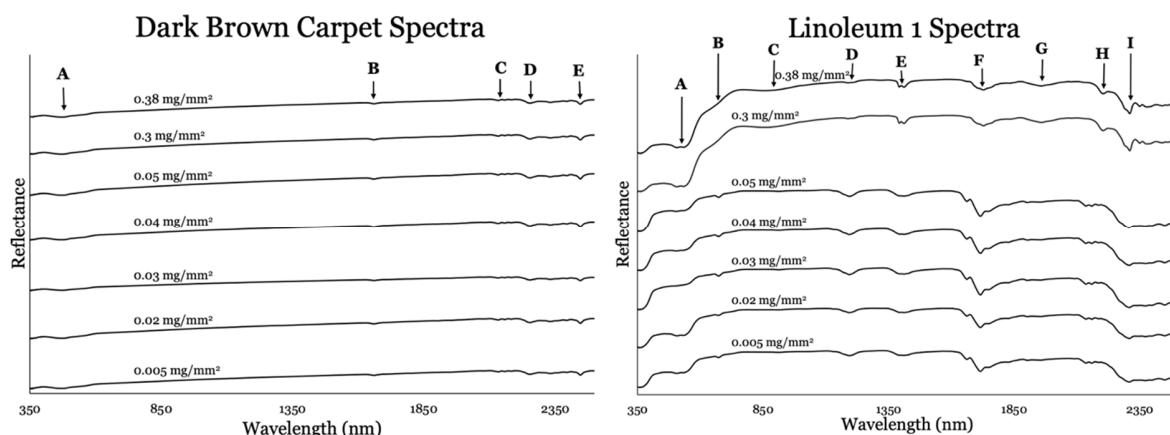
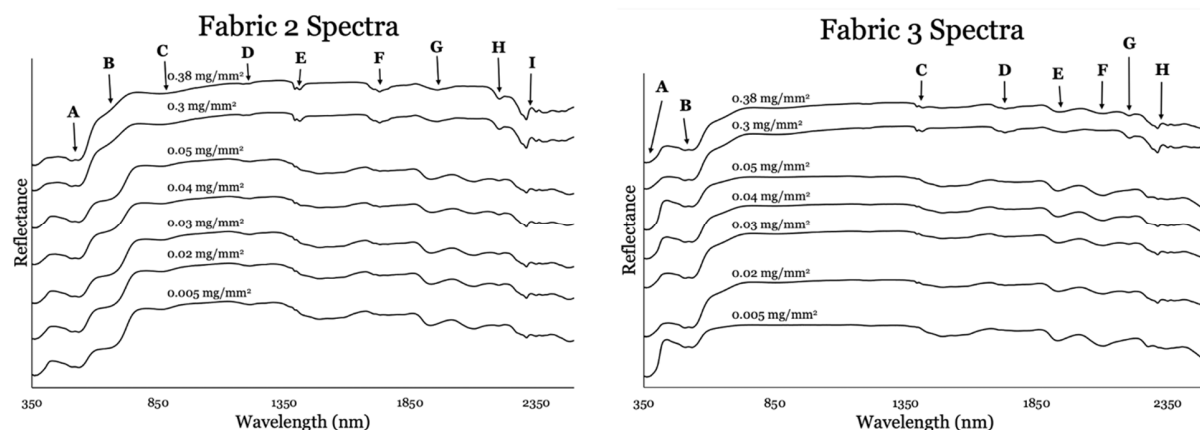


