

DSS-Ch.03.02 | Chemical Attack / Etch / Reaction

Mineral Staining (persistent film/discoloration, non-etch)

Chemical/mineral - tenacious surface film or color shift that persists after reveal; substrate remains SC-0

Diagnosis summary

Mineral staining (non-etch) is a tenacious surface film or color shift caused by hard-water minerals/salts (often with organic/soiling binders) that persists after a proper Non-Invasive Reveal yet does not produce subsurface attack. Under magnification/raking, the glass substrate shows no modeled micro-texture when the stain is fully lifted-MSRT on clean substrate = SC-0.

Field identification cues

- Surface-catch class (MSRT)
- On the clean glass substrate: SC-0 (no relief).
- Across remaining film: avoid stylus use on contaminated patches; lift a small test spot (without abrasion) to expose substrate and confirm SC-0.
- Polymer stylus if a coating is suspected. MSRT supports classification only.

Classification, severity and scope

- Assign CAT by visibility impact under VIS geometry after a controlled reveal test confirms substrate SC-0.
- CAT-1 (Benign / non-relief): Faint veil/halo visible mainly in raking at close/standard; substrate SC-0 at the test patch.
- CAT-2 (Light): Noticeable film at standard view under certain angles; still SC-0 on substrate where film is fully lifted; edges soft.
- CAT-3 (Moderate): Persistent, broader veil/banding apparent at standard distance across larger area; SC-0 confirmed at localized lift.
- Reclassify when: Any modeled micro-texture or SC-class > 0 persists on the substrate after true film removal → Ch.03.03 Mineral etching (CAT-2/3/4 by cues).

Distinguishing criteria

- vs. Mineral deposits (Ch.03.01): Deposits fully remove with no residual tone shift; staining persists optically but remains SC-0 on substrate when truly clean. vs.
- vs. Alkaline/acid etch (Ch.01.02): Chemical etch exhibits run-organized micro-texture and SC-class > 0; staining is a film/optical condition.
- vs.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in, normal + oblique; include pre-reveal overall, and a post-reveal test patch that demonstrates substrate SC-0 (raking macro).
- MSRT result (substrate only): One light, non-marring pass on the clean test patch; record SC-0 if non-etch is confirmed.
- Forms: Pane ID; product family & surface numbering; worked surface Y/N; functional coating present 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-ch-03-02-mineral-staining-persistent-film-discoloration-non-etch/>