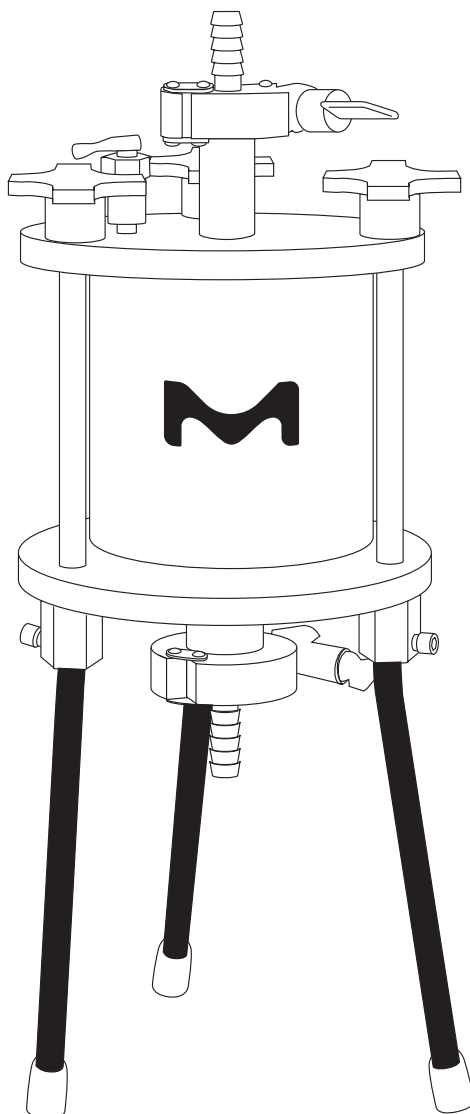


User Guide

Hazardous Waste Filtration System

YT30142HW



Introduction

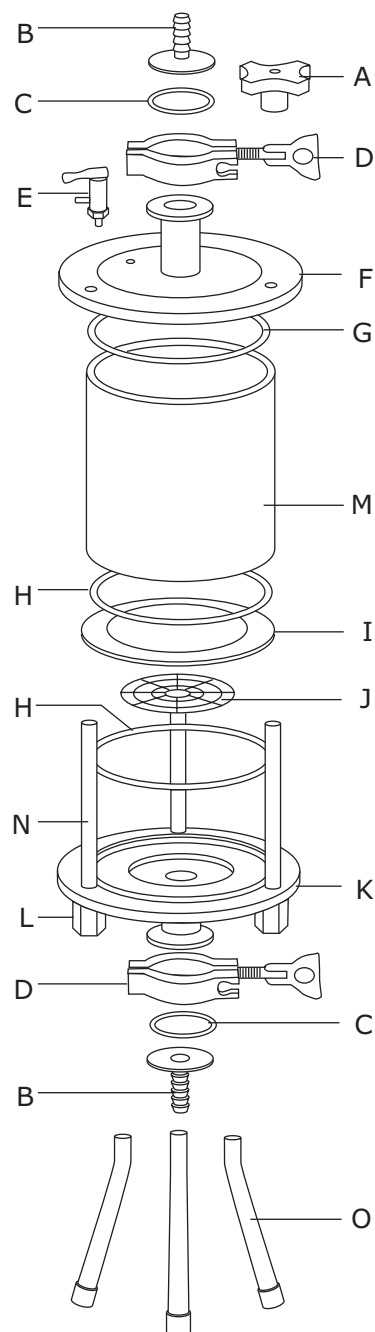
The Hazardous Waste Filtration System (YT30142HW) is used in the toxicity determination of a solid waste in compliance with the U.S. Environmental Protection Agency (EPA) Method 1311 for Toxicity Characteristic Leaching Procedure (TCLP) for semi- and non-volatiles.

Note: If you are performing TCLP for volatiles contact Technical Service for information about the ZHE (Zero Head Space Extractor) Hazardous Waste system.

This system is designed for absolute filtration and separation of solids from liquids by pressure filtration. The 1.5 L extension barrel, top and bottom plates, underdrain support, filter support system, relief valve, and connectors are all constructed of stainless steel. To avoid extraneous contamination from the holder assembly itself, all surfaces of the components (exposed to the test sample) are Teflon®-coated. The Tri-Clover® (TC) connections of the inlet/outlet of the system allow for ease in removal, cleaning, and maintenance.

Hazardous Waste Filtration System Diagram and Parts

Part	Description	Cat. No.
A	Handwheel Knob	YY2214257
B	TC Hose Connector	YY2004076
C	TC Silicone Gasket	YY2004055
D	TC Clamp, 1 1/2 in.	YY2004045
E	Vent Valve	-
F	Assembly Top Plate	-
G	Silicon O-Ring	YY2214265
H	Teflon® O-Ring	YY2214253
I	Screen Support, 142 mm	YT4014259
J	Underdrain Support	YT3014257
K	Assembly Bottom Plate	-
L	Leg Bushing/Socket Screw	-
M	Cylinder, 142 mm	-
N	Cylinder Extension Post	-
O	Aluminum Legs	YY2214251



Equipment Assembly

1. Remove the handwheel knobs from the top of the unit and remove the top plate of the holder assembly. Install Teflon® O-ring in the groove at the base of the stainless steel cylinder. Examine underdrain screen to ensure that the radial spokes are down. Then replace support screen.
2. If your method does not include gravimetric analysis proceed to step 3.

