

# Cytotoxic Spill Clean Up

## 1. SCOPE

Laboratory-specific safe work procedures must be written, trained and adhered to for hazardous operations, including chemicals usage, storage and spill response. This procedure is to be followed by any employees involved in a spill clean-up of a cytotoxic substance (liquid or powdered).

If the chemical spilled is flammable, corrosive (acidic or basic), hydrofluoric acid, perchloric acid or mercury, follow the specific spill clean-up procedures posted on the Safety & Risk Services website at [www.srs.ubc.ca](http://www.srs.ubc.ca).

If the spill happened at an off-campus location follow the site-specific procedures.

## 2. PURPOSE

Any spillage of a cytotoxic chemotherapy agent must be immediately and effectively managed in order to minimize the contamination of the environment and reduce the health risks to personnel. For cytotoxic substances, a small spill is defined as involving less than 5 ml or 5 g while a large spill involves more than 5 ml or 5 g of substance.

Laboratory workers should never put themselves at risk during an emergency or clean-up operation. If there is any doubt about the safety of the individual in the lab, immediately call 911.

## 3. RESPONSIBILITY

Responsibility for managing the cytotoxic drug spill cleanup must be allocated to a person that has not been contaminated, has received training in the handling of and risks associated with cytotoxic drugs and has been previously fit-tested with a respirator.

One person can handle small spills. Two staff members, one designated as primary cleaner and the second as the helper, should clean large spills.

## 4. TRAINING REQUIRED

- Chemical safety education (e.g. WHMIS, Chemical safety course)
- Fit testing for respirator use (annual testing required)
- Site specific training (including safe handling of cytotoxic drugs)

## 5. MATERIALS/EQUIPMENT

Contents to be included in a cytotoxic spill clean up kit:

- Written safe work procedure for the management of cytotoxic spill
- Sign(s) to identify and isolate the spill
- Personal Protective Equipment (PPE):
  - Latex and/or nitrile gloves (2 pairs)
  - Head cover, impermeable gown or coverall

- Shoe covers (made of water-resistant material)
- Safety goggles or full-face chemical splash shield
- N95 Respirator (user's fit tested Respirator)
- Absorbent materials (e.g. chemical absorbent spill pillows/mats, absorbent granules)
- Dustpan and brush
- Plastic waste bags and ties, bin/container labelled for cytotoxic waste use
- The cleaning/decontaminating agent regularly used by the lab

## 6. PERSONAL EXPOSURE

Cytotoxic substances are defined as any chemical substance confirmed or suspected of having a genotoxic, mutagenic or teratogenic effect in humans. This information can usually be obtained from the SDS of the chemical (sections 2 and 11).

In the case of a chemical spill, first priority is the safety of the lab occupants. If contaminated, remove as much of the contaminated clothing as you can (the more exposed the skin is, the more effective the shower) and enter emergency shower. Rinse for at least 15 minutes. If eyes have been affected, use an eye wash station and flush eyes for 15 minutes. Heavily contaminated clothing should be discarded as cytotoxic waste.

## 7. CLEANUP PROCEDURE

*In the event of a spill involving cytotoxic material, powders or the aerosols generated are a greater health hazard than the spill itself.*

### 7.1. Personal protective equipment (PPE)

PPE should be donned in the following order:

- Goggles
- One pair of gloves
- Respirator (when necessary)
- Gown, head cover, shoes cover
- Second pair of gloves

### 7.2. Spills within a biological safety cabinet (BSC) or fume hood

- 1) Keep the BSC or fume hood operating
- 2) Access the nearest spill kit
- 3) Don PPE (see 7.1) – a respirator is not necessary for this case
- 4) For a spill on an absorbent pad:
  - a) Cytotoxic solution - wait for the liquid to be absorbed then carefully fold the mat containing the spill, avoiding contact with the contaminated area.
  - b) Cytotoxic powder - carefully place an adsorbent pad over the powder ensuring minimal dust production, then wet the pad so that the powder dissolves and is absorbed.
- 5) For a spill on the cabinet work surface:

- c) Cytotoxic solution: mop up the spill with an absorbent wipe or swab and place in plastic bag. Check also the under tray and grill area of the BSC and include it in the cleaning if affected by the spill.
  - d) Cytotoxic powder: cover with a dampened adsorbent pad ensuring minimal dust production, fold absorbent sheet.
- 6) Proceed to final clean-up steps (7.4)

### 7.3. Spills outside of a BSC or fume hood

*Only personnel that have been fit-tested with a respirator may proceed with cleaning.*

- 1) Area control:
  - a) Alert other employees in the area of the potential hazard.
  - b) Stop all operations.
  - c) Limit access to the area while a spill kit is obtained.
  - d) Place the warning signs (from the kit) in prominent positions.
- 2) Don PPE, including a respirator (see 7.1)
- 3) Cover the spill with absorbent or pad. For spills of powder, carefully place the absorbent pad over the spill and wet with water so the powder dissolves and is absorbed.

### 7.4. Final clean-up steps

- 1) Dispose absorbent/mat and collected waste in plastic bag, tie and place sealed plastic bag into cytotoxic waste bin. If broken glass was collected, dispose of in the cytotoxic sharp waste container.
- 2) Clean the area with a suitable cleaning agent working from outside in.
- 3) Rinse area thoroughly with water and dry the affected area with absorbent towels.
- 4) Discard the waste into the cytotoxic waste bin.
- 5) Discard contaminated protective equipment into a cytotoxic waste bin and don new PPE before continuing work.

### 7.5. After clean-up

- 1) All waste collected is considered hazardous and must be disposed as hazardous waste. The UBC procedures for hazardous waste disposal can be found on the SRS webpage at [www.srs.ubc.ca](http://www.srs.ubc.ca)
  - 2) Report the incident on the online reporting system [UBC CAIRS](#).
- 1) Arrange for a replacement spill kit to be obtained.

## 8. DOCUMENT INFORMATION

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