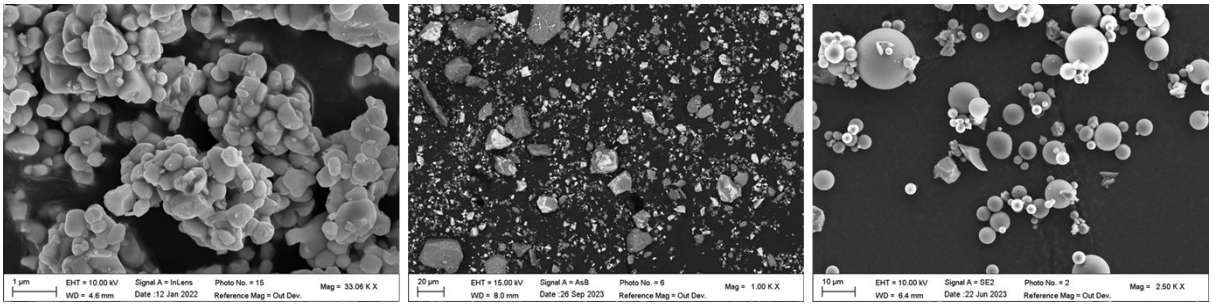
Supplementary information

Material and methods

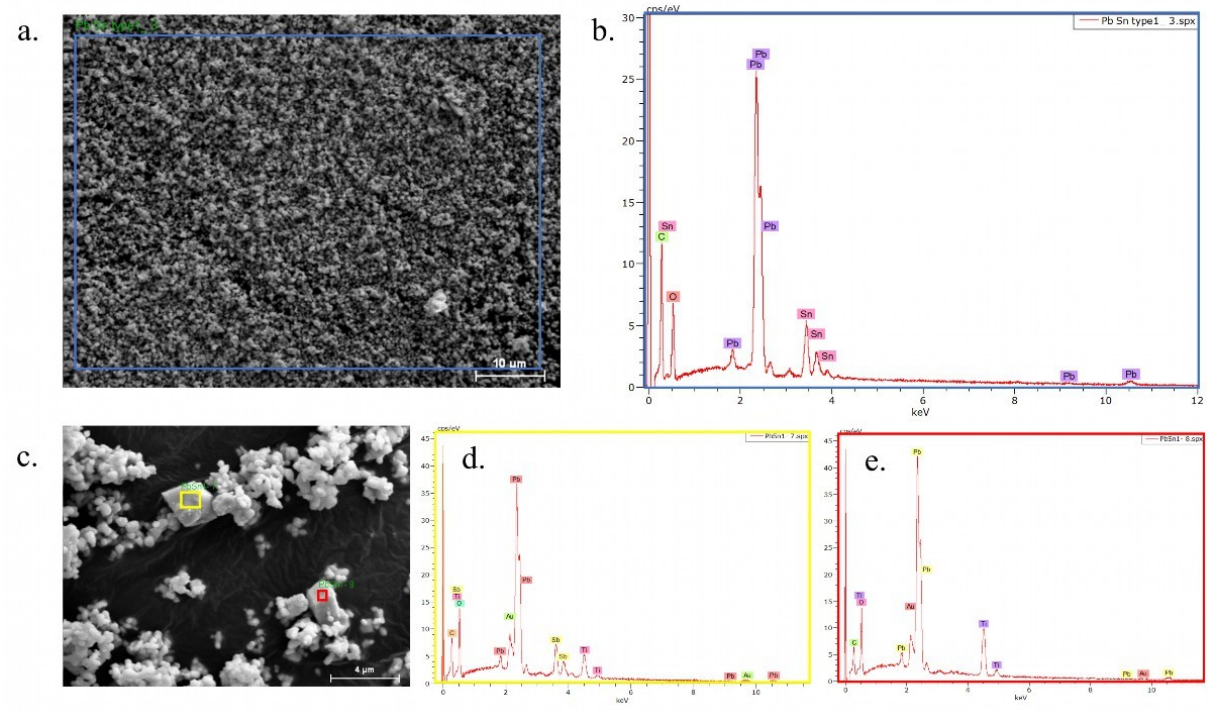
Scanning Electron Microscopy (SEM)

Images were acquired on a ZEISS Ultra 55 SEM-FEG (Field Emission Gun) microscope. Secondary electron imaging was performed at 10 kV with an InLens detector or an Everhart Thornley SE2 detector. Backscattered electron imaging was performed using an AsB detector.

