

Oxy-Trap™ Purifier



You need precise, reliable results from your GC analysis. Supplying your instrumentation with high purity gas is one way to improve the quality of your results. The Alltech® Oxy-Trap™ purifier is packed with Oxy-Max™ adsorbent to ensure the purity of your gas streams by removing oxygen to <1ppb.

Why should I use an Oxygen Trap?

Oxygen is the most destructive impurity found in gas streams. Capillary columns and polar packed columns are unable to tolerate even small amounts of oxygen. Oxygen causes the stationary phase to oxidize at elevated temperatures. This results in column bleed and loss of retention. Oxygen also adversely affects the analysis performed at high sensitivities and by component specific detectors such as the ECD.

Using an Oxy-Trap™ Purifier

The Oxy-Trap™ purifier removes oxygen from inert gases to less than 1ppb. The quantity of oxygen retained is temperature dependent. One unit will adsorb approximately 180cc (STP) of oxygen at ambient temperature. Refer to **Table 1** for the approximate capacities of the purifier at other temperatures. The efficiency of an Oxy-Trap™ purifier is less dependent upon flow rates and initial oxygen concentration in comparison to other catalysts used for oxygen removal. Flow rates up to 1000m³/hour (STP)/m³ of catalyst can be employed with little loss of efficiency. This corresponds to a maximum flow rate of about 600cc/min for Regular Oxy-Trap™ purifiers and about 1000cc/min for Large Oxy-Trap™ purifiers.

Table 1 - Oxygen Content vs. Adsorptive Capacity

Oxygen in Cylinder		Adsorptive Capacity of Regular Oxy-Trap™ Purifiers		
Conc.	Content	25°C	100°C	300°C
1ppm	5.6cc	180cc	575cc	1620cc
10ppm	56cc	180cc	575cc	1620cc
100ppm	560cc	180cc	575cc	1620cc
1000ppm	5600cc	180cc	575cc	1620cc

Oxy-Trap™ Purifier Specifications

Physical Dimensions:	1/4" Coiled Stainless Steel Tubing
Fittings:	1/4" or 1/8"
Maximum Pressure:	100psig
Operating Temperature:	-40°C to 350°C
Purifier Characteristics:	
Packing:	OXY-MAX™ Adsorbent
Compounds Removed:	Oxygen, Sulfur and Chlorine
Capacity:	Refer to Table 1
Efficiency:	<1ppb Oxygen

Design

Oxy-Trap™ purifiers are manufactured from aluminum tubing and brass fittings to eliminate the infusion of air into your gas stream. This construction permits recoiling by the user to fit their specific application. It also permits the regeneration of the purifier making it economical to use.

Installation

1. Purge the gas lines from your gas source to your instrument.
2. Reduce the gas through the lines to a few cc/min.
3. Remove the PTFE plugs from both ends of the Oxy-Trap™ purifier and immediately connect it to the gas line running from your gas source.
Connect the other end of the trap to the line going to your instrumentation.
The Oxy-Trap™ purifier can be installed with flow in either direction.
4. Securely tighten all fittings, raise the gas flow to normal levels, and test for leaks. Do not over tighten the fittings. This may damage the fittings and prevent the unit from being reused.

Note: The Oxy-Trap™ purifier may also be installed in a heated compartment (ie. a GC oven) to take advantage of the increased capacity.*

When to Regenerate

Table 1 can be used to estimate when an Oxy-Trap™ purifier should be regenerated. The Large Oxy-Trap™ purifier has about 1.7 times the capacity of the regular Oxy-Trap™ purifier. The data for oxygen content of a cylinder is based on a 200scf cylinder. Compare the oxygen content data to the adsorptive capacity to determine how often the Oxy-Trap™ purifier should be changed. An indicating Oxy-Trap™ purifier can also be installed in series downstream of the Oxy-Trap™ purifier to indicate when it requires regeneration.

*Water is formed with hydrogen if the unit is operated above 80°C. Carbon dioxide is formed with the carbon monoxide at temperatures above 60°C.

WARNING:

The oxygen adsorbing material in this unit is self-heating. **DO NOT ATTEMPT TO REMOVE, REPLACE OR REGENERATE THE MATERIAL.** This unit is intended for use with instrument grade carrier gases such as hydrogen, helium, argon or nitrogen. **DO NOT USE WITH GAS STREAMS CONTAINING MORE THAN TRACE AMOUNTS OF OXYGEN.** The oxygen adsorbent materials bind oxygen via an exothermic reaction. The material will generate excessive heat if exposed to gases containing more than trace amounts of oxygen. Such conditions will result in potentially hazardous damage to the unit. Please observe all safety guidelines included in the instruction sheets.

Oxy-Trap™ Purifiers

Description	Qty.	Part No.
Regular Oxy-Trap™ Purifiers		
1/8" fittings	Ea	4001
1/4" fittings	Ea	4002
Large Oxy-Trap™ Purifiers		
1/4" fittings	Ea	4003
Indicating Oxy-Trap™ Purifiers	Ea	4004

Regeneration Service

Description	Qty.	Part No.
For Regular Oxy-Trap™ Purifiers		
1/8" fittings	Ea	4001R
1/4" fittings	Ea	4002R
For Large Oxy-Trap™ Purifiers		
1/4" fittings	Ea	4003R

Note: Send purchase order with trap to be regenerated.

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3/2008

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