

DSS-U.01.03 | Uncertain / Mixed Mechanisms

Halo without Central Feature (Unknown Chemistry)

Unknown mechanism - annular rings/ovals with no obvious central nucleus; evaporative/deposition rim remains while core is visually clear; typically SC-0 at core and SC-0-SC-1 on rim; reclassify to mineral/surfactant/sealant families if diagnostic cues present

Diagnosis summary

Halo without central feature is an appearance change presenting as a ring or oval band whose center is not visibly occupied by residue or defect. The annulus is presumed to result from edge-biased deposition during wetting/evaporation, surfactant Marangoni flow, or migration from adjacent materials, but the controlling chemistry is not yet identified. Classification is appearance-only per VIS (method-agnostic).

Field identification cues

- Surface-catch class (MSRT)
- Core: generally SC-0 (no relief).
- Rim: SC-0 if purely film; SC-1 where very shallow micro-texture or fine crystalloid is present; SC-2 implies misclassification-evaluate for mineral etch (Ch.03.03) or hot particle craters if present.
- Perform one light, non-marring pass across core → rim → outside on a small revealed test patch. Use polymer stylus if a functional coating is suspected. MSRT supports classification only.

Classification, severity and scope

- Assign CAT by visibility at acceptance geometry and MSRT after a reveal patch. Depth values are indicative-field measurement not required.
- CAT-1 (Benign / non-relief): Faint annular halo; SC-0 rim, SC-0 core; visible mainly in raking/angle; lifts on reveal patch. Indicative relief: 0-10 µm (film only).
- CAT-2 (Light): Persistent rim post-reveal with localized SC-1 (incipient micro-texture or very fine crystalloid); minimal standard-view impact. Indicative relief: ~10-40 µm at rim.
- CAT-3 (Moderate): Multiple rings/panels legible at standard distance; SC-1 consistent around rims; suggests recurrent cycles or additive-laden droplets. Indicative relief: ~40-120 µm at rim.
- Reclassify when (diagnostic cues present):

Distinguishing criteria

- vs. Mineral spot/etch rings (Ch.03): Mineral rings often show crystalline texture and may leave true etch (SC-1→SC-2) after reveal; U.01.03 halos can be film-only (SC-0) with no inner etch.
- vs. Surfactant islands (R.04.01): Surfactant halos show thin-film colors and align with wipe paths; U.01.03 rings are isolated droplet-like without path context.
- vs.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in, normal + oblique; raking macros of rim segment and core; include mist/wetting test frame to show wetting response across rim vs.
- MSRT results: After a small reveal test patch, record SC-class at core (SC-0), rim (SC-0/SC-1), and outside control (SC-0).
- Forms: Pane ID; product family & surface numbering; worked surface Y/N; functional coating on worked surface?

Safety / repairability boundary: Complete only the non-invasive reveal and inspection steps authorized by the controlling VIS guidance. Classification does not authorize restoration, establish acceptance, or override stop-work, coating, crack, integrity, access, chemical, fall-protection, or project-specific requirements.

Full DSS publication: use the catalog download. Web specification:

<https://a7df714357.nxcli.io/learning-center/resource-center/damage-specification-standards/dss-u-01-03-halo-without-central-feature-unknown-chemistry/>