

# Toxic Interface Units Model 3900, 500cc Model 3910, 180cc

## INTRODUCTION

Karol Warner Toxic Interface Units allow for safe permeability testing of soils using toxic chemicals. Two units are required between the Control Panel and Permeameter. One unit connects to the top cap and the other unit to the bottom cap of the permeability cell. This prevents the chemicals from entering the panel and venting to the atmosphere and also isolates the chemical to the sample and the lower half of each interface chamber. This section of the chamber contains a stainless-steel tube, base, and a zero volume change ball valve. The tube and base are sealed with a Viton O-Ring.

## SPECIFICATIONS

	<b>3900</b>	<b>3910</b>
Dimensions	6.5 x 7.25 x 10.1in (165 x 184 x 257mm) WxDxH	5.9 x 6.3 x 10.1in (150 x 160 x 257mm) WxDxH
Weight	10.0lb (4.54kg)	6.0lb (2.72kg)
Capacity	500cc	180cc
Maximum Pressure: 150 psi		



**Model 3900**

## CAUTIONS



Special precautions should be used with using chemicals or landfill leachates as the permeant. Protective eyewear and gloves should be worn, and any chemicals should be isolated in a vented hood.

The Viton membrane is compatible with many fluid types, but it is recommended to test reactivity with the chemical permanent. Cut a small strip from the perimeter of the membrane and test in a separate container

of the permeant. Do not use the Toxic Interface Unit if it appears the permeant is attacking the membrane. Contact Karol Warner technical support for other membrane options.

At the completion of each Permeability test, each Toxic Interface Unit should be taken apart and cleaned. A thorough inspection of the O-rings and membranes should be conducted and any parts that have deteriorated should be replaced.

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## TEST SET-UP

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1. Set all valves on the toxic interface unit, permeability cell, and control panel to the “OFF” position.
2. Connect tubing from the panel to the toxic interface units, to the permeability cell via quick connect fittings.
3. To minimize air in the tubing from the control panel to the Toxic Interface Units, allow water to flow through the tubing by loosening the fitting at the panel connection and retightening with water is flowing.
4. Turn the top valve on the toxic interface unit to the Right (panel position) and fill the top acrylic portion of the chamber with water from the control panel. Turn the valve to the OFF position when filled. If there are any air bubbles in the water, they can be removed by turning the valve to the left (vac position) and hooking up the vacuum line from the control panel.
5. When all the bubbles have been removed, turn the top valve to the panel position and disconnect the vacuum line from the Toxic Interface Unit.
6. With the water portion of the toxic interface unit filled, you can now fill the chemical portion. Connect the fill/drain tube to the chemical container and be certain the bottom stainless steel valve is turned to the fill/drain position.
7. Lower the water level in the control panel storage chamber to its lowest point. Then apply a vacuum to this chamber and open the storage valve. This will draw water from the top of the toxic interface unit and at the same time, draw the chemical into the bottom of the unit. When the toxic interface unit is partially filled and the water level in the storage chamber is at the “zero” mark on the burette, shut off the panel valve on the Interface Unit. Then shut off the vacuum on the panel storage chamber.
8. Next, invert the Toxic Interface Unit and open the panel valve on the unit to allow air to be purged from the chemical side of the unit. The pressure control valve on the control panel should be in the “vent” position. When air bubbles cease to emerge from drain tubing, shut off the stainless steel valve and return the interface unit to its upright position.

9. **Headwater Toxic Interface Unit.** The permeant side of the Interface Unit should be at its fullest with the membrane to the top of the polycarbonate top plate.

**Tailwater Toxic Interface Unit.** The water side of the Interface Unit should be at its fullest with the membrane at the bottom of the stainless steel top plate.

