MICROANALYTICS™

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Model 2000 Series Instrumentation

Site Preparation Manual

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Site preparation at a glance

Before the GC arrives, make sure your laboratory meets the following environmental, weight, power, and gas requirements. You should also refer to this checklist for supplies that you need to operate your GC, such as traps and tubing. You can find more site preparation information in this chapter.

Site Preparation Checklist

- ❐ The site is well ventilated and free of corrosive materials and overhanging obstacles.
- ❐ Site temperature is within the recommended range of 20 to 27°C.
- ❐ Site humidity is within the recommended range of 50 to 60%.
- ❐ Bench space is adequate for the GC with EPC: 50 cm x 58.5 cm x 50 cm (21 inch x 23 inch x 21 inch).
  Bench space is adequate for the GC without EPC: 50 cm x 68 cm x 50 cm (21 inch x 26.7 inch x 21 inch).
- ❐ Bench can support the weight of the 6890 system. See page 7.
- ❐ Power receptacle is earth grounded. See page 8.
- ❐ Electrical supply meets all GC's power requirements. See page 8.
- ❐ Voltage supply is adequate for oven type. **Regular oven:** 2,250 VA. **Fast-heating oven:** 2,950 VA.
- ❐ Gas supplies meet the requirements of your columns and detectors. See page 11.
- ❐ Gases meet purity requirements. All should be chromatographic-grade—99.9995% pure or better. Air should be zero-grade or better. Detector air is not shared with valve actuators.
- ❐ Precleaned, 1/8-inch (or 1/4-inch) copper tubing is available for connecting inlet and detector gas supplies. See page 16.
- ❐ Inlet and detector gas supplies have two-stage pressure regulators installed.

Optional supplies:

- ❐ High quality traps for inlet and detector gas supplies—molecular sieve trap, hydrocarbon trap, and/or oxygen trap.
- ❐ Liquid N_2 or liquid CO_2 (depending on requirements) available for cryogenic cooling.
- ❐ Supply of 1/4-inch, insulated copper tubing is available for liquid N_2 supplies, **OR**
  1/8-inch, heavy-walled, stainless steel tubing is available for liquid CO_2 supplies.
- ❐ Insulation for liquid N_2 tubing is available.
- ❐ Pressurized clean air is available for value actuators. See page 22.

Site Preparation

Site preparation involves two general steps: insuring that your laboratory is capable of supporting the operation of the GC and obtaining supplies and tools you will need to install the instrument. A list of the necessary tools and supplies appears at the beginning of the “Installation” chapter. Most supplies are available from Agilent Technologies. See the Agilent catalog for consumables and supplies for descriptions and ordering information. You can obtain a copy of the catalog from your local sales office.

Temperature and humidity ranges

Operating the GC within the recommended ranges insures optimum instrument performance and lifetime.

Recommended temperature range	Temperature range
20 to 27°C	5 to 40°C
Recommended humidity range	**Humidity range**
50 to 60%	Up to 31°C, 5 to 80%
	At 40°C, 5 to 50%
Recommended altitude range	
Up to 2000 m	

After exposing the GC to extremes of temperature or humidity, allow 15 minutes for it to return to the recommended ranges.

Ventilation requirements

The GC is cooled by convection: air enters vents in the side panels and underneath the instrument. Warmed air exits through slots in the top, rear, and side panels. Do not obstruct air flow around the instrument.

Caution For proper cooling and general safety, always operate the instrument with cover panels properly installed.

Venting oven exhaust

Hot air (up to 450°C) from the oven exits through a vent in the rear. Allow at least 20 cm (10 inch) clearance behind the instrument to dissipate this air.

WARNING Do not place temperature-sensitive items (for example, gas cylinders, chemicals, regulators, and plastic tubing) in the path of the heated exhaust. These items will be damaged and plastic tubing will melt. Be careful when working behind the instrument during cool-down cycles to avoid burns from the hot exhaust.

If space is limited, the Oven Exhaust Deflector (part no. 19247-60510) may improve oven cooling. It diverts exhaust air up and away from the instrument. You can connect it to a 10.2-cm (4-inch) exhaust-duct system, route the exhaust to a fume hood, or vent the exhaust outside the building with 10.2-cm diameter (4-inch diameter) furnace duct.

