

DSS-E.02.02 | Environmental Exposure / Weathering

Dust-Storm Micro-Pitting

Environmental abrasion - high-velocity particulate impacts during dust/sand storms; peppered micro-craters, lee/height gradients, edge “blast” zones; typically SC-2 in impacted fields, SC-1 at margins

Diagnosis summary

Dust-storm micro-pitting is an appearance change on glass caused by high-velocity mineral particulate impacts during dust/sand storm events, producing peppered micro-craters and a matte scatter field. Concentrations track wind exposure, building geometry, and near-grade vortices, often forming edge blast zones and height gradients. Classification is appearance-only per VIS (method-agnostic).

Field identification cues

- Surface-catch class (MSRT)
- Commonly SC-2 within peppered fields (distinct interruption over crater rims); SC-1 at transition margins; SC-0 only outside impact zones.
- 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): Sparse micro-pits in bands or corners; SC-1 at margins, SC-2 intermittent; minimal standard-view impact. Indicative relief: ~20-60 µm (pit depth).
- CAT-3 (Moderate): Continuous pepper field legible at standard distance; SC-2 common; matte between pits. Indicative relief: ~60-150 µm typical.
- CAT-4 (Severe): High-density peppering and rough edge blast clearly visible at standard and wide-field, frequent coalesced pits; SC-2 prevalent. Indicative relief: ~150-350+ µm local maxima.
- Reclassify when: If fused metallic nodules/rust dots are observed → evaluate Th.01.02 grinder spark embed; if damage is continuous directional frost with few discrete pits → consider E.02.01 eolian.

Distinguishing criteria

- vs. Hot-particle peppering (Th.01.02): Hot particles show fused metal beads/pits (often rust-toned) and thermal halos; dust-storm pits are mineral impact craters without metallic residues.
- vs. Eolian frosting (E.02.01): Eolian presents directional micro-texture with fewer discrete pits; dust-storm micro-pitting shows random peppering superimposed (often both coexist).
- vs. Stone/seed defects (P.02.03): Factory stones are internal inclusions or polished-out craters with production context; storm pits are surface impacts with exposure mapping.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in, normal + oblique; raking macros of individual pits, density maps, edge blast zones; façade context documenting windward/lee sides and site.
- MSRT result (substrate): After a small reveal test patch, perform one light, non-marring pass; record SC-class (SC-1/SC-2) within pepper fields and outside as control.
- 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-02-02-dust-storm-micro-pitting/>