Surface Finish Validation SOP (Lighting Parts)

Standard operating procedure to validate surface finishes on automotive lighting parts (optical and decorative).

Scope: optical lenses, light guides, bezels, housings.

Instruments: white-light interferometer, gloss meter (GU), haze meter (%), colorimeter (dE), replica tape for texture depth.

1) Master sample: Confirm the golden sample and lighting/viewing geometry.

2) Sampling: First-off parts (n>=5) per cavity; note resin lot and process window.

3) Optical checks: Ra target (<=10-20 nm for optics), haze %, birefringence visual under polarized light.

4) Decorative checks: Gloss GU at 60 deg, texture depth at 3-5 points/zone.

5) Color: dE against master under D65 and showroom LED.

6) Defects: Look for knit-lines, blush, waviness, dust entrapment; document with macro photos.

7) Acceptance: Record data in the sheet; out-of-spec -> rework plan (re-polish, re-etch, laser blend).

8) Maintenance: Cleaning frequency, no-abrasive policy, re-texture trigger criteria.

Checklist (attach data):

Item	Result / Notes
Golden sample confirmed	
Resin lot & process window logged	
Optical Ra (nm)	
Haze (%)	
Gloss GU @60 deg	
Texture depth (um)	
Color dE (D65 / showroom LED)	
Visual defects (knit/blush/dust/wave)	
Decision (Accept / Rework)	
Maintenance plan updated	