## PERMEABILITY TEST

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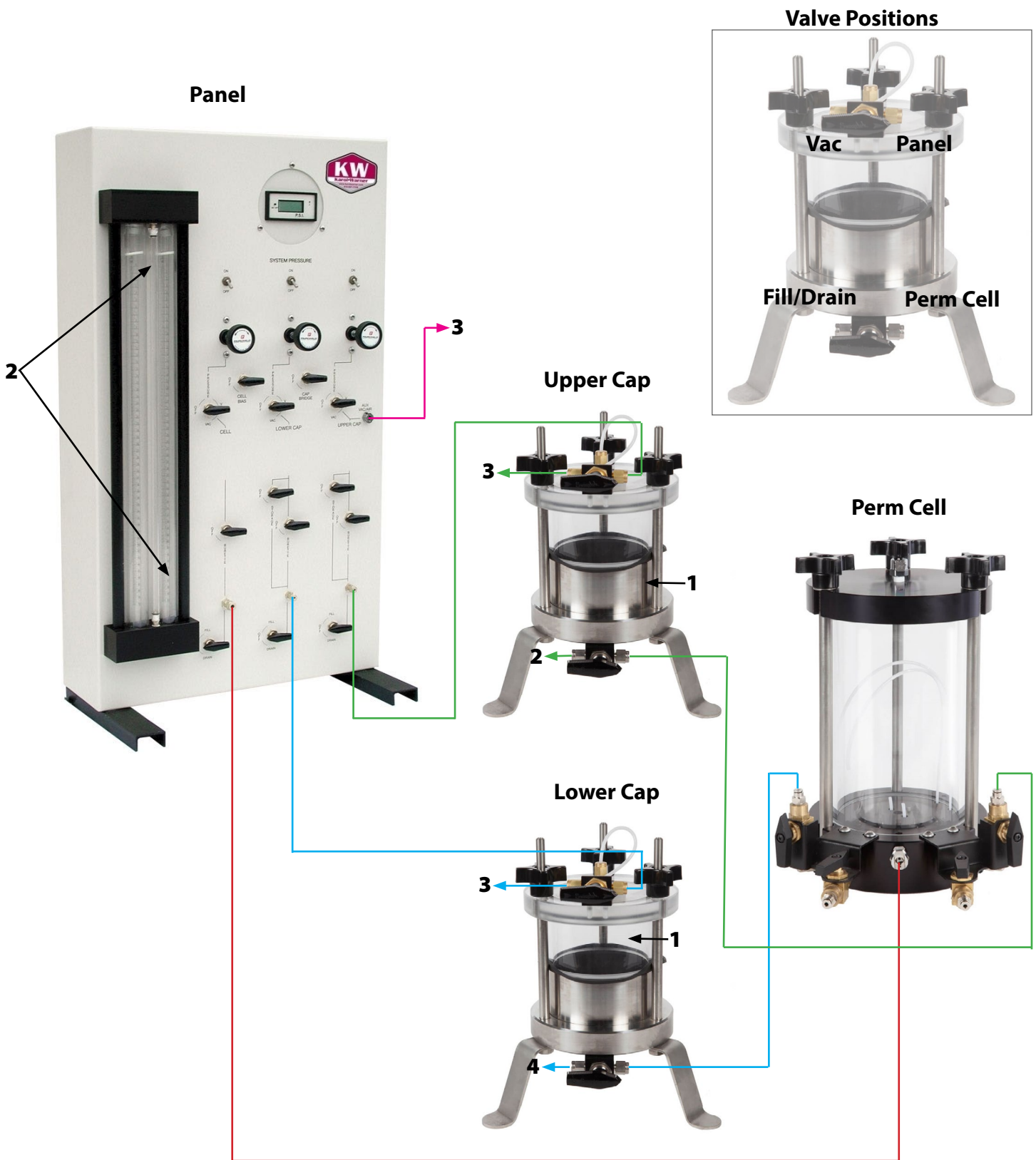
During the test, the position of the membrane moves with respect to the flow of permeant and the position of the membrane must be monitored.

Refer to the applicable ASTM or AASHTO test specifications for full test procedure.

## REPAIR PARTS

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<b>3900, 500cc Toxic Interface Unit</b>	
3912:	500cc Viton Bladder
OR-239V:	Viton #239 O-Ring
OR-239:	#239 O-Ring for top cap
<b>3910, 180cc Toxic Interface Unit</b>	
3911:	180cc Viton Bladder
OR-138V:	Viton #138 O-Ring
OR-138:	#138 O-Ring for top cap



**Notes:**

1. Membrane to be in position shown at start of test
2. Denotes water level at start of test
3. Vacuum line can be switched to each as required
4. Line to permeant container