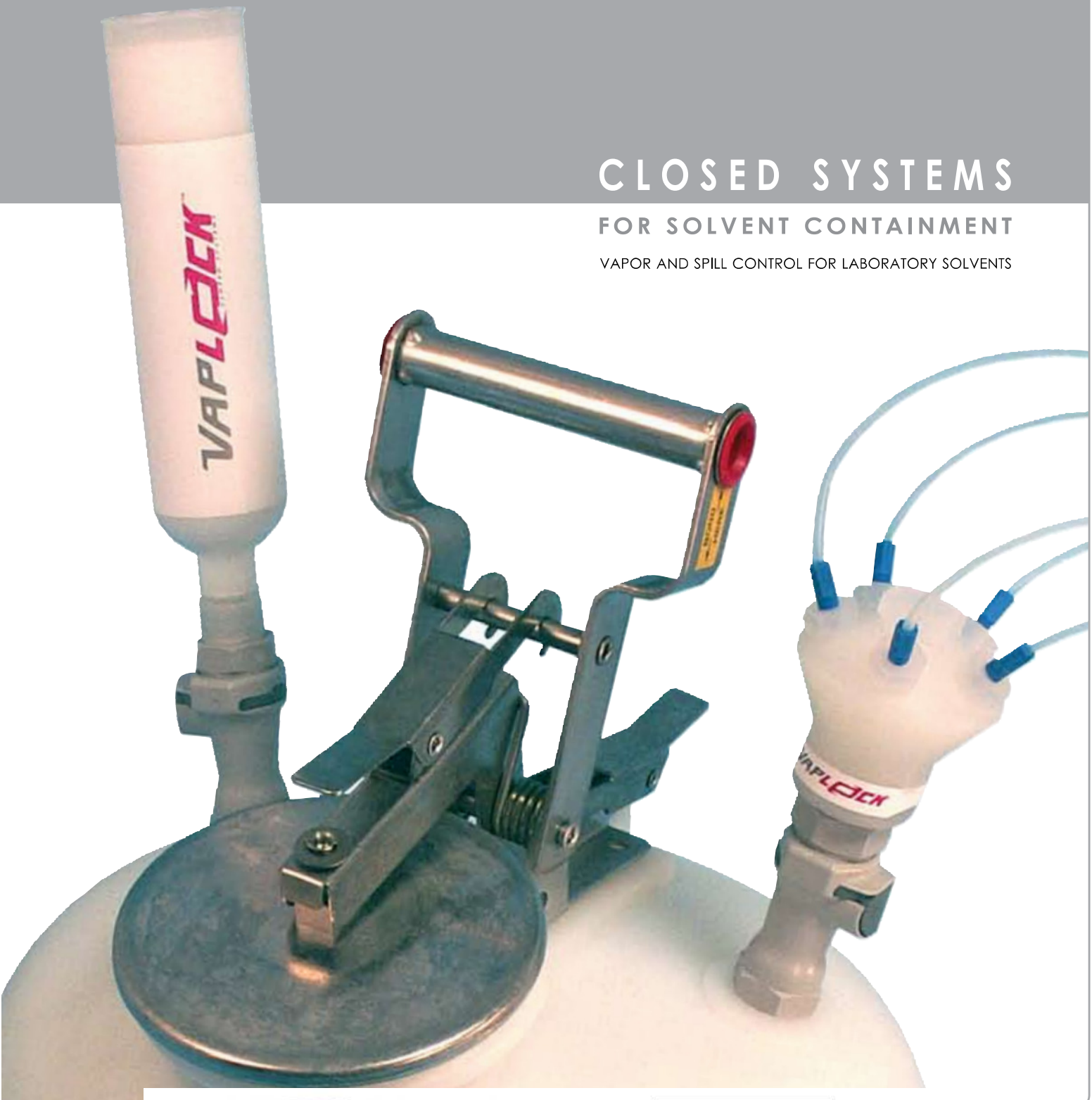
VAPLOCK™
CLOSED SYSTEMS

CLOSED SYSTEMS

FOR SOLVENT CONTAINMENT

VAPOR AND SPILL CONTROL FOR LABORATORY SOLVENTS

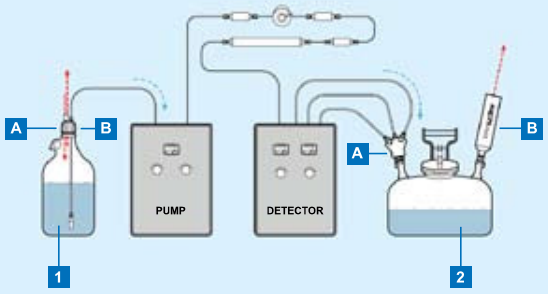


CLOSED SYSTEMS INTRODUCTION

Through leaks, spills, and ventilation, an "open" solvent-using system will release solvent vapors directly into the laboratory environment. This introduction may be reduced by adding several key components to the typical system. These items are:

- A properly sealed solvent reservoir with ventilation control
- A solvent waste container with secure fluid connections
- A carbon filter to reduce vapors escaping the waste container

EXAMPLE OF A CLOSED SYSTEM HPLC



1: Solvent Reservoir
2. Waste Container

A: Fluid Connections
B: Air inlet (1) or vent (2

1A SOLVENT RESERVOIR FLUID CONNECTIONS

For a closed system on a bottle, each container first requires a bottle cap with ports to fit the specific tubing sizes. When using caps with threaded ports for fittings, the fittings may be selected and replaced to accommodate different diameters of tubes. Caps with "slip-through" ports (non-threaded holes drilled or molded into a cap) are acceptable, provided the holes fit the tubing sizes securely. Most slip-through caps are made to accommodate 1/8" or 1/16" OD.

1B SOLVENT RESERVOIR AIR INLET

In systems where sparging is not employed, to complete the closed system on a bottle each container requires a device to control the bottle cap vent. A closed bottle must function exactly like a coffee travel mug – liquid goes out through one hole, and air comes in through a pinhole to displace the liquid removed. To manage the air flow, the simplest answer is a check valve assembly made to occupy a bottle cap port. The check valve allows air to enter a bottle as the pump moves the liquid phase out to the system. It also minimizes escape of vapors contained in the bottle. Should the bottle ever be exposed to pressure – a result of a rise in lab temperature (over a warm weekend, for example) or a sparging line accidentally connected – to reduce the threat of explosion a check-and-relief valve assembly is also available. The relief function allows pressure to escape while still preserving a "pressure blanket" of 0.5-1psi in the bottle. Although VapCheck™ units resist many standard solvents, care should be taken to consider the chemical compatibility of a solvent with VapCheck™ materials.

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2A WASTE CONTAINER FLUID CONNECTIONS

Many labs are standardizing on Justrite® 2- and 5- gallon HPLC Centura™ waste containers. These safety cans have enough capacity for days or weeks of typical flow, vent automatically at 5 psig if pressurized, and allow users to disengage waste lines and vapor filters quickly during waste collection. Containers are available with either Polypropylene or Stainless Steel quick disconnects. Care should be taken when choosing the disconnect type. For example, at high concentrations the solvent Hexane swells Polyproplyene as much as 30%, causing the disconnect to "stick" and restrict fluid flow. Containers and manifolds with stainless steel quick disconnects are advised wherever such chemical compatiblity issues may arise; consult a chemical compatibility guide before selecting a container. One should also note that Justrite containers must be grounded while in use and especially while emptying the container, as static electricity has been known to ignite solvent fumes.