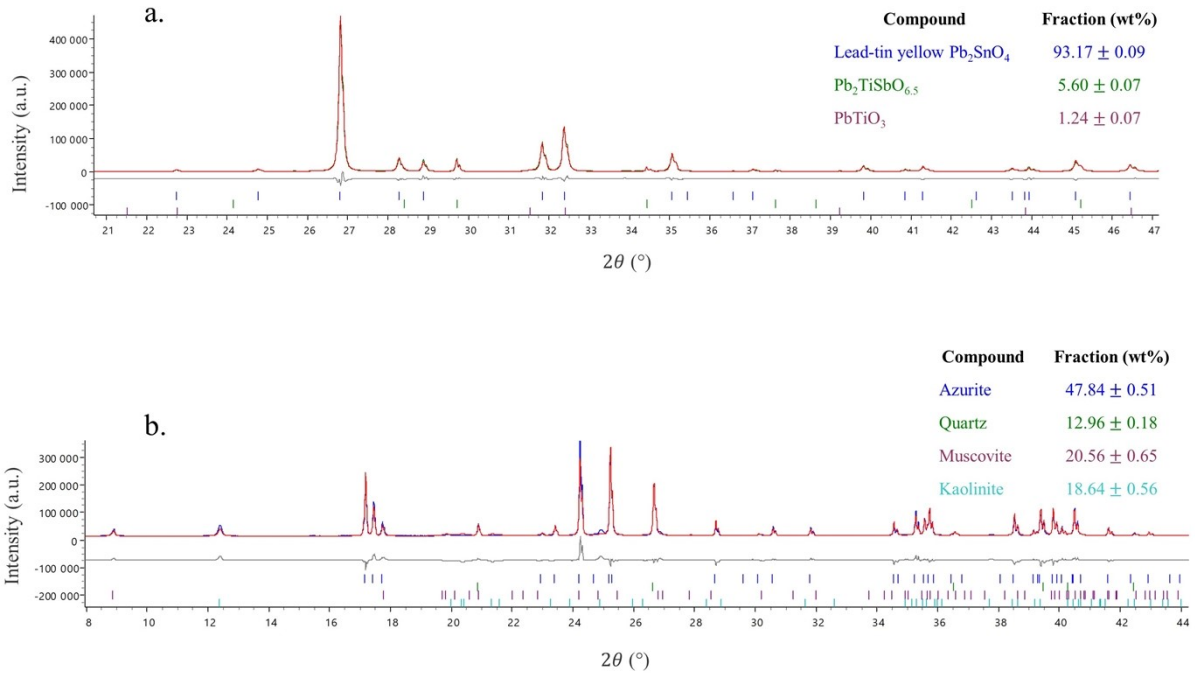
Figures



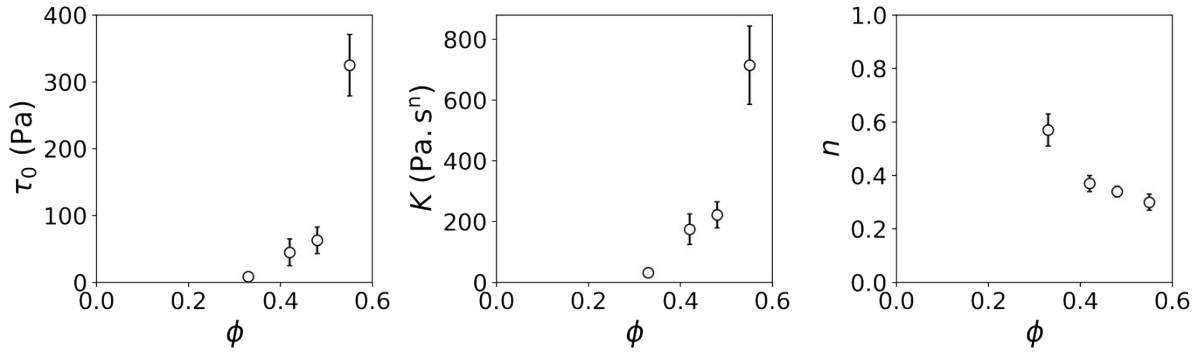
Supplementary figure S1: SEM images of the particles used to prepare paints. Left: lead-tin yellow type I. Center: azurite. Right: glass spheres.



