

DSS-Th.01.01 | Thermal / Hot Particle / Fusion & Thermal Stress

Welding Slag Spatter (fused nodules/pits)

Thermal / hot-particle impingement - fused metallic droplets and resultant pits

Diagnosis summary

Welding slag spatter presents as fused metallic nodules and/or resultant pits/craters formed when hot particles (weld spatter) impact and partially fuse to the glass, often followed by detachment leaving a pitted field. Classification is appearance-only per VIS; methodology is out of scope. Inspect under VIS lighting/geometry after Non-Invasive Reveal;

Field identification cues

- Surface-catch class (MSRT)
- On fused nodules, a light, single pass typically yields SC-2 (clear); on detached pits, SC-1 to SC-2. Do not abrade; one non-marring pass only; polymer stylus if a coating is suspected.
- Visual signature
- Discrete, high-contrast nodules (sometimes metallic sheen) and sharp-edged micro-craters; bright chip-flank sparkle at pit edges under raking.

Classification, severity and scope

- Assign CAT by appearance + MSRT + morphology (three-part cueing). Numeric depth bands are indicative only-measurement is not required for classification.
- CAT-2 (Light): Sparse nodules/pits; SC-1 (slight) to SC-2 (clear) on a few features; visible mainly in raking at close/standard view. Indicative depth: ~20-60 µm (pit diameter typically ≤0.3 mm).
- CAT-3 (Moderate): Clustered field, numerous clear-catch pits with bright flanks; noticeable at standard distance. Indicative depth: ~60-150 µm; mixed nodules and detached pits.
- CAT-4 (Severe): Dense peppering / crater field, frequent fused nodules with rough micro-flanks, occasional micro-fracture lips at pit margins; visible at standard & wide-field.
- CAT-5 (by location/condition): Between-pane cues, active cracks, pane movement, or coating-side loss on the surface to be worked → CAT-5 (non-repairable/out of in-place scope).

Distinguishing criteria

- vs. Grinder spark embed (Th.01.02): Grinder pepper tends to be finer, more uniform; welding slag shows larger, irregular nodules/pits with higher local energy signatures.
- vs. Sand abrasion (E.02.01): Eolian matte is broad, directional micro-texture (field haze) rather than discrete fused droplets.
- vs.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in; normal + oblique; include raking macros resolving facet/halo at representative pits and at least one context frame showing proximity to.
- MSRT result: One light, non-marring pass on a representative nodule/pit; SC-class = SC-1/SC-2 as observed; polymer stylus where a 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-th-01-01-welding-slag-spatter-fused-nodules-pits/>