

DSS-E.02.01 | Environmental Exposure / Weathering

Wind-Borne Sand Abrasion (Eolian)

Environmental abrasion - airborne mineral particulates driven by wind; directional frosting, lee-side bias, frame-adjacent “blast” zones; typically SC-1 to SC-2 where micro-texture/incisions exist

Diagnosis summary

Wind-borne sand abrasion is an appearance change on glass caused by air-entrained mineral particulates (silica, feldspar, grit) scouring exposed faces under sustained winds. It presents as directional frosting/haze, micro-pitting, and fine linear incisions concentrated on windward elevations and edge “blast” zones near frames and corners. Classification is appearance-only per VIS (method-agnostic).

Field identification cues

- Surface-catch class (MSRT)
- Commonly SC-1 (fine micro-texture) progressing to SC-2 where micro-pits/incipient incisions are present; SC-0 only at earliest film-only stages.
- Perform one light, non-marring pass on a small revealed test patch (substrate). Use a polymer stylus if a functional coating is suspected. MSRT supports classification only.
- Visual signature

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-2 (Light): Incipient directional haze; SC-1 (micro-texture), minimal standard-view impact; isolated shallow ticks. Indicative relief: ~10-40 µm.
- CAT-3 (Moderate): Distinct directional frosting legible at standard distance; consistent SC-1 with scattered SC-2 from micro-pits/incisions. Indicative relief: ~40-120 µm.
- CAT-4 (Severe): Wide-area matte/frosted fields and roughened strike zones clearly visible at standard and wide-field views; SC-2 prevalent with micro-pitting.
- Reclassify when: If fused nodules/peppering or rust-toned dots appear → evaluate Th.01.02 grinder spark embed; if patterns are non-directional milky without catch → consider E.01.02 atmospheric matte; if.

Distinguishing criteria

- vs. Atmospheric corrosion matte (E.01.02): Atmospheric matte is non-directional and edge/rivulet biased; eolian abrasion is directional with prevailing-wind alignment.
- vs. Residue films (R-family): Residues show wipe geometry, wetting anomalies, or odor; eolian abrasion shows grain-aligned scatter, no wipe arcs, and tactile catch at SC-1/2.
- vs. Mineral etching (Ch.03.03): Mineral etch maps drip/ring halos; eolian abrasion forms broad directional fields and edge blast unrelated to water paths.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in, normal + oblique; raking macros of directional micro-texture, edge blast, and height gradient; façade context showing ground.
- MSRT result (substrate): After a small reveal test patch, perform one light, non-marring pass; record SC-class (SC-1/SC-2, or SC-0 if truly film-only).
- 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-e-02-01-wind-borne-sand-abrasion-eolian/>