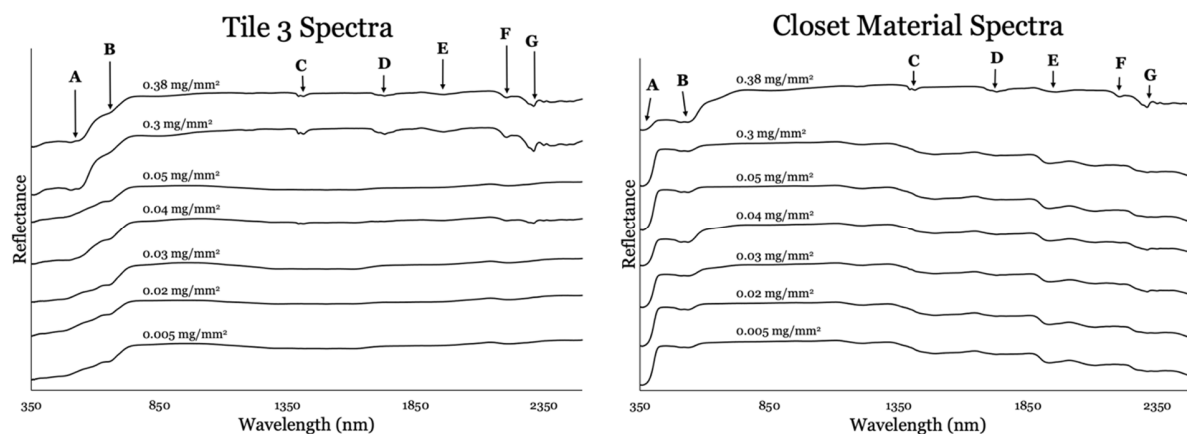
Supplementary Figures



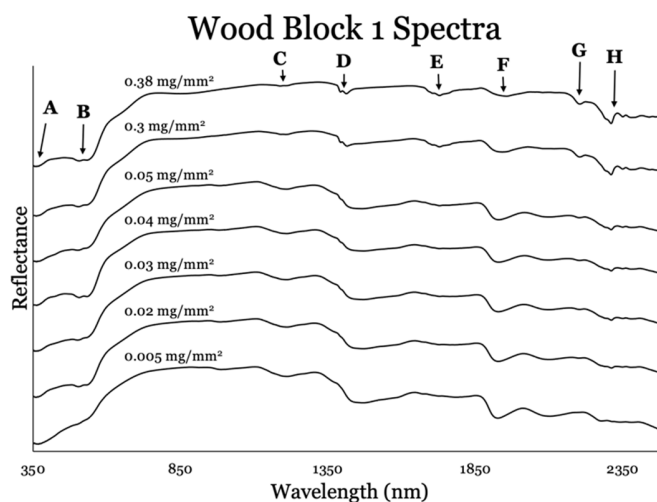
Supplementary Figure S1. Carpet 2: Spectra for blush on dark brown carpet with major features and interpreted causes being (A) negligible inflection at ~535 nm (Fe^{3+}), (B) 1660 nm (C-H/ C-H₂), (C) 2131 nm (N-H), (D) 2253 nm (C-H, C-C, OH), (E) 2446 nm (OH). On this substrate the blush is not detectable or minimally detectable under the experimental conditions. Linoleum 1: Spectra for blush on linoleum with some major features and interpreted causes being (A) weak doublet at ~506 nm (S) ~535 nm (Fe^{3+}), (B) 670 nm (Fe, Ti) (C) weak broad feature at 891 nm (Fe^{3+}), (d) weak doublet at 1185 nm and 1205 nm (OH, C-OH) (E) doublet at 1397 nm and 1408 nm, (H₂O, OH), (F) triplet with most intense at 1730 nm (C-H), (G) weak 1956 nm (C- OH), (H) 2200 nm (Al-OH, C-H, C-O) (I) 2310 nm (Mg-OH, Al-OH, OH).



Supplementary Figure S2. Spectra for blush on Fabric 2 (denim) with major features and interpreted causes being (A) a weak doublet at 506 nm (S) and at ~535 nm (Fe^{3+}), (B) weak feature at 700 nm (Fe^{3+}), (C) weak broad feature at 870 nm (Fe^{3+}), (D) 1205 nm (OH), (E) 1392 nm and 1418 nm (OH, C-H), (F) 1730 nm (C-H), (G) weak 1932 nm (H₂O/OH cellulose), (H) 2200 nm (Al-OH, C-H, C-O) (I) 2310 nm (Mg-OH, Al-OH, OH). Spectra for blush on white cotton Fabric 3 with major features and interpreted causes being (A) Feature at 350 nm (Fe-O), (B) weak doublet at 506 nm (S) and ~535 nm (Fe^{3+}), (C) 1392 nm and 1418 nm (OH mineral), (D) 1730 nm (C-H), (E) weak 1932 nm (H₂O/OH cellulose), (F) 2108 nm (H₂O/OH) grading to 1921 nm (OH) in fabric, (G) 2200 nm (Al-OH, C-H, C-O) (H) 2310 nm (Mg-OH, Al-OH, OH).



Supplementary Figure S3. Tile 3 with some major features and interpreted causes being (A) weak doublet at ~506 nm (S) ~535 nm (Fe^{3+}), (B) doublet at 1397 nm and 1416 nm, (H_2O , OH), (C) triplet with most intense at 1730 nm (C-H), (G) weak 1965 nm (C-OH), (H) 2200 nm (Al-OH, C-H, C-O) (I) 2310 nm (Mg-OH, Al-OH, OH). Spectra for blush on closet material with major features and interpreted causes being (A) 367 nm (Mn^{2+}), (B) weak doublet at 506 nm (S) and at ~535 nm (Fe^{3+}), (C) 1392 nm and 1418 nm (OH mineral), (D) 1730 nm (C-H), (E) 1950 nm grading to 1930 nm (C-OH), (F) 2200 nm (Al-OH, C-H), (G) 2310 nm (Mg-OH, Al-OH, OH).



Supplementary Figure S4. Spectra for blush on pine wood block with major features and interpreted causes being (A) ~350 nm (Mn, Fe), (B) weak doublet at 506 nm (S) and 535 nm (Fe^{3+}), (C) 1205 nm (OH, C-H), (D) 1392 nm and 1413 nm (OH in minerals) grading to 1450 nm (H_2O) in wood, (E) triplet centered on 1730 nm (C-H), (F) 1957 nm (C-OH), (G) 2202 nm (Al-OH, C-H, C-O, C=O, N-H), (H) 2310 nm (Mg-OH, Al-OH, OH).