
Post Catalyzed Varnish Pot Life Test

1.0 Maintenance Objective & Frequency

The objective of this procedure is to verify that the catalyzed varnish mixture remains within its specified pot life window, ensuring proper viscosity, curing characteristics, and film integrity. This test prevents application of expired material that could lead to tacky surfaces, poor adhesion, or premature coating failure.

This test shall be performed immediately after mixing the catalyzed varnish and at regular intervals (e.g., every 30 minutes) throughout the application shift, or as specified by the varnish manufacturer's technical data sheet (TDS). The test frequency must be documented on the batch record.

2.0 Lockout/Tagout (LOTO) & Safety

- **Chemical Safety:** Wear chemical-resistant gloves (nitrile or neoprene), safety goggles, and a respirator rated for organic vapors when handling catalyzed varnish.
- **Ventilation:** Ensure the work area is well-ventilated or use local exhaust ventilation to minimize inhalation of solvent vapors and isocyanate fumes.
- **Spill Containment:** Have absorbent pads and a suitable solvent (e.g., MEK or acetone) available for immediate cleanup of spills.
- **No open flames or ignition sources** near the mixing and testing area.

3.0 Required Tools, Parts & Lubricants

- Clean, dry glass jar or metal cup (approximately 100 mL capacity) with a tight-fitting lid.
- Wooden tongue depressor or clean metal spatula for stirring.
- Stopwatch or timer with 1-second resolution.
- Thermometer (range 0-50°C, ±0.5°C accuracy) to measure varnish temperature.
- Viscosity cup (e.g., Zahn cup #2 or Ford cup #4) if viscosity measurement is required by the TDS.
- Catalyzed varnish sample (freshly mixed and representative of the batch in use).
- Manufacturer's Technical Data Sheet (TDS) for the specific varnish product.

4.0 Step-by-Step Maintenance Procedure

1. Don all required PPE as specified in Section 2.0.
2. Obtain a representative sample of the catalyzed varnish from the application equipment or mixing container. Fill the clean glass jar or cup to approximately 75% capacity.
3. Immediately record the time of sampling on the batch record. This marks the start of the pot life test.
4. Measure and record the temperature of the varnish sample using the thermometer. Note: Temperature significantly affects pot life; refer to the TDS for temperature correction factors.

5. If required by the TDS, measure the initial viscosity using the viscosity cup. Record the time for the cup to empty (efflux time) in seconds.
6. Seal the jar or cup with the lid to minimize solvent evaporation. Place it in a location representative of the application environment (e.g., same temperature and humidity).
7. At each specified interval (e.g., every 30 minutes), remove the lid and stir the sample gently with the spatula. Observe the consistency and flow behavior.
8. If viscosity measurement is specified, repeat the viscosity cup test at each interval and record the efflux time. Compare to the TDS limits.
9. Continue testing until the varnish exhibits signs of gelation, such as a significant increase in viscosity (e.g., the material no longer flows freely or forms strings), a rubbery texture, or a skin forming on the surface.
10. Record the total elapsed time from the initial sampling to the point of gelation. This is the measured pot life.
11. Compare the measured pot life to the manufacturer's specified pot life (typically found on the TDS). If the measured pot life is less than 80% of the specified value, investigate potential causes (e.g., incorrect catalyst ratio, high temperature, contamination).
12. Dispose of the tested varnish sample according to local hazardous waste regulations. Do not return it to the bulk batch.

5.0 Verification & Return to Service

1. If the measured pot life meets or exceeds the manufacturer's specification, the batch is considered acceptable for continued use. Document the test results on the batch record.
2. If the measured pot life is below specification, immediately quarantine the batch and notify the supervisor or quality control. Do not apply the varnish to any product.
3. For batches that pass, continue application monitoring. Repeat the pot life test at the next scheduled interval or if any change in application behavior (e.g., difficulty spraying, orange peel) is observed.
4. Sign off on the PM work order in ServiceGrid, attaching the completed batch record with pot life test data.

Regulatory Disclaimer: This document is a generic maintenance template provided for educational and informational purposes only. It does not constitute professional engineering or reliability advice. The end-user assumes all liability for validating all step sequences, torque specs, and LOTO protocols against specific machinery OEM manuals before deployment to a live production floor.