For labs which choose not to use Justrite® containers, Vaplock™ products are also available to adapt to standard drum and pail closures, as well as Nalgene® 83B, 53B, and 100-415 carboys. PLEASE NOTE THAT IT IS NOT POSSIBLE TO GROUND DRUM, PAIL, GLASS BOTTLE AND CARBOY (NON-JUSTRITE®) CONTAINERS; THIS MAY RESULT IN A SAFETY HAZARD WITH FLAMMABLE SOLVENTS.

The type and dimension of waste tubing found on an HPLC varies widely, depending on both system and user requirements. Outer and inner diameters range from microns to inches, and tubing material may be hard- or soft-wall plastic, metal, smooth-walled or corrugated. All these lines must be connected to a waste container. Adapting securely, without leaks and vapor release, poses a problem when attempting a closed system. VapLock™ manifolds adapt to tubing sizes up to 1/2" ID or OD (and larger if necessary) and can be stacked to accept additional lines. Most manifold ports permit direct connection of 1/4" or 1/2" threaded NPT fittings.

2B WASTE CONTAINER VAPOR VENT

The most significant vapor generator in an HPLC system is the waste can, where solvents draining to the container may volatilize rapidly as solvent entering the container forces vapor into the laboratory. Activated carbon has excellent adsorptive properties for organic solvents. With a Gas Chromatograph, a number of carbon types were tested for vapor breakthrough under a flow of Acetonitrile vapor, one of the more common solvents used in HPLC. After determining the appropriate type, the carbon was similarly tested on other common solvents. The breakthrough data published in this brochure is based on use of 100% concentration of each solvent, at a flow rate of 1 mL per minute at S.T.P. (most analytical HPLCs run at 1-2 mL per minute). Disposal of spent cartridges should be conducted in accordance with local safety codes.

For information regarding your local distributor, please contact:

WESTERN FLUIDS

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CLOSED SOLVENT SYSTEMS

- **Minimize solvent odors entering the lab**
- **Reduce leaks and spills of reagents and waste**
- **Ideal for HPLC and other solvent systems**

VAPLOCK™ Closed Systems for solvent containment minimizes leaks, spills, and odor escape from solvent waste and supply containers. Use supply kit VK-205 to provide an effective means of sealed solvent delivery, and select from the waste containment kits to collect solvent wastes with minimal release of solvent odors. All Vaplock™ products are designed for ease of use and adaptability, and will conform to a broad array of standard laboratory solvent containers. Choose from the complete kits pictured here, or make your own selection of components from the pages that follow for a more customized closed system solution.

2-GALLON
Polyethylene waste can with Polypropylene / EPDM disconnects

5-GALLON
Polyethylene waste can with Stainless / PTFE disconnects

SECURE SOLVENT DELIVERY

Use a Vaplock™ Solvent Delivery Kit to minimize release of solvent odors while supplying solvents to your system. A threaded connection for 1/8" OD tubing adapts to an inert PTFE bottle cap on a 2 Liter safety-coated borosilicate bottle, while a 1-way emission control valve allows air to enter the reservoir as solvent is removed. The valve opens at a low 0.07 psi to minimize backpressure. A 10um UHMW Polyethylene solvent filter, five replacement filter elements, Teflon® 1/4-28 plug and five feet of 1/8" OD PTFE tubing are also included. For Reversed Phase solvents only. Please inquire for Normal Phase solutions.

VK-205 Solvent Delivery Kit

SOLVENT WASTE CONTAINMENT

Plumb multiple solvent lines securely to a waste container and reduce solvent odor emissions by using a Vaplock™ Waste Containment Kit. The heart of the system is a Justrite® Polyethylene waste can, which includes 2 quick disconnects for ease of use (choose either Polypropylene with EPDM o-rings, or Stainless Steel and Teflon® for more aggressive fluids). A 6-port waste manifold and fittings kit adapt to common HPLC tubing requirements, while a 5-pack of activated carbon and silica filters reduce vapors from the container vent. Antistatic wire grounds the system during use. 1, 2, and 5 gallon container sizes available.

VK-003 Waste Containment Kit

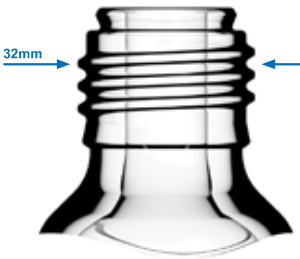
CLOSED SYSTEM KITS

SOLVENT DELIVERY KIT	
VK-205	Solvent delivery kit, 2L bottle with accessories
WASTE CONTAINMENT KITS	
VK-001	Waste kit, 1-gallon, PP / EPDM quick disconnect
VK-002	Waste kit, 2-gallon, PP / EPDM quick disconnect
VK-004	Waste kit, 5-gallon, PP / EPDM quick disconnect
VK-003	Waste kit, 2-gallon, SS / Teflon® quick disconnect
VK-005	Waste kit, 5-gallon, SS / Teflon® quick disconnect

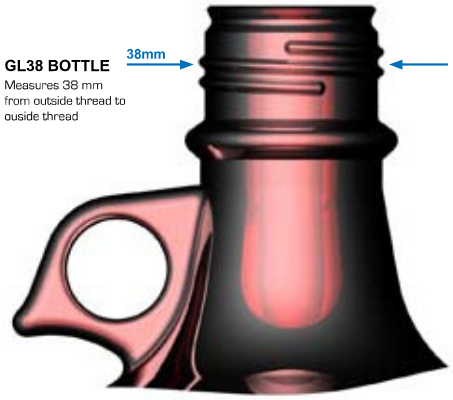
SOLVENT RESERVOIRS

How to identify common laboratory solvent storage vessels

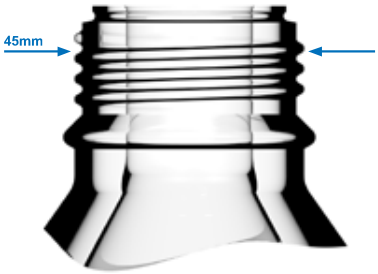
Although many container types and sizes are available, some of the more commonly used varieties in the laboratory are GL45, GL38 (sometimes known as "38-430"), and GL32 glass bottles. VapLock caps are made to fit these standard sizes. Perhaps the most common reservoir of all, the GL45 lab bottle, is available for purchase. This glassware is manufactured by Schott Duran® and Kontes®, and is available in clear, plastic coated, and pressure-tested versions.



