Solvent Hood Waste Can

Roger Robbins 11/22/2005

THE UNIVERSITY OF TEXAS AT DALLAS

ERIC JONSSON SCHOOL OF ENGINEERING

Solvent Hood Waste Can

Roger Robbins 11/22/2005

Purpose

The solvent hood has a waste solvent collection can behind the Clean Room wall to collect waste solvents and prevent their escape into the environment. This paper describes how to manage the solvent waste container: can exchange and waste disposal.

Collection System Description

The solvent hood has a solvent Dump sink in the work deck whose drain line is connected to a stainless steel solvent collection canister behind the clean room wall. This line has a pneumatic valve which will close if the collection canister is detected to be full. A warning light will illuminate on the control panel to indicate this. The collection canister is located in a "Doghouse" enclosure fitted with a fire detection/suppression system. The can features are labeled in Figure 1.

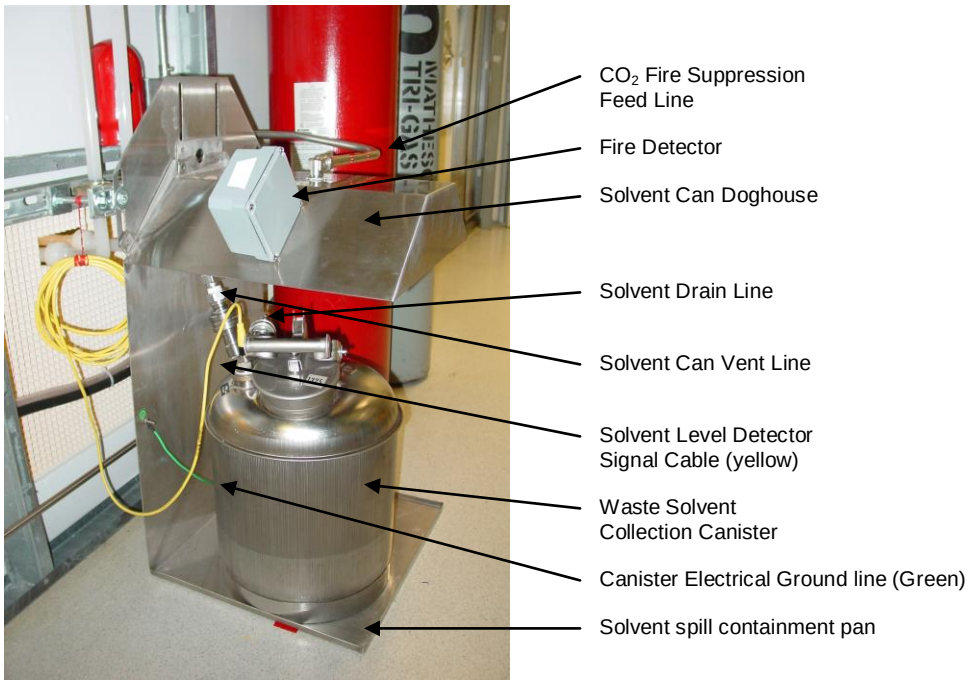

Figure 1. "Doghouse" Enclosure for Solvent Waste Collection Can, including fire suppression system and level detector (yellow wire).

Can Exchange Procedure

This section describes the safety procedure for exchanging cans and disposing of the waste solvent in a transportation container for UTD Safety to pick up and carry away.

- When the Hood detects a full canister, proceed to the solvent bunker on the back dock and fetch the spare empty solvent canister.
- Transport the empty canister to the chase behind the solvent hood on a cart

Figure 2. Solvent canister transport on a cart. Note the gloves on our staff model – good safety practice.

- Disconnect the full canister:
  - Disconnect the Drain Line (Quick Disconnect). This involves pushing the connector sleeve away from the fittings to relieve the capture of ball bearings so the connector will spring apart.

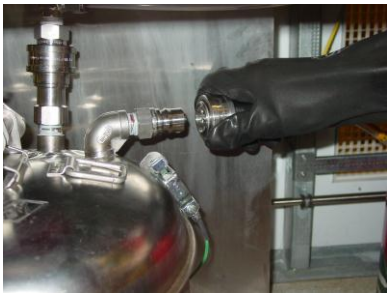

Figure 3. Disconnecting the solvent drain line.

  - Disconnect the Vent Line (Quick Disconnect).

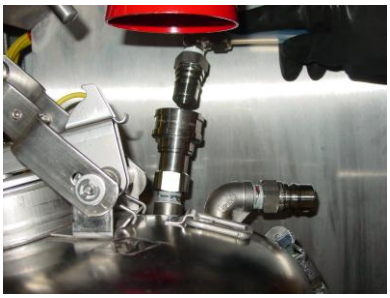

Figure 4. Disconnecting the Canister Vent line.

- <u>Disconnect the Level Sensor Line</u>. This is a yellow multi-wire cable that screws onto a fitting on the canister. The plug also has an orientation notch that must be matched to the receptacle on the canister at reconnection.

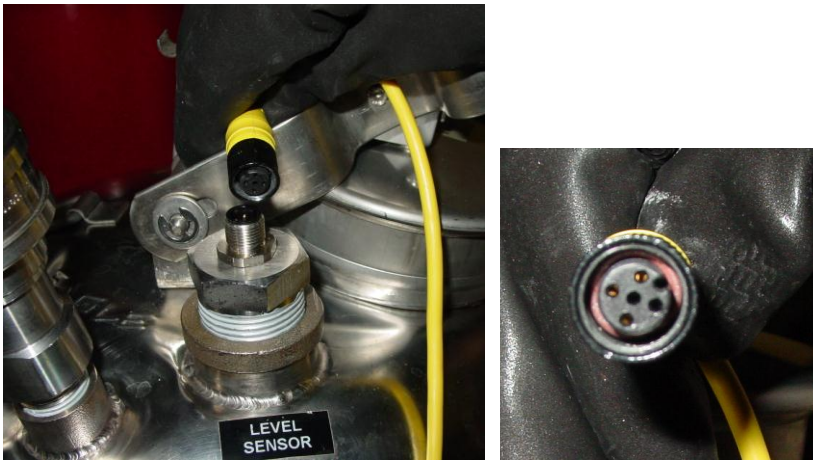

Figure 5. Disconnection of the level sensor signal line. Note the connector orientation notch.

- <u>Disconnect the Electrical Ground Wire.</u> This wire is a safety connection to help prevent electrostatic sparks from igniting the solvent vapor.

Figure 6. Disconnect the clip-on ground wire.

- Exchange the full canister with the empty one.

Figure 7. Canister exchange.

- Reconnect all the lines. Follow the steps above in reverse order
    1. Ground wire
    2. Level sensor cable
    3. Vent line
    4. Drain line

- Transport the full canister on the cart to the Solvent Bunker on the back dock.
- Find the 5 gallon solvent transport container and transfer the solvent into it for shipping to the UTD Chemical Collection facility.
    - Make sure the transport container is properly labeled.
    - <u>Open the mouth of the full canister and remove the flash-back-prevention/debris-catcher screen</u>.

Figure 8. Remove the screen.

    - <u>Slowly pour the solvent into the transport container</u> using a funnel.

Figure 9. Pour the solvent into the transport container. Note the personal protection equipment: Gloves, Face shield, and robust room exhaust vent.

- <u>Place the empty solvent container on its storage shelf and the full transport container on its shelf and clean up any spills</u>.

Figure 10. Return the solvent cans to their appropriate storage locations.

- Return the cart to its proper location.