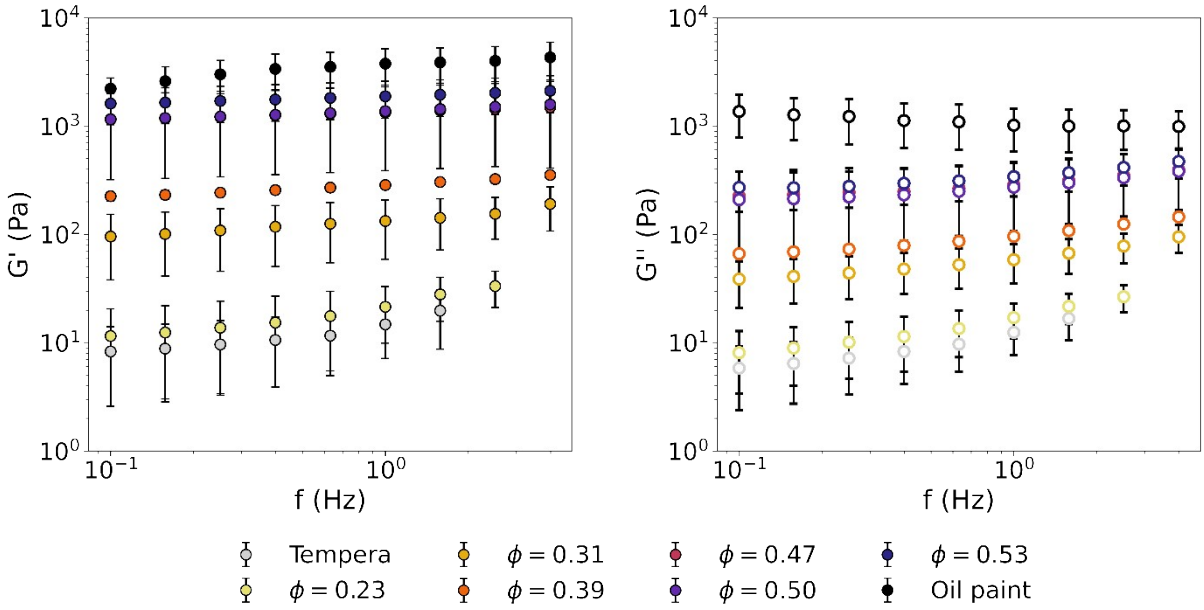
Supplementary figure S2: a. SEM image of lead-tin yellow type I, b. EDX spectrum acquired over the area enclosed by the blue rectangle in a. c. SEM image highlighting two types of impurities in lead-tin yellow type I. d, e, EDX spectra acquired over the area respectively enclosed by the yellow and red rectangles on c.