GL32 BOTTLE
Measures 32 mm from outside thread to ouside thread



GL38 BOTTLE
Measures 38 mm from outside thread to ouside thread



GL45 BOTTLE
Measures 45 mm from outside thread to ouside thread

1 BAR PRESSURE-TESTED BOTTLES, GL45

BT45-025B	CLEAR, 250ml, pressure-tested
BT45-05B	CLEAR, 500ml, pressure-tested
BT45-1B	CLEAR, 1 Liter, pressure-tested
BT45-1BP	CLEAR 1 Liter, pressure-tested, plastic coated

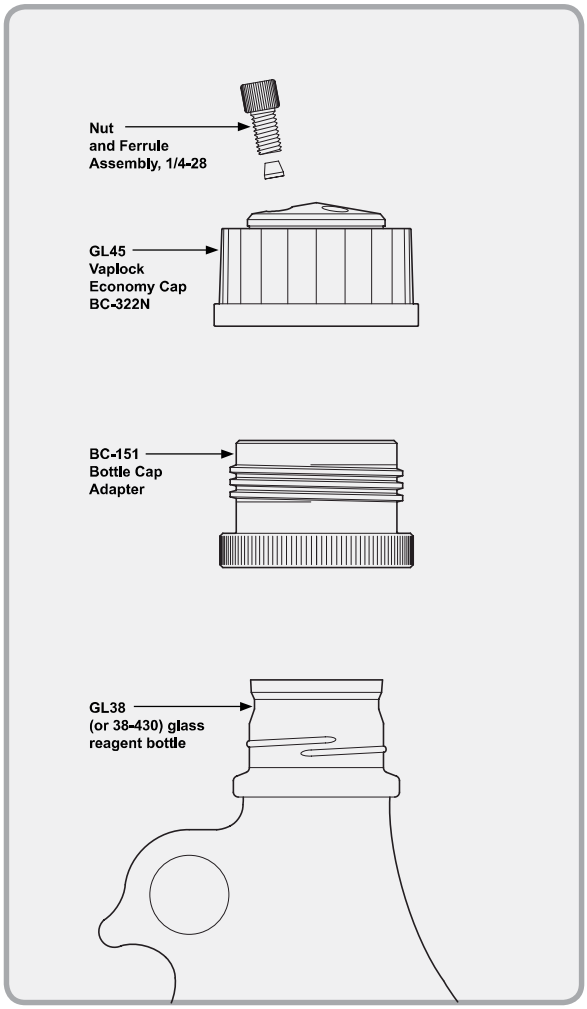
GL45 STANDARD LAB BOTTLES

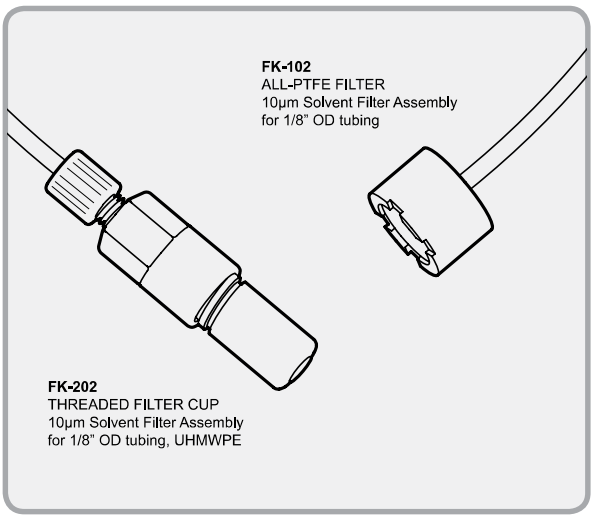
100 ML	
BT45-01	CLEAR 100mL
BT45-01P	CLEAR 100mL, plastic safety coated
BT45-01A	AMBER 100mL, non-coated
250 ML	
BT45-025	CLEAR 250mL
BT45-025P	CLEAR 250mL, plastic safety coated
BT45-025A	AMBER 250mL, non-coated
500 ML	
BT45-05	CLEAR 500mL
BT45-05P	CLEAR 500mL, plastic safety coated
BT45-05A	AMBER 500mL, non-coated
1 LITER	
BT45-1	CLEAR 1 Liter
BT45-1P	CLEAR 1 Liter, plastic safety coated
BT45-1A	AMBER 1 Liter, non-coated
2 LITER	
BT45-2	CLEAR 2 Liter
BT45-2P	CLEAR 2 Liter, plastic safety coated
BT45-2A	AMBER 2 Liter, non-coated
5 LITER	
BT45-5	CLEAR 5 Liter
BT45-5P	CLEAR 5 Liter, plastic safety coated
BT45-5A	AMBER 5 Liter, non-coated

BOTTLE THREAD ADAPTER

- Adapt GL45 caps to fit GL38 solvent bottles
- Polypropylene construction

In lab applications where various bottle types are used, there may be occasions when the use of separate bottle caps is inconvenient. Save time and hassle by using the new BC-151 solvent bottle adapter, which will convert Vaplock 'Economy' GL45 bottle caps to standard 38-430 threaded solvent bottles.





SOLVENT INLET FILTERS

- Filter particulates from the mobile phase
- Various porosities and styles
- Biocompatible polymers

Use these biocompatible filters to remove particulates from a solvent solution before they reach your system. Available in Polyethylene and PTFE, in a variety of porosities.

FK-202 10 micron Threaded UHMWPE filter assembly

BOTTLE THREAD ADAPTER	
BC-151	ADAPTER, GL45 to GL38, Polypropylene

SOLVENT INLET FILTERS	
ALL - PTFE FILTERS	
FK-101	5 µm all-PTFE filter for 1/8" OD tubing
FK-102	10 µm all-PTFE filter for 1/8" OD tubing
THREADED UHMWPE FILTERS	
FK-201	10um UHMWPE filter, for 1/16" OD tubing
FK-202	10um UHMWPE filter, for 1/8" OD tubing
FK-200V	Replacement threaded filters, 5-pack
FK-200C	Replacement threaded filters, 100-pack

'Q' SERIES CAPS

- With 1/4-28 threaded ports
- Optional valved ports
- Anti-twist design - no twisted tubing!
- Solid PTFE body

'Q' series caps offer the simplest way to connect via 1/4-28 ports and fittings. Each port has a robust Stainless Steel thread insert to enable repeated connect and disconnect. 1/8" OD supply tubing may be press-fit into the underside of each cap. Easy operation on/off valves on each fluid line are an optional extra.

BC-109
GL45, (2) 1/4-28

BC-106
GL38, (2) 1/4-28

BC-110
GL45, (3) 1/4-28

BC-107
GL38, (3) 1/4-28

BC-111
GL45, (4) 1/4-28

BC-108
GL38, (4) 1/4-28

'Q' SERIES STANDARD CAP

- With 1/4-28 threaded ports

This compact design can be used where head space is limited. 1.8mm holes through the PTFE cap body allow 1/16" OD tubing to pass straight through into the bottle.

