Emergency Response Plan For Chemical Spills

1.0 Objective & Intent

The objective of this Emergency Response Plan (ERP) is to establish a clear, actionable procedure for the safe containment, cleanup, and disposal of chemical spills within the cabinet and millwork manufacturing facility. This plan is designed to minimize risk to personnel, prevent environmental contamination, and ensure full compliance with WorkSafeBC regulations (OHS Regulation, Part 5: Chemical Agents and Biological Agents) and the BC Environmental Management Act. The specific risk mitigated includes acute chemical exposure (inhalation, skin contact, ingestion), fire or explosion from volatile solvents, and environmental release of hazardous substances such as adhesives, stains, lacquers, and cleaning solvents.

2.0 Operational Scope

This procedure applies to all areas of the facility where chemicals are stored, used, or transported, including the finishing spray booth, mixing room, raw material storage warehouse, maintenance shop, and any mobile chemical carts. It covers all personnel, including production operators, maintenance technicians, material handlers, supervisors, and cleaning staff. This plan is activated for any chemical spill, regardless of volume, involving hazardous substances such as solvents (acetone, toluene, xylene), adhesives (contact cement, PVA), finishes (lacquers, varnishes, stains), cleaning agents (degreasers, thinners), and waste chemicals. Minor spills (less than 1 liter) of non-hazardous materials may be handled by trained personnel using standard spill kits; major spills (greater than 1 liter or any hazardous substance) require full activation of this ERP and notification of the Plant Safety Officer.

3.0 Hazard Identification & Mandatory PPE

- Chemical Exposure: Inhalation of volatile organic compounds (VOCs) from solvents and finishes can cause dizziness, respiratory irritation, or loss of consciousness. Skin contact with adhesives or solvents may cause chemical burns, dermatitis, or systemic toxicity.
- Fire and Explosion: Many solvents and finishes are highly flammable. Spills near ignition sources (electrical equipment, pilot lights, static discharge) can result in flash fires or explosions.
- Slip and Fall: Spilled liquids create immediate slip hazards on concrete floors, leading to potential musculoskeletal injuries.
- Environmental Release: Uncontained spills can enter floor drains, leading to soil and groundwater contamination and regulatory penalties.
- CSA-Approved Safety Glasses with side shields or chemical splash goggles
- Nitrile or neoprene chemical-resistant gloves (minimum 15 mil thickness)
- Chemical-resistant apron or full-body Tyvek suit (for large spills)
- CSA-Approved Steel Toed Boots with chemical-resistant soles
- Half-face or full-face respirator with organic vapor/acid gas cartridges (P100 particulate pre-filter if aerosols present)
- Hard hat (if overhead hazards or falling objects are present)

4.0 Required Safety Equipment & Tools

- Chemical Spill Kit (50-gallon capacity or larger, containing absorbent pads, socks, pillows, disposal bags, and ties)
- Emergency eyewash station and safety shower (verified operational within 10 seconds of spill location)

- Portable fire extinguisher (Class B rated for flammable liquids, minimum 10 lb capacity)
- Four-gas atmospheric monitor (measures LEL, O2, CO, H2S) for confined space or enclosed area spills
- Non-sparking tools (brass or plastic scoop, shovel, and drum) for flammable liquid cleanup
- Chemical-resistant containment booms or sandbags to block floor drains
- Portable warning signs and barricade tape (e.g., 'Caution: Chemical Spill')
- First aid kit with burn treatment supplies and eye wash solution
- Communication device (two-way radio or cell phone) to contact emergency services and the Plant Safety Officer

5.0 Step-by-Step Safety Procedure

1. Assess the spill from a safe distance. Identify the chemical involved (check Safety Data Sheet (SDS) if available), estimate the volume, and note any immediate hazards such as fire, explosion, or toxic fumes. Do not approach if the chemical is unknown or if there is a risk of fire or explosion.
2. Evacuate all non-essential personnel from the spill area. Establish a safe perimeter of at least 10 meters (30 feet) for small spills and 30 meters (100 feet) for large spills or volatile chemicals. Post warning signs and barricade tape to prevent entry.
3. If the spill involves a flammable liquid, immediately eliminate all ignition sources. Shut down all electrical equipment in the vicinity using the emergency stop or lockout/tagout (LOTO) procedure. Do not operate any switches or create sparks. Ventilate the area by opening doors and windows if safe to do so.
4. Don the required PPE as specified in Section 3.0. For large spills or unknown chemicals, wear a full-body Tyvek suit, chemical-resistant gloves, and a full-face respirator with organic vapor cartridges. Ensure the respirator is properly fit-tested and sealed.
5. Contain the spill to prevent it from spreading. Use absorbent socks or containment booms to create a barrier around the spill. If the spill is near a floor drain, immediately cover the drain with a drain cover or absorbent pad and place a containment boom around it. Do not wash the spill down the drain.
6. Begin absorbent application. Use absorbent pads, pillows, or loose absorbent (e.g., vermiculite, clay) to soak up the spilled chemical. Start from the outer edge of the spill and work inward to avoid spreading. For viscous adhesives or finishes, use a non-sparking scoop to collect the bulk material before absorbing the residue.
7. Collect all contaminated absorbent materials and debris using a non-sparking scoop and place them into the designated hazardous waste disposal bags provided in the spill kit. Seal the bags tightly and label them with the chemical name, date, and 'Hazardous Waste' tag. Double-bag if necessary to prevent leakage.
8. Decontaminate the spill area. Apply a neutralizing agent or absorbent cleaner appropriate for the chemical (e.g., a mild detergent solution for most solvents) and scrub the surface with a non-sparking brush. Absorb the cleaning solution with fresh pads and dispose of them as hazardous waste. Rinse the area with water and absorb again if required.
9. Monitor the air quality in the spill area using a four-gas atmospheric monitor. Ensure that VOC levels are below the permissible exposure limit (PEL) and that oxygen levels are between 19.5% and 23.5%. If levels are unsafe, continue ventilation and do not allow re-entry until the area is declared safe by the Plant Safety Officer.
10. Complete a Spill Incident Report. Document the date, time, location, chemical involved, volume, cause of the spill, cleanup actions taken, personnel involved, and any injuries or near misses. Submit the report to the Plant Safety Officer within 24 hours. Notify WorkSafeBC if the spill resulted in a serious injury or environmental release (as per OHS Regulation Part 5).