If your method includes gravimetric analysis, weigh the filters and prefilters. Or, use the average weight of the AP40 TCLP filter (AP40 142 50), 1.14 g.
3. Place the AP40 Glass Fiber Filter on the base support screen.
4. Center the stainless steel cylinder, grooved end down, onto the filter(s) and obtain an even seal.
5. For procedures requiring a prefilter(s), install the prefilter at this time.

Note: Use prefilters with 124 mm diameter.

Lower the prefilter, rough side(s) up, through the cylinder top onto the filter(s). The prefilter may appear oversized; however, it fits snugly against the sides of the cylinder.

6. Place the filter holder's top plate on top of the cylinder rim. The red silicone O-ring fitted into groove of the plate seals it evenly onto the rim. Replace the handwheel knobs on top of unit and screw down evenly until tight. For additional tightening, use the plastic wrench provided.
7. Fit the PVC tubing over the TC hose adaptor and secure with a hose clamp. Attach the other end of the PVC tubing to the nitrogen tank regulator outlet and secure it with a hose clamp. Put aside until you are ready to perform the steps in the "Sample Filtration" section.

How to Use the Hazardous Waste Filtration System

TCLP analysis requires a 0.7 µm glass fiber filter without binder (AP40 filter).

Other test methods may call for other filter types. Most 142 mm filters can be used with this system. In other applications waste samples can be filtered using only an AP25 glass fiber filter superimposed on an HA (0.45 µm) filter. Some examples include: paper mill effluents, slime muds, secondary sludge, and fly ash. Primary effluents, such as fibers, may require a combination of an AP15 glass fiber filter and a DA (0.65 µm) or AA (0.8 µm) filter in addition to an HA filter to accomplish adequate filtration.

The following section provides a guideline for the filtration of hazardous waste samples for TCLP analysis. See the EPA TCLP Procedure, Method 1311 before starting the procedure.

Note: Completing all the procedures in the EPA TCLP Procedure, Method 1311 is necessary to obtain the proper samples for final toxicity analysis. Refer to this method for more information.

Sample Filtration

1. Take a representative sample (minimum size 100 g) of the waste you want to test. Perform the necessary extraction procedure outlined in EPA Method 1311. (Contact Technical Service for information about using a Rotary Agitator for extraction.)
2. Pour the extraction fluid into the unit through the TC opening using a funnel. Attach the TC hose adaptor (fitted with 1-½ in. gasket) to the top plate's TC connection using the stainless steel TC clamp provided.
3. Place an appropriate receiving vessel below the TC sanitary outlet or attach a PVC hose to the TC adaptor and run the hose to an appropriate container.
4. Increase pressure on the nitrogen tank slowly. When the liquid starts to flow from the assembled holder's outlet, immediately turn the regulator valve handle a few turns to lower the pressure. If necessary, bleed air from the top-plate vent valve slowly until pressure gauge reads between 1-10 psi. No leaks should be apparent.

Caution: Pressure introduced into the system should not exceed 100 psi.

Continue filtration until flow stops.

5. Increase inlet pressure in 10 psi increments to 50 psi, holding for two minutes each time. Continue filtration until flow stops. The liquid should be clear of particulate matter.

Note: Keep the liquid fraction under refrigeration at 1-5 °C (34-41 °F) if performing analysis at a later time.

6. Shut off the pressure from the nitrogen tank regulator outlet valve, then open the vent valve gradually to release pressure from the cylinder.
7. Remove the inlet TC hose connector and handwheel knobs, and then remove top plate and extension cylinder of holder to clean the unit.

Hazardous Waste Filtration System Specifications

Materials	316 Stainless steel Teflon® coated interior surfaces Aluminum legs Molded Polypropylene handwheels Teflon® O-rings Silicon O-rings
Dimensions	184 mm (7 ¼ in.) D × 422 mm (16 5/8 in.) H plus inlet connector
Connections	1-½ in. TC Flange with clamps and adaptors for 14 mm (9/16") I.D. hose 1/8 in. NPTF upstream port for vent/relief
Pressure	7 bar (100 psi) differential 7 bar (100 psi) maximum inlet pressure
Filter diameter	142 mm
Filtration area	120 cm²
Prefilter Size	Type AP depth filter, 124 mm diameter

Product Ordering Information

Products may be purchased online at SigmaAldrich.com.

Description	Catalogue Number
Hazardous Waste Filtration System	YT30142HW
Handwheel Knob (3 required)	YY2214257
TC Hose Connector	YY2004076
TC Silicon Gasket, 10/pk	YY2004055
TC Clamp, 1 ½ in.	YY2004045
Vent Valve	-
Silicon O-Ring, 4/pk	YY2214265
Teflon® O-Ring	YY2214253
Screen Support, 142 mm	YT4014259
Underdrain Support	YT3014257
Leg Bushing/Socket Screw, 3/pk	-
Cylinder Extension Post, 3/pk	-
Three Legs with Caps and 3/16 in. Allen Wrench	YY2214251
Plastic Handwheel Wrench	YY2214252
Accessories	
TC Gasket, 1 ½ in. 10/pk	YY2004057
PVC Tubing with Clamp, ½ in. × 10 ft	XX6700035
TCLP Filter	
Glass Fiber Filter, 142 mm, without binder, 50/pk	AP4014250

Note: Contact Technical Service for information about appropriate filters for other methods.

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