BC-116
GL45, 2-valved
1/4-28

BC-113
GL38, 2-valved
1/4-28

BC-117
GL45, 3-valved
1/4-28

BC-114
GL38, 3-valved
1/4-28

'Q' SERIES VALVED CAPS

- 1/4-28 ports include on/off valves
- PTFE body with PCTFE valve rotors

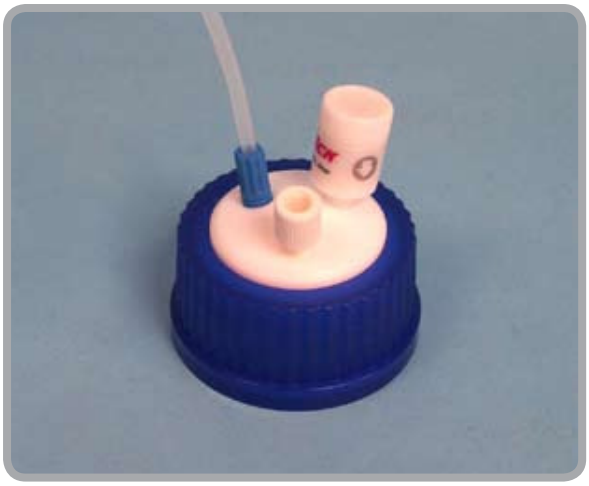
Easily control the flow of liquid into and out of the bottle with the integrated valves. Each fluid line can be switched on or off independantly.

BC-118
GL45, 4-valved
1/4-28

BC-115
GL38, 4-valved
1/4-28

'Q' SERIES BOTTLE CAPS

BC-106	Q-series cap, 38-430; 2 lines
BC-107	Q-series cap, 38-430; 3 lines
BC-108	Q-series cap, 38-430; 4 lines
BC-109	Q-series cap, GL45; 2 lines
BC-110	Q-series cap,GL45; 3 lines
BC-111	Q-series cap,GL45; 4 lines
BC-112	Q-series cap,GL32; 3 lines w /valves
BC-113	Q-series cap,38-430; 2 lines w /valves
BC-114	Q-series cap,38-430; 3 lines w /valves
BC-115	Q-series cap,38-430; 4 lines w /valves
BC-116	Q-series cap,GL45; 2 lines w /valves
BC-117	Q-series cap,GL45; 3 lines w /valves
BC-118	Q-series cap,GL45; 4 lines w /valves



BC-322N GL45 3-port cap shown with DV-115 check valve, AG-115 fitting kit, and plug

ECONOMY CAPS FOR GLASS BOTTLES

- **PTFE body with PE or PP cap collar**
- **Expanded PTFE sealing gasket**
- **1/4-28 threaded ports**

Priced conservatively, these caps for GL38 and GL45 glass bottles have 1/4-28 threaded ports in a PTFE insert, with expanded PTFE gaskets. Each port has a through-hole for 1/8" OD tubing; push tubing through the cap to supply your system. All ports are machined at a 10 degree angle to simplify threading of tube connections.

BC-220N
GL38 Economy Cap, 2-port

BC-222N
GL45 Economy Cap, 2-port

BC-320
GL38 Economy Cap, 3-port

BC-322N
GL45 Economy Cap, 3-port

BC-420
GL38 Economy Cap, 4-port

BC-422
GL45 Economy Cap, 4-port

THREADED CAPS FOR NALGENE 38-430 BOTTLES

- **PTFE body with Polypropylene cap collar**
- **Expanded PTFE sealing gasket**
- **1/4-28 threaded ports**

Although similar to a standard GL38 thread, Nalgene 38-430 bottles require a slightly different bottle cap design for a proper seal. Caps include PTFE insert and gasket with Polypropylene collar and angled 1/4-28 ports.

BC-340
3-Port cap for Nalgene 38-430 bottles

BC-440
4-Port cap for Nalgene 38-430 bottles

NON-STANDARD CAPS

- **Caps with 5/16-24 threaded ports**
- **Caps for 1/4" OD tubing**
- **Custom bottle caps and assemblies**

We also design and manufacture bottle caps for custom applications. Below are several such designs which we now offer as part of our general product portfolio.

BCS-209
GL45 2-port cap for 1/4" OD tubing, non-threaded ports

SV-129
GL45 3-port cap with (2) 5/16-24 ports for 4.0mm or 3/16" OD tubing, and (1) 1/4-28 port

ECONOMY CAPS FOR GLASS BOTTLES	
BC-220N	Economy cap, GL38, 2-port 1/4-28
BC-222N	Economy cap, GL45, 2-port 1/4-28
BC-320	Economy cap, GL38, 3-port 1/4-28
BC-322N	Economy cap, GL45, 3-port 1/4-28
BC-420	Economy cap, GL38, 4-port 1/4-28
BC-422	Economy cap, GL45, 4-port 1/4-28

CAPS FOR NALGENE 38-430 BOTTLES	
BC-240	Nalgene 38-430, 2-port 1/4-28
BC-340	Nalgene 38-430, 3-port 1/4-28
BC-440	Nalgene 38-430, 4-port 1/4-28

NON-STANDARD CAPS	
BCS-202	GL38 cap with (2) slip-through ports for 1/4" OD tube
BCS-209	GL45 cap with (2) slip-through ports for 1/4" OD tube
SV-129	GL45 cap with (2) 5/16-24 and (1) 1/4-28 port
SV-149	GL38 with (2) 5/16-24 and (1) 1/4-28 port

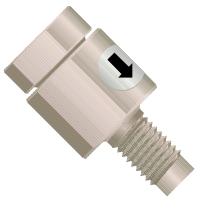
EVAPORATION CONTROL

- Minimize vapor loss from supply bottles
- Air inlet and pressure relief options
- Choose from Viton or perfluoroelastomer seals

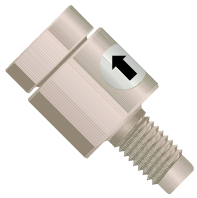
Evaporation control units contain check valves that reduce the flow of vapor in and out of a solvent supply bottle. During a system run, as liquid solvent travels out of the supply bottle to the system, air must enter the bottle to displace the solvent removed. DV-115 and DV-201allow air to enter the bottle, but not to escape. Part numbers DV-118 and DV-202 operate in the reverse, allowing pressure relief. DV-201 and DV-202 are constructed of PEEK and perfluoroelastomer and are our most chemically resistant option, while DV-115 and DV-118 are constructed from PTFE with Viton seals.

DV-115
Air Inlet Evaporation Control Valve, PTFE with Viton seal, 0.07 psi cracking pressure

DV-118
Air Outlet Pressure Relief Valve, PTFE with Viton seal, 1 psi cracking pressure



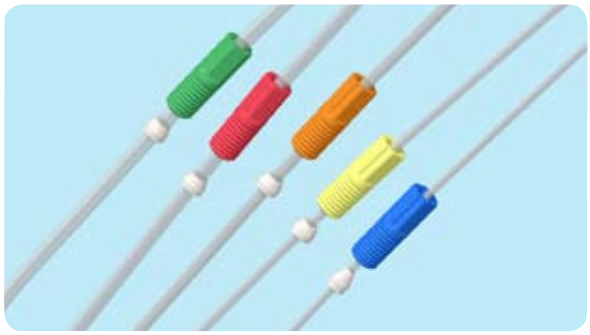
DV-201
Air Inlet Valve, PEEK with perfluoroelastomer seal, 1 psi cracking pressure



DV-202
Air Outlet Pressure Relief Valve, PEEK with perfluoroelastomer seal
1 psi cracking pressure

EVAPORATION CONTROL AND RELIEF VALVES	
1-WAY INLET AIR CONTROL VALVES	
DV-115	Air Inlet Valve, 1/4-28, 0.07 psi, Viton seal
DV-201	Air Inlet Valve, 1/4-28, 1 psi, Perfluoroelastomer seal
1-WAY OUTLET AIR CONTROL (RELIEF) VALVES	
DV-118	Air Outlet Relief Valve, 1/4-28, 1 psi, Viton seal
DV-202	Air Outlet Valve, 1/4-28, 1 psi, Perfluoroelastomer seal

WARNING:
Viton seals in DV-115 and DV-118 are not suitable for use with some solvents, such as THF. Consult a chemical compatibility guide for further information.



