

Methodological Note: Photo-Based Ceramic Visual Analysis

Boundary condition: The Ceramic Visual Analysis Tool documents visible and measurable traits from photographs. It does not identify cultural tradition, chronological period, ceramic type, production source, or provenance.

1. Purpose

This tool supports preliminary ceramic documentation before archaeometric follow-up. It records image metadata, object category selected by the analyst, scale status, color-card status, contour geometry, rim-point estimates, surface/color samples, decoration zones, use-wear/residue annotations, and pXRF target points.

2. Measurement classes

Observed fields describe visible traits in the photograph. **Measured** fields are calculated from the edited contour and become metric only when scale calibration is supplied. **Estimated** fields, such as rim diameter, are geometric approximations derived from user-confirmed points. **User-annotated** fields store interpretive notes and target points entered by the analyst.

3. Single-image limits

A single photograph produces projected 2D geometry. It cannot recover true 3D surface area, wall curvature, volume, or thickness without additional views, scanning, photogrammetry, or a mesh file. Whole-vessel profile reconstruction from one image should be treated as illustrative unless independently measured.

4. Scale calibration

Projected area, visible perimeter, maximum length, and maximum width are reported in pixels until the analyst marks two scale points and provides a known length. Scale should be placed in the same plane as the ceramic surface whenever possible.

5. Rim estimation

Rim diameter is estimated by fitting a circle to user-marked rim points. Confidence depends on the number of points, preserved arc, and fit residual. Short or distorted arcs produce weak estimates. The rim estimate is not a typological identification.

6. Color and surface documentation

Image-derived color is affected by lighting, camera processing, shadow, surface condition, and compression. Color-card workflows are preferred. Without calibration, color values should be treated as descriptive image observations, not mineralogical or firing-atmosphere proof.

7. Pattern and decoration analysis

Decoration zones, line orientation, painted bands, incised marks, stamped/punctate marks, abrasion, soot, residue, and surface zones are recorded as visual features. Pattern similarity alone should not be used to assign culture, period, provenance, or ceramic type.

8. pXRF handoff

The tool prepares sample-point records for pXRF or other archaeometric follow-up. Each pXRF target can be tied to an image coordinate, label, surface note, and later instrument reading. Provenance and composition require appropriate sampling protocol, calibration, and statistical interpretation.

9. References for methodological orientation

Chartered Institute for Archaeologists. 2020. *Toolkit for Specialist Reporting: Pottery*. ClifA.
Orton, Clive, Paul Tyers, and Alan Vince. 1993. *Pottery in Archaeology*. Cambridge University Press.
Rice, Prudence M. 2015. *Pottery Analysis: A Sourcebook*. University of Chicago Press.
Quinn, Patrick S. 2013. *Ceramic Petrography*. Archaeopress.
Roux, Valentine. 2019. *Ceramics and Society: A Technological Approach to Archaeological Assemblages*. Springer.

Version 1.1 shell-aligned. Outputs are documented as observed, measured, estimated, or user-annotated.