
Dust Collector Bag Leak Detection and Sealing Procedure

1.0 Maintenance Objective & Frequency

The objective of this procedure is to detect and seal leaks in dust collector filter bags to prevent particulate emissions, maintain system pressure differential, and extend bag life. This PM is performed quarterly or when visible dust emissions are observed at the stack outlet.

Frequency: Quarterly (every 3 months) or as needed based on emission monitoring or pressure drop changes exceeding 20% of baseline.

2.0 Lockout/Tagout (LOTO) & Safety

- **Electrical Isolation:** Disconnect main power to the dust collector fan motor and pulse-jet controller. Apply personal lock and tag.
- **Mechanical Isolation:** Ensure all rotating parts (fan, screw conveyor) have come to a complete stop.
- **Confined Space:** If entering the clean air plenum, follow confined space entry procedures including atmospheric testing.
- **PPE:** Wear safety glasses, cut-resistant gloves, N95 respirator (or higher if silica/toxins present), and steel-toed boots.
- **Fall Protection:** If working on elevated platforms, use full-body harness and lanyard tied off to a certified anchor point.

3.0 Required Tools, Parts & Lubricants

- High-intensity LED flashlight (500+ lumens)
- Dust collector bag repair kit (self-adhesive patches or silicone sealant)
- Scissors or utility knife
- Clean rags and isopropyl alcohol (for surface prep)
- Manometer or magnehelic gauge (0-10 inches w.c.)
- Replacement filter bags (if damage is beyond repair)
- Torque wrench (for cage bolts if applicable)
- Camera or smartphone for documentation

4.0 Step-by-Step Maintenance Procedure

1. Perform LOTO as per Section 2.0. Verify zero energy state by attempting to start the fan motor.
2. Open the clean air plenum access door. Use the flashlight to inspect the interior for visible dust accumulation on the clean side, indicating bag leaks.
3. Identify leaking bags by looking for dust trails or holes in the bag fabric. Mark each leaking bag with a piece of tape or marker.
4. For small tears or pinholes (less than 1 inch), clean the area around the leak with isopropyl alcohol and a clean rag. Allow to dry completely.

5. Apply a self-adhesive patch from the repair kit over the leak, pressing firmly to ensure full adhesion. For larger tears, apply silicone sealant and allow to cure per manufacturer instructions.
6. If the bag is severely damaged (tear > 3 inches or multiple holes), remove the bag and cage assembly. Install a new filter bag per OEM guidelines, ensuring proper gasket seating.
7. Torque the cage retaining bolts (if applicable) to 25 Nm to prevent air bypass.
8. Close and secure the clean air plenum access door. Ensure all gaskets are intact and the door seals properly.
9. Remove LOTO devices. Restore power to the dust collector.
10. Start the fan and allow the system to stabilize for 5 minutes. Measure the pressure differential across the bags using the manometer. Compare to baseline (typically 3-6 inches w.c.).
11. Visually inspect the stack outlet for any dust emissions. If emissions are still visible, repeat the leak detection process.
12. Document all findings, repairs made, and pressure readings in the PM work order.

5.0 Verification & Return to Service

1. Confirm the pressure differential is within 10% of the baseline value recorded before the PM.
2. Verify zero visible dust emissions at the stack outlet for a continuous 10-minute run.
3. Check all access doors and hatches are closed and sealed properly.
4. Sign off on the PM work order in ServiceGrid, attaching photos of repaired bags and final pressure readings.
5. Return the dust collector to normal production operation.

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.