1/4-28 TUBING CONNECTIONS

- Spare tubing connections for 1/4-28 ports
- For tubing OD sizes 1/16" - 1/8"
- Tefzel® and Polypropylene

AQ-111
For 1/16" OD tubing

AQ-112
For 1.8-2.0mm OD

AQ-117
For 2.2mm OD

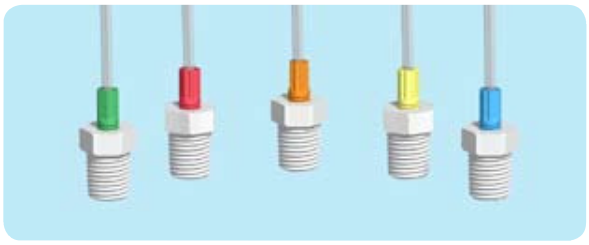
AQ-113
For 2.5mm OD tubing

AQ-114
For 3.0mm OD tubing

AQ-115
For 1/8" OD tubing

UC-004
1/4-28 PEEK Union, 0.05" bore

1/4-28 TUBING CONNECTIONS AND PLUGS	
AQ-101X	For 360µm OD tubing, Red / Green, 10 pack
AQ-102X	For 1mm OD tubing, Blue / Purple, 10 pack
AQ-111X	For 1/16" OD tubing, 10pk, Green, 10 pack
AQ-112X	For 1.8-2.0mm OD tubing, 10pk, Red, 10 pack
AQ-117X	For 2.2mm OD tubing, 10pk, Black, 10 pack
AQ-113X	For 2.5mm OD tubing, 10pk, Orange, 10 pack
AQ-114X	For 3.0mm OD tubing, 10pk, Yellow, 10 pack
AQ-115X	For 1/8" OD tubing, 10pk, Blue, 10 pack
PL-103X	Delrin® Plug, 1/4-28, 10 pack
PL-104X	PFA Teflon® Plug, 1/4-28, 10 pack
SAMPLER KIT AND UNION	
SK-011	1/4-28 Sampler kit, includes 1 connection of each size
UC-004	1/4-28 PEEK Union, 0.05" ID bore



NPT ADAPTERS FOR HARD WALL TUBING

- Adapt tubing outer diameter (OD) to manifold NPT ports with compression fittings
- 1/4" and 1/2" NPT connections
- Chemically resistant Polypropylene and Tefzel®

For secure fluid connections to a manifold, select a fitting based on your tubing outer diameter (OD). Wrap NPT threads 3–4 times and wrench tighten for leak-resistant connections.

AC-120
For 1/16" OD tubing

AC-121
For 1.8-2.0mm OD

AC-125
For 2.2mm OD tubing

AC-122
For 2.5mm OD tubing

AC-123
For 3.0mm OD tubing

AC-124
For 1/8" OD tubing

NPT ADAPTERS FOR SOFT WALL TUBING

- Adapt tubing inner diameter (ID) to manifold NPT ports with barbed fittings
- 1/4" and 1/2" NPT connections
- Chemically resistant Polypropylene

A semi-permanent connection for soft-walled tubing only, barbed fittings are an economical means of connecting tubing to Vaplock manifolds. As with NPT adapters for hard wall tubing, wrap NPT threads 3–4 times and wrench tighten for leak-resistant connections.

TUBING GAUGE

- Measure the inner and outer diameters of waste tubing accurately

INSTALLATION TOOLKIT

- For quick installation of tubing connections in Vaplock™ manifolds

Easily install fittings in Vaplock™ manifolds with the TK-100 installation toolkit. Includes deep socket set for 9/16" and 7/8" hex fittings, adjustable wrench, guillotine tubing cutter, sealing tape and zip tie adhesive mounts.

HARDWALL TUBING ADAPTERS FOR NPT PORTS	
ADAPTERS FOR 1/4" NPT PORTS	
AC-120	1/16" OD tube x 1/4" NPT, PP, Tefzel, Green
AC-121	1.8-2.0 mm OD tube x 1/4" NPT, PP, Tefzel, Red
AC-125	2.2 mm OD tube x 1/4" NPT, PP, Tefzel, Black
AC-122	2.5 mm OD tube x 1/4" NPT, PP, Tefzel, Orange
AC-123	3.0 mm OD tube x 1/4" NPT, PP, Tefzel, Yellow
AC-124	1/8" OD tube x 1/4" NPT, PP, Tefzel, Blue
AC-108	4.0 mm OD tube x 1/4" NPT, PP, Tefzel, PEEK, Brown
AC-109	3/16" OD tube x 1/4" NPT, PP, Tefzel, Delrin, White
AC-113V	1/4" OD tube x 1/4" NPT, Natural PP, 5 pack
AC-114V	5/16" OD tube x 1/4" NPT, Natural PP, 5 pack
AC-115V	3/8" OD tube x 1/4" NPT, Natural PP, 5 pack
AC-116V	1/2" OD tube x 1/4" NPT, Natural PP, 5 pack
ADAPTERS FOR 1/2" NPT PORTS	
AC-204V	3/8" OD tube x 1/2" NPT, Natural PP, 5 pack
AC-205V	1/2" OD tube x 1/2" NPT, Natural PP, 5 pack
AC-206V	5/8" OD tube x 1/2" NPT, Natural PP, 5 pack
AC-207V	3/4" OD tube x 1/2" NPT, Natural PP, 5 pack

BARBED TUBING ADAPTERS FOR NPT PORTS	
AB-111X	1/16" ID tube x 1/4" NPT, PP, 10 pack
AB-112X	1/8" ID tube x 1/4" NPT, PP, 10 pack
AB-118X	5/32" ID tube x 1/4" NPT, PP, 10 pack
AB-113X	3/16" ID tube x 1/4" NPT, PP, 10 pack
AB-114X	1/4" ID tube x 1/4" NPT, PP, 10 pack
AB-115X	5/16" ID tube x 1/4" NPT, PP, 10 pack
AB-116X	3/8" ID tube x 1/4" NPT, PP, 10 pack
AB-117X	1/2" ID tube x 1/4" NPT, PP, 10 pack
AB-204X	1/4" ID tube x 1/2" NPT, PP, 10 pack
AB-205X	3/8" ID tube x 1/2" NPT, PP, 10 pack
AB-206X	1/2" ID tube x 1/2" NPT, PP, 10 pack
AB-207X	5/8" ID tube x 1/2" NPT, PP, 10 pack
AB-208X	3/4" ID tube x 1/2" NPT, PP, 10 pack
PLUGS FOR 1/4" AND 1/2" NPT PORTS	
PL-101X	Plug for 1/4" NPT, PP, 10 pack
PL-105	Plug for 1/4" NPT, PTFE
PL-102X	Plug for 1/2" NPT, PP, 10 pack
SAMPLER KIT, TUBING GAUGE, AND TOOLKIT	
SK-003	Barbed fittings sampler kit, includes 1 of each size
TG-001	Vaplock Tubing Gauge
TK-100	VapLock Installation Toolkit

