
Aerosol Can Puncturing and Disposal for Damaged Goods

1.0 Objective & Intent

This SOP establishes the mandatory safety protocol for puncturing and disposing of damaged aerosol cans (e.g., spray paint, adhesive, lubricant) generated in the cabinet and millwork manufacturing facility. The primary objective is to eliminate the risk of catastrophic explosion, fire, and exposure to hazardous propellants and residual chemicals during disposal. This procedure ensures compliance with WorkSafeBC regulations regarding the safe handling and disposal of pressurized containers and hazardous waste.

2.0 Operational Scope

This procedure applies exclusively to the disposal of damaged aerosol cans that are dented, rusted, leaking, or otherwise compromised and cannot be used as intended. It covers all aerosol cans used in the facility, including but not limited to spray paints, contact adhesives, lubricants, and mold release agents. This SOP is mandatory for all maintenance personnel, finishing department workers, and any employee authorized to handle hazardous waste. This procedure does not apply to intact, empty aerosol cans, which must be recycled through the standard recycling program.

3.0 Hazard Identification & Mandatory PPE

- Explosion Hazard: Damaged cans may have compromised integrity; puncturing can release pressurized flammable propellants (e.g., propane, butane) creating an explosive atmosphere.
- Fire Hazard: Flammable propellants and residual chemicals can ignite from sparks, static discharge, or nearby ignition sources.
- Chemical Exposure: Inhalation or skin contact with residual solvents, isocyanates, or other hazardous chemicals inside the can.
- Projectile Hazard: Sudden release of pressure can cause the can or puncturing device to become a projectile.
- Pinch/Crush Hazard: Manual handling of damaged cans can result in hand injuries from sharp edges or sudden collapse.
- CSA-Approved Safety Glasses with side shields (mandatory).
- Chemical-Resistant Gloves (e.g., nitrile or neoprene, rated for solvents).
- CSA-Approved Steel Toed Boots.
- Long Sleeve Flame-Resistant (FR) Coverall or Lab Coat.
- Face Shield (when puncturing, in addition to safety glasses).
- Hearing Protection (if using a pneumatic puncturing device).

4.0 Required Safety Equipment & Tools

- Approved Aerosol Can Puncturing Device (e.g., Aerosolv or similar, with integrated filter and collection system).
- Lockout/Tagout (LOTO) Kit (if device is powered).
- Grounding Cable and Clamp (for static dissipation).
- Approved Hazardous Waste Container (e.g., 20L steel drum with lid, labeled 'Hazardous Waste - Aerosol Can Residue').
- Spill Kit (absorbent pads, socks, disposal bags, and gloves).

- Fire Extinguisher (Class B rated, located within 10 meters).
- Portable Exhaust Fan or Local Exhaust Ventilation (LEV) system (to capture vapors).
- Approved Disposal Bags (for empty cans after puncturing).
- Non-Sparking Tools (e.g., brass or plastic scraper for handling cans).

5.0 Step-by-Step Safety Procedure

1. **Pre-Operation Inspection:** Inspect the puncturing device for damage, ensure all seals are intact, the collection container is empty and properly attached, and the grounding cable is connected to a verified earth ground. Verify the local exhaust ventilation is operational. Confirm the fire extinguisher is accessible and inspected.
2. **Area Preparation:** Clear the immediate work area of all ignition sources (e.g., open flames, sparks, non-explosion-proof electrical equipment). Post 'No Smoking' and 'Flammable Atmosphere' warning signs. Position the portable exhaust fan to direct vapors away from the operator and toward the LEV system.
3. **Don PPE:** Put on all mandatory PPE as listed in Section 3.0. Ensure the face shield is properly adjusted and the chemical-resistant gloves are free of tears. Perform a final check that all PPE is worn correctly before handling any cans.
4. **Can Inspection and Segregation:** Visually inspect each damaged aerosol can. Do not attempt to puncture cans that are severely bulging, have a compromised safety relief valve, or are actively leaking propellant. Segregate such cans and place them in a separate, labeled hazardous waste container for disposal by a licensed waste hauler without puncturing.
5. **Can Loading:** Place the damaged can into the puncturing device's chamber, ensuring it is oriented correctly (usually nozzle down). Do not force the can. If the can does not fit, do not modify the device. Use only cans that fit the manufacturer's specifications.
6. **Puncturing Operation:** Activate the puncturing device according to the manufacturer's instructions. For manual devices, apply steady, even pressure. For pneumatic devices, ensure the air supply is regulated to the recommended pressure. Maintain a firm grip on the device and keep your face and body away from the puncture point. Listen for the hiss of escaping gas; if the sound stops prematurely, the can may be empty or the device may be clogged. Do not remove the can until the hissing has completely stopped.
7. **Residue Drainage:** After puncturing, allow the can to drain completely into the collection container. Tilt the device slightly to ensure all liquid residue has drained. This may take 30-60 seconds. Do not rush this step.
8. **Can Removal and Disposal:** Once drainage is complete, carefully remove the punctured can from the device. Place the empty can into the approved disposal bag. Seal the bag when full. Do not crush or compact the cans. Label the bag as 'Empty Aerosol Cans - Punctured' and place in the designated scrap metal recycling bin.
9. **Post-Operation Cleanup:** Close and seal the hazardous waste collection container. Wipe down the puncturing device with a solvent-safe cloth. Dispose of used cloths in the hazardous waste container. Return all tools and equipment to their designated storage. Remove PPE and wash hands thoroughly with soap and water.
10. **Documentation:** Complete the Hazardous Waste Log, recording the date, number of cans punctured, type of cans (e.g., spray paint, adhesive), and any anomalies. Sign and date the log. Report any spills, leaks, or equipment malfunctions immediately to the Safety Officer.

Regulatory Disclaimer: This document is a generic safety template provided for educational and informational purposes only. It does not constitute professional engineering, legal, or regulatory compliance advice. The end-user assumes all liability for validating all safety protocols against specific machinery manufacturer manuals and local occupational health and safety regulations (e.g., WorkSafeBC, CSA standards) before deployment.