

DSS-M.02.01 | Mechanical Abrasion, Scoring, Impact & Cracking

Micro-Abrasion Swirls / Pad Trails (non-linear)

Mechanical abrasion field on the worked surface - appearance-based classification; acceptance per VIS §6

Diagnosis summary

A non-linear, repetitive swirl or looping trail produced by contact pads, cloths, or small tools traversing the glass face, leaving a fine, directional micro-abrasion field. Under raking light, the field reads as swirls/arcs and may present "modeled micro-texture" (subtle milky relief) when depth increases.

Field identification cues

- Surface-catch class (MSRT):
- Often SC-0 to SC-1 for very fine swirl (non-tactile to slight); SC-2 when the field contains tactile lines with micro-chipping/chip flanks. Perform one light, non-marring pass only; MSRT supports classification, not acceptance.
- Reveal / lighting / geometry:
- Complete Non-Invasive Reveal (distilled/neutral-pH water; lint-free microfiber; no blades/abrasives/chemicals before evaluation). Inspect at 12 / 36 / 72 in, normal incidence + oblique sweep (~60°-120°) with raking light, per VIS.

Classification, severity and scope

- Assign CAT by visibility convention and MSRT outcome, applying the VIS three-part cueing (surface catch + morphology + location/access):
- CAT-1 - Faint: SC-0 / SC-1; non-tactile swirls, no chip flanks, and no localized edge; read mainly in raking light; do not localize at acceptance geometry.
- CAT-2 - Light: SC-1; clean-edged fine lines or light micro-texture; limited visibility at standard view.
- CAT-3 - Moderate: SC-2 (clear) elements within the swirl field or modeled micro-texture noticeable at standard distance.
- CAT-4 - Severe: SC-2 (clear-to-strong) with rough chip-flank segments, pits/craters, or a broad matte/frosted field visible at standard and wide-field views.

Distinguishing criteria

- vs. Residue films/overspray (R-family): Residues change with Non-Invasive Reveal; true micro-abrasion persists. vs.
- vs. Squeegee burn lines (M.02.05): Squeegee burns are typically linear along pull paths; swirls are looped/curvilinear.
- vs. Coating anomalies (Co-family): Coating rub/patch/colour shift is area-based, often SC-0/SC-1, and lacks chip flanks; coating anomalies on the worked face are not permitted at acceptance.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in, normal + oblique, include raking; add macro frames showing the swirl geometry and edge morphology (confirm absence/presence of chip flanks).
- MSRT result: Record SC class (SC-0 / SC-1 / SC-2 as observed); one pass, non-marring; on suspected coated faces, prefer polymer stylus or rely on visual cues.
- Forms: Pane ID; surface numbering (#1-#4 / laminate-internal); 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-m-02-01-micro-abrasion-swirls-pad-trails-non-linear/>