JUSTRITE® WASTE CANS

- **Two Polypropylene or Stainless Steel quick disconnects permit simple attachment of one inlet and one vent**

Ideal for HPLC use, Justrite® Centura™ containers streamline the waste containment and disposal process by providing a simple means of connecting waste and vent lines. FM approved, the containers are designed with a spring-loaded closure that opens when contents are subjected to pressure, for explosion saftey. Containers are molded of translucent Polyethylene to show fluid level. When ordering, note that quick disconnects will only mate with like materials, i.e., stainless disconnects with stainless. Note that the disconnects mounted on all containers have a 3/8" drain orifice. Also note that Justrite® containers should be grounded with Antistatic Wires while in use, and especially while emptying the container.

JT-PP12752
2-gallon waste can with Polypropylene / EPDM disconnects

JT-TF12755
5-gallon waste can with Stainless / PTFE disconnects

ANTISTATIC WIRES

REDUCE FIRE RISKS FROM STATIC ELECTRICITY

Antistatic wires reduce spark danger from static electricity generated by movement and flow of flammable liquids. Bonding between containers during liquid transfer, and conecting drums to an earth ground are required under Federal and local codes.

JT-08500
Antistatic wires with 3' cable

WASTE CANS, ANTISTATIC WIRES, AND CONTAINMENT

WASTE CONTAINERS	
JT-12160	Justrite® 1-gallon PE can, PP / EPDM disconnect
JT-PP12752	Justrite® 2-gallon PE can, PP / EPDM disconnect
JT-TF12752	Justrite® 2-gallon PE can, SS / Teflon® disconnect
JT-PP12755	Justrite® 5-gallon PE can, PP / EPDM disconnect
JT-TF12755	Justrite® 5-gallon PE can, SS / Teflon® disconnect
ANTISTATIC WIRES	
JT-08500	Justrite® antistatic wire, dual alligator clips, 3'
SECONDARY CONTAINMENT	
SC-002	Secondary containment for Justrite 2 or 5-gal can

CPL SAFETY ECO FUNNELS FOR JUSTRITE® CANS

- **Quick-connect to Justrite Centura™ waste cans**
- **HDPE and Polypropylene construction**
- **Locking lid with Polypropylene sealing gasket**

SF- series funnels adapt to CPL safety Eco Funnels to allow quick disposal of pourable solvent waste. Locking, hinged lid minimizes leaks and spills when the funnel is closed. Standard Justrite Centura™ containers include two quick disconnects, one for filling and one for venting; removal of the insert from the venting quick disconnect will prevent vapor release while not in use. If used in tandem with other Vaplock™ products, such as manifolds and vapor filters, a closed system may also be maintained for passive wastes while the funnel is sealed.

As with all solvent-based applications, **chemical compatibility** of the solvent and product should be noted prior to purchase. SF-series funnels are constructed of high density Polyethylene (HDPE) and Polypropylene, with a closed-cell Polypropylene sealing gasket. As Justrite Centura containers are available with two quick disconnect materials, Polypropylene (with EPDM o-ring) and Stainless Steel (with Teflon o-ring), **select a safety funnel according to the type of disconnect material.** .

CPLabSafety

Safety Eco Funnel™ is a trademark of CP Lab Safety.

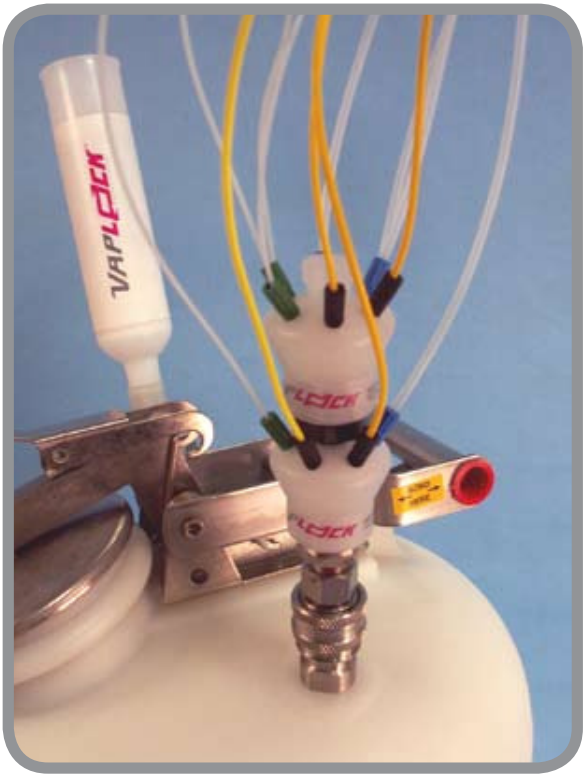
SAFETY WASTE FUNNELS

SF-003	Funnel with PP / EPDM disconnect
SF-004	Funnel with SS / Viton® disconnect
SF-005	Funnel with SS / Teflon® disconnect

WASTE MANIFOLDS FOR JUSTRITE® CANS

- **Collect solvent waste easily from various sources into Justrite® Centura™ quick-disconnect containers**
- **Manifolds fit almost any tubing size with use of the appropriate fitting**
- **Wide-bore Polypropylene (PP) or PTFE manifold design allows muiltiple tubing connections with high fluid flow**

Select a manifold for a Justrite can based on the type of disconnects on the container. For a Justrite can with Polypropylene and EPDM disconnects, for example, choose part number MA-301 (3-port) or MA-601 (6-port). If a system has more waste lines than a single manifold can accommodate, use stacking manifolds to handle almost any requirement. 1-port Polyethylene adapter MA-101 has one 1/4" NPT port. 3- ported Polypropylene manifolds have three 1/4" NPT ports. 6-ported Polypropylene manifolds have five 1/4" NPT ports radially, and one 1/2" NPT top port. 9-ported PTFE manifolds have eight 1/4-28 ports radially, and one 1/4" NPT top port. To connect tubing to waste manifolds, see tubing connections on pages 7-8.



