

Supplementary Materials

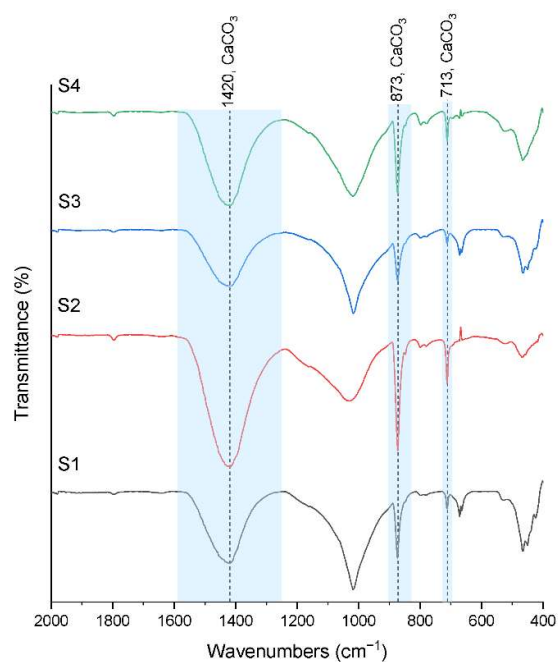


Figure S1. IR spectra of samples S1–4 within the 2000–400 cm⁻¹ spectral range. The characteristic absorption bands of calcite are denoted in the blue rectangles and a dashed line showing the central positions of the peaks.

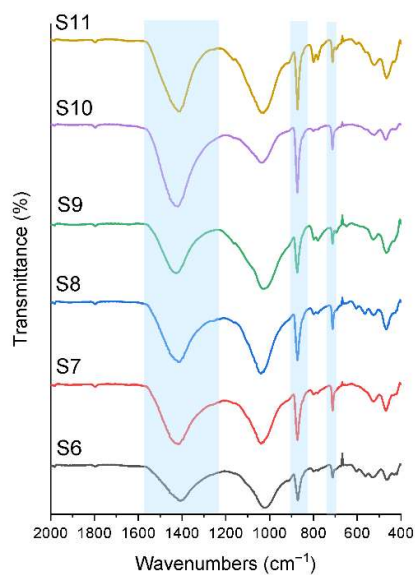


Figure S2. IR spectra of samples S6–11 within the 2000–400 cm⁻¹ spectral range. The characteristic absorption bands of calcite are denoted in the blue rectangles.

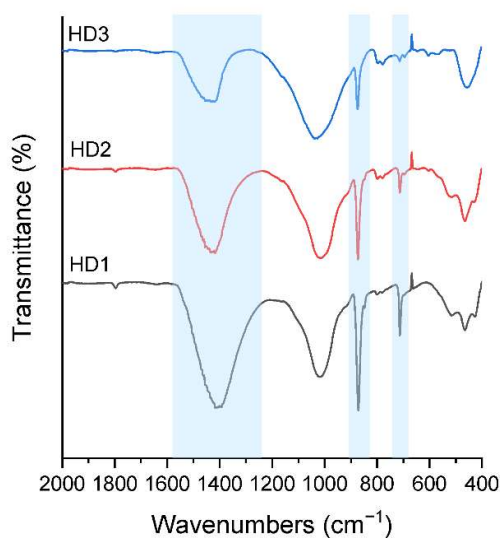


Figure S3. IR spectra of samples HD1–3 within the 2000–400 cm^{-1} spectral range. The characteristic absorption bands of calcite are denoted in the blue rectangles.

Table S1. Wavelengths of spectral lines used for element detection in the LIBS analysis. The Roman numerals I and II denote spectral lines emitted from neutral atoms and singly ionized atoms, respectively.

Elements	Wavelengths (nm)
Si I	250.69, 251.61, 252.41, 252.85, 288.16
Ca I	457.85, 458.14, 458.59, 487.82, 671.77
Ca II	315.89, 317.93, 393.36, 396.85
Al I	308.22, 309.27, 394.40, 396.15
Mg I	285.21, 382.93, 383.23
Mg II	279.55, 280.27
Fe I	271.90, 275.01, 297.31, 302.06, 344.10, 356.54, 357.01, 358.12, 374.55
Ti I	498.17, 499.10
Ti I	323.45, 328.77, 334.19, 334.90, 336.12, 337.28, 338.38
Sr I	460.73
Sr II	407.77, 421.55
Ba I	553.55
Ba II	455.40, 493.41
Na I	589.00, 589.59
K I	693.88
Mn I	403.08, 403.31, 403.45
Li I	610.36, 670.78
Cr I	357.87, 359.35, 425.43, 427.48