



Triumvirate Environmental's
**Closed Loop
Solvent Waste
Solutions**

A mini-guide to reducing
risk and saving money

About the Author

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Introduction

CLOSED-LOOP SOLVENT WASTE SYSTEMS

Laboratories have traditionally collected liquid chemical waste in whatever glass container is available without much regard to the potential risk of using that container. Unfortunately, this often resulted in emergency response calls caused by broken collection containers or knocked over containers with improper lids. In addition, many methods in existence allowed for potentially hazardous and non-compliant vapors to release into the air. For more information on the inadequacies of current collection methods, look here.



Introduction

CLOSED-LOOP SOLVENT WASTE SYSTEMS

As a way to provide an increased level of safety, compliance and efficiency Triumvirate has found a solution to these traditional methods. The following guide will give you side-by-side comparison of the two methods and address any questions you might have about the new closed-loop solvent waste system. This specifically applies to waste collection directly from a piece of equipment requiring tubing for constant collection.

- 1 Opening releases toxic, potentially harmful vapors
- 2 Tube is soaked in hazardous waste
- 3 Lack of handle makes for difficult transport



- 1 Carbon exhaust filter traps solvent vapors
- 2 Tube fittings secure waste tubes to carboy providing the closed system necessary to prevent spills
- 3 90° adapter included for maximum storage flexibility
- 4 A versatile cap eliminates need to remove tubing from open cap to install closed cap
- 5 Plugs included for unused ports
- 6 Replaceable sulfur cured EPDM gasket for high chemical compatibility against aggressive organic solvents
- 7 Closed 83B cap included for safe transport
- 8 High density polyethylene carboy features advanced ergonomic design and superior chemical compatibility

The Original Collection Process

Traditional waste collection methods involved the user finding an empty container to be placed near the equipment then placing the tubing in the container through the top opening. Several problems this type of collection present are:

- **Open Container:** per Satellite Accumulation Area regulations all containers need to be properly sealed.
- **Frequent Spills:** The typical 4 L glass bottles used are easily knocked over with an open container leading to time and costs cleaning up the material.
- **Inefficient Collection:** The smaller container requires more frequent consolidations by lab personnel or sub-contractors.
- **Dangerous Vapors:** This presents compliance with regards to laboratory standards that OSHA has set in place for protection the well-being of employees.

Other Collection Processes

CLOSED-LOOP SOLVENT WASTE SYSTEMS

Some organizations have implemented a safer solution that still has some shortcomings. This system provides a closed container and prevents leakage from the equipment tubing during the swapping out of the full container with an empty container. With this system, the closed container reduced employee exposure until the container was in a well-ventilated area or in a chemical fume hood. Though this method is better, there are still some serious issues.

PROCESS ISSUES

- 1) Incompatible With Industry-Standard Shippable DOT Containers
- 2) Incompatible With Various Tube Diameters: This causes a compatibility issue with most laboratory equipment.
- 3) No Filter: Nothing to capture volatiles from solvents.
- 4) No Cost Savings

Benefits of

New Closed-Loop Solvent System

Benefits include:

- Compatible with DOT-Rated Containers which can help the user to eliminated consolidations.
- **Prevent Twisted Lines:** The new system instead of only one port to place multiple lines from the equipment allows for up to seven separate lines to be placed through ports. The ports are a part of the puck or the lid, and the ring that is gasket sealed fits around the puck
- **Different Port Sizes:** The pucks come with different port sizes depending on the diameter of the line the equipment uses. These port sizes are 1/4", 1/8", and 1/16".



Closed-Loop Solvent Waste Systems

Benefits of

New Closed-Loop Solvent System

Benefits include:

- **More than One Port** Plugs are available if all ports aren't needed.
- **Filter for Safety:** The new system also includes a carbon exhaust filter which captures volatile emissions from the liquid being collected.
- **Ease of Use:** This cartridge is made for ease of swapping out with a new cartridge on a routine basis depending on the type of liquid being collected



Implement & Maintain

Here's what you need to know about implementing and maintaining this new system. If purchased through Triumvirate Environmental will, install, train and maintain this product for you.



Implementation and Training: Triumvirate will deliver them to your facility, install this product, train employees on what it is, and perform regular maintenance on this product. Set up involves utilizing a 2.5 gallon or 5 gallon DOT rated carboy that is standard to the waste industry. The container is then placed under the equipment where the quick connect puck is placed over the opening of the container. The ring is twisted over the puck onto the threads of the container. Tubes that have been sized to the appropriate length can be placed directly into the ports. The carbon filter can then be twisted on.

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Maintenance: Routine filter replacement is a necessary maintenance for this system. A replacement indicator can be added to the cartridge to allow the user to easily identify the remaining lifespan of the filter. Triumvirate will regularly check this indicator, or replace the filter on predetermined dates without the indicator. Filter longevity will depend on the chemicals used in the process.



Congratulations, you've completed the guide!

The battle for compliance is always ongoing, but the latest system gives you a huge advantage. Having Triumvirate install these these can improve employee safety, organizational compliance and EH&S efficiency. For more information on how to get this system look [here](#).



Do You Need a New Solvent-waste System?

Contact us for an equipment and installation quote.

