

Introduction

The gas filter system consists of two elements: the connecting unit and filters. The connecting unit is equipped with inlet and outlet connectors for the gas lines. When exchanging filters, two valves automatically stop and start the gas flow.

The filters are made from heavy walled polycarbonate, and a knurled nut secures the filter to the connecting unit. Double o-rings on the connecting units ensure gas-tight sealing. The filters are also equipped with internal dust filters and are sealed at the base with PTFE seals that are punctured by the needle-like valves when the filter is pressed onto the connecting unit.

The carrier gas filter is a single filter solution specially for your GCMS system. The filter features a short stabilization time, once installed.

Important
⚠ Caution
Safety precautions for the oxygen filter

The oxygen content of the gas entering the oxygen or carrier gas filter should never exceed 0.5%. Care should be taken when changing gas cylinders to avoid air entering the system. If air may have entered the system, flush the lines before installing a filter.

The filter must never be emptied.

Specifications

	Oxygen filter	Moisture filter	Hydrocarbon filter	Carrier gas filter
Function	Removes oxygen as well as traces of sulfur and chlorine compounds from carrier gas	Removes water, oil and other foreign material from the carrier gas	Removes organic compounds from gas streams	Single combination filter; removes water, oxygen and organic compounds
Indicator color change	From green to gray	From green to pale brown	No indicator	Oxygen: from green to gray Moisture: from green to pale brown Hydrocarbon: no indicator
Capacity	150 mL oxygen	7.2 g water	Approximately 7 g, depending on impurities	100 mL oxygen, 1 g water, organics depending on impurities
Outlet concentration at operating flow of 1-10 L/min	<50 ppb	<0.1 ppm	<0.1 ppm	Oxygen <50 ppb Moisture <0.1 ppm Organics <0.1 ppm

Instructions

Installation of the filter system

The high capacity of the oxygen, moisture, and hydrocarbon filters and the very low pressure drop, let you use one filter system for the gas supply of up to four gas chromatographs. The maximum operating flow is 15 L/min.

The high flow connecting unit connects two filters in parallel in order to filter gas at higher flows, up to 30 L/min. For optimum filtering capacity, it is essential that you use identical filters with the high flow connecting unit.

Install the connecting units, the base plate, or the filter unit in the gas lines from the gas supply to the gas chromatograph(s). The connecting units and base plate can be screwed to a laboratory bench top (remove caps at upper side). If a moisture filter and an oxygen filter are installed in series, the oxygen filter must be placed in front of the moisture filter.

Connect the gas lines. Standard connections are male connectors of 1/4" or 1/8", containing dust filters. Use only perfectly clean and dry metal tubing for the gas lines. Please be aware that the inlet and outlet lines should be attached to the correct connectors.

Carefully check all connections for leaks. This is important because oxygen and moisture from the air will enter the system through the smallest gaps in the gas line.

First-time installation of the filter

Flush the gas line from the supply to the filter by applying pressure to the system and opening the inlet valve by depressing it until the air in the line is replaced by carrier gas. This is necessary to remove oxygen and moisture from the system.

Flush the gas line from the filter to the GC by applying pressure to the system, but without a column mounted in the GC. Carefully check the system for leaks, as before.

Replacement of the filter

It is recommended to replace the filter when the indicator has changed color or within one year of installation, whichever comes first. When filters are replaced, they must be treated as chemical waste and disposed of according to local law.

Remove the saturated filter by unscrewing the ring nut. The system remains under pressure, but if the system pressure is higher than 7 bar, first reduce the pressure to ensure easy removal of the saturated filter.

Remove the filter from the packaging, and remove the two aluminum plugs from the bottom of the filter. Place the ring over the filter, then put the filter on top of the connecting unit – it will only fit correctly in one position – and screw it on while pressing the filter down.

Some force may be necessary if the system is under high pressure. Always replace the two upper o-rings; two are included.

Carefully check the connection for leakage, preferably using a gas leak detector. If you use leak detection fluids or sprays, make sure they are free from corrosive substances that may cause damage to your gas filter.

Record the date of installation in your log book.

Additional information

Gas filters can only be used with needle valves that have a side hole in the pin. If gas leaks from the filter, the o-rings must be replaced. We recommend that you replace all o-rings.

Inlet pressure of filters should never exceed 15 bar (219 psi).

Information and support

Visit www.trajanscimed.com or contact techsupport@trajanscimed.com

Specifications are subject to change without notice.