

DSS-Ch.05.02 | Chemical Attack / Etch / Reaction

Reducing Agent Discoloration

Chemical - reducers/neutralizers; optical tone shift $\pm$ very shallow micro-texture within wipe/run footprints

Diagnosis summary

Reducing agent discoloration is an appearance change caused by reducing chemicals (e.g., bisulfites/metabisulfites, thiols, ammonia-based reducers/neutralizers, specialty graffiti/bleach neutralizers) contacting glass and dwelling/drying on the surface. Outcomes range from optical tone/contrast shift to very shallow, non-directional micro-texture within wipe or run geometries.

Field identification cues

- Surface-catch class (MSRT)
- Often SC-0 (optical only).
- SC-1 (slight) can occur where reducers dwelled in heat/sun or were used concentrated; SC-2 is rare.
- Perform one light, non-marring pass on a representative interior area; polymer stylus if a coating is suspected. MSRT supports classification only.

Classification, severity and scope

- Assign CAT by appearance + MSRT + morphology (three-part cueing). Depth/relief values are indicative-field measurement not required.
- CAT-1 (Benign / non-relief): Optical tone/contrast shift only, SC-0; visible mainly at certain angles/raking; minimal at standard view. Indicative relief: 0-10 μ m (optical).
- CAT-2 (Light): Very shallow modeled micro-texture, SC-1, confined to wipe/run footprint; limited impact at standard view. Indicative relief: ~10-40 μ m.
- CAT-3 (Moderate): Broader matte/veil legible at standard distance, SC-1 to SC-2; repeat passes/overlaps evident. Indicative relief: ~40-120 μ m.
- CAT-4 (Severe): Uncommon for reducers alone; if pronounced matte fields occur, consider mixed chemistry (alkaline + reducer stack) and re-evaluate under applicable DSS. Indicative relief: ~120-300 μ m+.

Distinguishing criteria

- vs. Bleach/peroxide shadowing (Ch.05.01): Oxidizer shadows are often whiter; reducer discoloration trends neutral/yellow-grey; both may be optical (SC-0) or SC-1 with dwell/heat.
- vs. Degreaser/alkaline burn (Ch.04.03): Alkaline burn shows grainier micro-texture and sheet/run geometries; reducer discoloration frequently softer and less granular.
- vs. Adhesive remover staining (Ch.04.02): Adhesive removers are tied to label/film sites with distinct overlap lines; reducer stains map to neutralization zones after chemical cleaning.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in, normal + oblique; include raking macros of footprint interiors and overlap/run edges; add context frames (neutralizers/containers, work).
- MSRT result: One light, non-marring pass on footprint interior; record SC-class (SC-0/SC-1/SC-2). Polymer stylus if coating is suspected.
- 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-05-02-reducing-agent-discoloration/>