MA-301
3-ported waste manifold
for PP/EPDM disconnects

MA-303
3-ported waste manifold
for Stainless/PTFE disconnects

MA-701
7-ported waste manifold
for PP/EPDM disconnects

MA-703
7-ported waste manifold
for Stainless / PTFE disconnects

MA-601
6-ported waste manifold
for PP/EPDM disconnects

MA-902
9-ported waste manifold
for Stainless/PTFE disconnects

MANIFOLD STACK UNITS

- **Increase the number of manifold ports by adding a manifold stack unit**

MA-300
3-ported stacking unit, Polypropylene,
With 1/4" NPT male adapter

MA-600
6-ported stacking unit, Polypropylene,
With 1/2" NPT male adapter

WASTE MANIFOLDS AND STACKING UNITS

MANIFOLDS FOR JUSTRITE® CANS WITH PP DISCONNECTS	
MA-101	1-port Polypropylene (PP) adapter, (1) 1/4" FNPT
MA-301	3-Port PP manifold, (3) 1/4" FNPT
MA-601	6-port PP manifold, (5) 1/4" and (1) 1/2" FNPT
MA-701	7-port PP manifold, (1) 1/4" FNPT, (6) 1/4-28
MA-903	9-port manifold, (1) 1/4" FNPT, (8) 1/4-28
MA-1001	10-port PP, (1) 1/2" and (3) 1/4" FNPT, (6) 1/4-28
MANIFOLDS FOR JUSTRITE® CANS WITH SS DISCONNECTS	
MA-105	1-port adapter, SS/Teflon® o-ring, (1) 1/4" FNPT
MA-303	3-port PP manifold, SS/Teflon®, (3) 1/4" FNPT
MA-603	6-port PP, SS/Teflon®, (5) 1/4" and (1) 1/2" FNPT
MA-703	7-port PP, SS/Teflon®, (1) 1/4" FNPT, (6) 1/4-28
MA-705	7-port PTFE, SS/Teflon®, (1) 1/4" FNPT, (6) 1/4-28
MA-902	9-port PTFE, SS/Teflon®, (1) 1/4" FNPT, (8) 1/4-28
MA-1003	10-port PP, SS/Teflon®, (1) 1/2" and (3) 1/4" FNPT, (6) 1/4-28
WASTE MANIFOLD STACKING UNITS	
MA-300	3-Port PP with 1/4" MNPT (male thread)
MA-304	3-Port PP with 1/2" MNPT, (3) 1/4" FNPT
MA-600	6-Port PP with 1/2" MNPT, (5) 1/4", (1) 1/2" FNPT
MA-700	7-Port PP with 1/4" MNPT, (1) 1/4" FNPT, (6) 1/4-28
MA-704	7-Port PP with 1/2" MNPT, (1) 1/4" FNPT, (6) 1/4-28
MA-706	7-Port PTFE, 1/4" MNPT, (1) 1/4" FNPT, (6) 1/4-28
MA-900	9-Port PTFE, 1/4" MNPT, (1) 1/4" FNPT, (6) 1/4-28
MA-904	9-Port, 1/2" MNPT, (1) 1/4" FNPT, (6) 1/4-28
MA-1004	10-port PP, 1/2" MNPT, (1) 1/2" and (3) 1/4" FNPT, (6) 1/4-28

CARBOY MANIFOLDS

- **Various manifold options for large and small bore tubing**
- **Adapt to 83B and 53B, 70mm, 63mm, 61mm and 100-415 carboys and pails**

Carboy and drum manifolds permit multiple waste lines of varying size and type to be connected to the container of your choice. If more tubing lines need connecting than a manifold will permit, use of the appropriate stacking unit will increase the number of ports to suit your needs. Panel mount manifolds may also be used if a nonstandard cap is present; either drill a 1.125" diameter hole (max 1/2" depth) in the cap and thread in place for a secure seal, or remove the lock ring to install in the 3/4" NPT knockout threads found on some carboy caps.

SV-127
53B 6-ported manifold, with free-spinning cap collar;with (5) 1/4" NPT ports, (1) 1/2" NPT port

SV-165 and SV-165NAL
70mm (Hedwin) and 70mm (Nalgene) 7-ported manifolds with free-spinning cap collar; with (6) 1/4-28 ports, (1) 1/2" NPT port

SV-215 and SV-225
83B Nalgene (left, SV-215) and 100-415 Nalgene (right, SV-225), with free-spinning cap collar and 10 ports: (1) 1/2" NPT, (3) 1/4" NPT, and (6) 1/4-28

CARBOY AND PANEL-MOUNT WASTE MANIFOLDS

CARBOY MANIFOLDS	
PM-608	51mm, 6-ported, PP/EPDM, cam lock
CM-303	53B, 3-ported, PP/EPDM, cam lock
CM-603	53B, 6-ported, PP/EPDM, cam lock
SV-127	53B, 6-ported, PP, free-spinning collar
CM-903	53B, 9-ported, PP/EPDM, cam lock
PM-303	61mm, 3-ported, PP/EPDM, cam lock
PM-603	61mm, 6-ported, PP/EPDM, cam lock
PM-304	63mm, 3-ported, PP/EPDM, cam lock
PM-604	63mm, 6-ported, PP/EPDM, cam lock
PM-301	70mm, 3-ported, PP/EPDM, cam lock
PM-601	70mm, 6-ported, PP/EPDM, cam lock
SV-165	70mm, 7-ported, PP, free-spinning collar
SV-165NAL	70mm (Nalgene), 7-ported, PP, free-spinning collar
CM-301	83B, 3-ported, PP/EPDM, cam lock
CM-601	83B, 6-ported, PP/EPDM, cam lock
CM-901	83B, 9-ported, PP/EPDM, cam lock
SV-215	83B, 10-ported, PP, free-spinning collar
CM-306	100-415, 3-ported, PP/EPDM, cam lock
CM-606	100-415, 6-ported, PP/EPDM, cam lock
SV-225	100-415, 10-ported, PP, free-spinning collar
PANEL MOUNT MANIFOLDS	
PM-305	Panel-Mount, 3-ported, PP/EPDM, cam lock
PM-605	Panel-Mount, 6-ported, PP/EPDM, cam lock

MANIFOLD BOTTLE CAPS

- 3-, 6-, 7-, and 9-ported manifolds
- Polypropylene or PTFE construction
- For GL45, GL38, and Nalgene 38-430 bottles

When using a carboy or Justrite container is not economical or practical, it may be useful to dispose of solvent wastes into a standard laboratory bottle. For vapor control, attach an EF-100 vapor filter with filter adapter to one port when connecting solvent wastes. Most manifolds may also be used to supply solvent to a system; use evaporation control valves to handle the air inlet or pressure relief when used for solvent delivery.

BC-722
7-port manifold for GL45 bottle, with (6) 1/4-28 radial ports, (1) 1/4" NPT top port

BC-723
7-port all-PTFE manifold for GL45 bottle, with (6) 1/4-28 radial ports, (1) 1/4" NPT top port

BC-324
3-port manifold for GL45 bottle, with (3) 1/4" NPT ports

BC-622
6-port manifold for GL45 bottle, with (5) 1/4" NPT ports radially, (1) 1/2" NPT top port

MANIFOLD BOTTLE CAPS

GL38 MANIFOLD CAPS	
BC-326	3-port manifold, PP
BC-620	6-port manifold, PP
BC-720	7-port manifold, PP
BC-724	7-port manifold, all PTFE fluid paths
BC-920	9-port manifold, all PTFE fluid paths
GL45 MANIFOLD CAPS	
BC-324	3-port manifold, PP
BC-622	6-port manifold, PP
BC-722	7-port manifold, PP
BC-723	7-port manifold, all PTFE fluid paths
BC-922	9-port manifold, all PTFE fluid paths
MANIFOLD CAPS FOR NALGENE 38-430	
BC-350	3-port manifold, PP
BC-640	6-port manifold, PP (solvent waste only), PP
BC-940	9-port manifold, all PTFE fluid paths

CARBON FILTERS

- **Minimize odors by adsorption before they enter the lab environment**
- **Constructed of activated coconut shell carbon and silica dessicant, with Polypropylene housing**
- **Economically priced**

Reduce odors from solvent waste containers by installing a Vaplock™ carbon filter, which may be adapted to a number of low pressure emission sources. Dispose of spent cartridges in accordance with local safety codes.