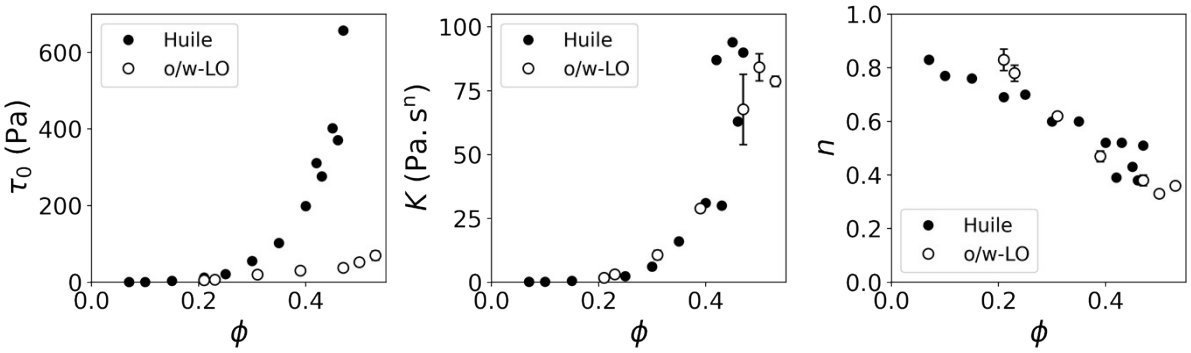
Supplementary figure S3: Rietveld refinement of XRD data of a. Lead-tin yellow type I, b. Azurite. Data processing was performed with DIFFRAC.TOPAS software (Bruker).



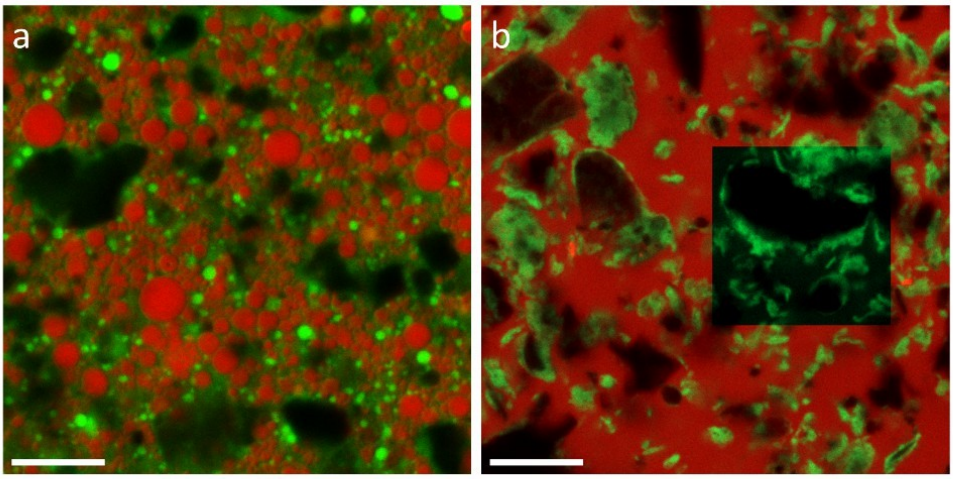
Supplementary figure S4: Impact of ϕ on the parameters of the Herschel-Bulkley model for o/w-LO paints prepared with azurite: a. yield stress τ_0, b. consistency K, c. flow index n. At $\phi = 0.21$, black circle: tempera*. Error bars: standard deviation over three independently prepared paints.*



Supplementary figure S5: Frequency sweep measurements on o/w-LO paints with various disperse phase volume fractions. Tempera and oil paint both have $\phi = 0.21$.



Supplementary figure S6: Parameters of the Herschel-Bulkley model for o/w-LO paints prepared with 21 vol% lead-tin yellow and a varying amount of dispersed oil (open circles), and for oil paints with a varying amount of lead-tin yellow (closed circles): a. yield stress τ_0*, b. consistency* K*, c. flow index* n*. Error bars on o/w-LO data: standard deviation over three independently prepared paints.*



Supplementary figure S 7: Confocal microscopy images of paints prepared with 25 vol% azurite dispersed in a. an o/w-LO emulsion. b. a w/o-LO emulsion. $\phi = 0.5$ *for both paints. The aqueous phase is stained with fluorescein and displayed in green. The oil phase is stained with Nile Red and displayed in red. Azurite particles are visible in black. Contrast was adjusted to facilitate the comparison between images. Scale bar: 10 µm.*