FA-017
Adapts filter to a female Polypropylene quick disconnect on a Justrite waste can, with elbow adapter

FA-010
Adapts filter to a female Polypropylene-quick disconnect on a Justrite waste can

CARBON FILTER ADAPTERS

- **Adapt carbon filters to point source emissions**
- **Custom adapter solutions available**
- **All adapters are reuseable**

VAPLOCK™ EF-100 carbon filters require an adapter for connection to various emission sources. Each filter contains a tapered 1/4" female NPT port; select from the list below to adapt filters to a typical system, or contact your distributor for assistance with any special requirements. Note that filter adapters for Justrite containers are made to fit **either** stainless steel **or** Polypropylene quick disconnects, but may not be interchanged. Stainless must connect to stainless, Polypropylene to Polypropylene. Stainless quick disconnect options allow for either a Teflon or Viton O-ring.

FA-018
Adapts filter to a female stainless steel quick disconnect on a Justrite waste can, with elbow adapter

FA-015
Adapts filter to a female stainless steel quick disconnect on a Justrite waste can

FA-004
Adapter with 1/4" NPT male thread

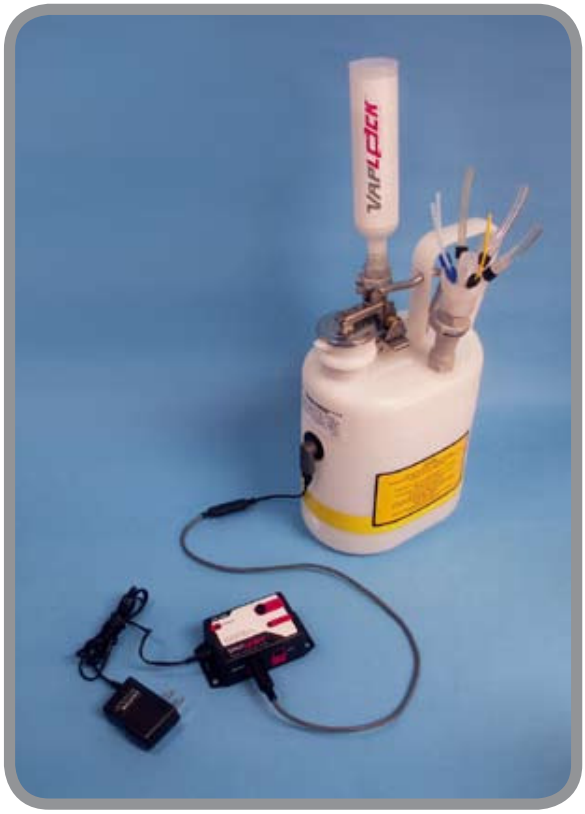
FA-005
Adapter with 1/2" NPT male thread

ACTIVATED CARBON VAPOR FILTERS

EF-100	Vaplock filter cartridge
EF-100V	Vaplock filter cartridge, pack of 5

VAPOR FILTER ADAPTERS

FA-001	Luer lock adapter, Polypropylene
FA-002	Male slip-type luer adapter, Polypropylene
FA-003	1/4-28 adapter, long, Polypropylene
FA-004	1/4" NPT adapter, Polypropylene
FA-005	1/2" NPT adapter, Polypropylene
FA-010	Justrite® can adapter, PP / EPDM
FA-007	Justrite® can adapter, SS / Viton®
FA-015	Justrite® can adapter, SS / Teflon®
FA-017	Justrite® can adapter, elbow, PP / EPDM
FA-018	Justrite® can adapter, elbow, SS / Viton®



ELECTRONIC LEVEL CONTROL

- **Alarms the operator when fluid reaches overfill**
- **Intrinsically safe, untrasonic sensing device**
- **Includes alarm override and red LED**
- **Auxiliary output plug for accessory control, such as valves, pumps, or instrument shutoff**

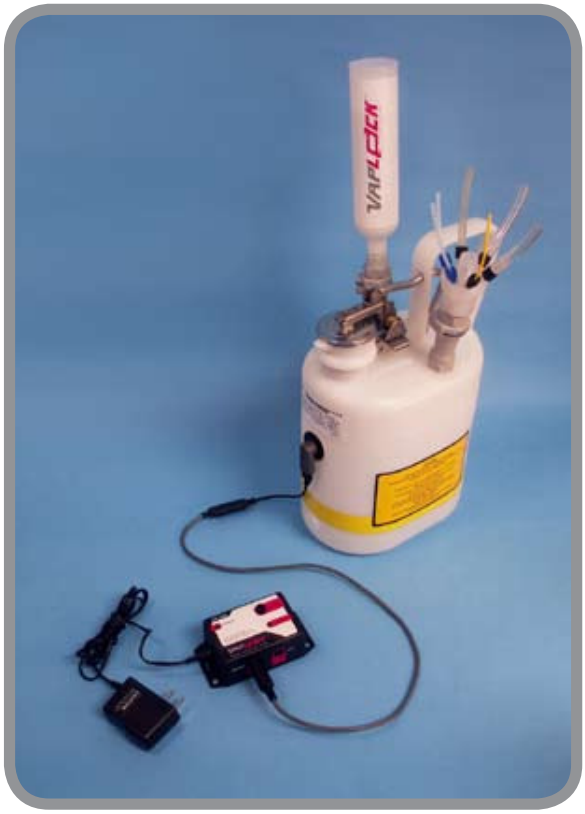
The LA-100 Electronic Level Alarm is designed to alarm the operator of a full or empty condition in a Polypropylene or Polyethylene tank. The sensor is a low voltage, intrinsically safe device that is connected via a 10 foot cable to the control box unit. The control is powered by a 110 VAC convertor which supplies 5 VDC power to the control box. A green operating light and red alarm light allow visual inspection of the operating condition of the level alarm. An alarm override button is easily accessible on the top. For powered relay or accessory control, such as controling a pump function or instrument shutdown, an auxiliary output is also included.

Only Polyetheylene and Polypropylene containers with a wall thickness in the range of 0.1" - 0.125" may be used with the LS-100 at present.

LA-100-01
Alarm control unit with power and sensor cable connected

LS-102
Sensor head connected to Polyethylene tank

ELECTRONIC LEVEL CONTROL	
LA-100	Level Alarm, includes control box, ultrasonic sensor head, power supply and power cable
LA-100-F	Level Alarm, includes control box, float sensor, power supply and power cable



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