Venting toxic or noxious gases

During normal operation of the GC with many detectors and inlets, some of the carrier gas and sample vents outside the instrument. If any sample components are toxic or noxious, or if hydrogen is used as the carrier gas, the exhaust must be vented to a fume hood. Place the GC in the hood or attach a large diameter venting tube to the outlet for proper ventilation.

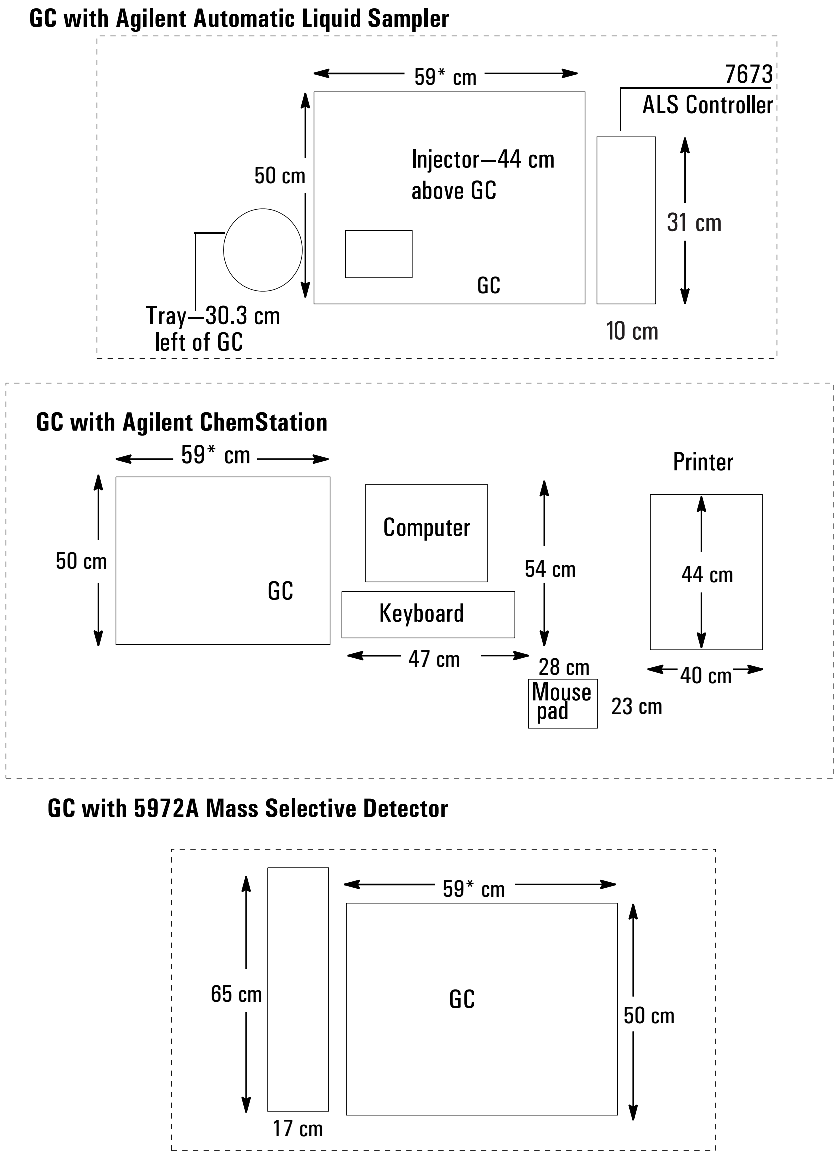
To further prevent contamination from noxious gases, you can attach a chemical trap (part no. G1544-60610) to the split vent.

Benchtop space requirements

The GC with electronic pneumatics control (EPC) is 59 cm (23 inch) wide. The nonEPC model is 68 cm (26.7 inch) wide. Both are 50 cm (21 inch) high and 50 cm (21 inch) deep.

The area above the GC should be clear, with no shelves or overhanging obstructions that limit access to the top of the instrument and interfere with cooling. You may need additional space for other instruments used with your GC. Figure 1 shows some common system configurations.

Table 1 presents the dimensions, power requirements, heat production, and weight of the GC and other Agilent instruments often used with it. Use this table to insure that you have adequate space and power for the entire system. Allow at least 10.2 cm (4 inch) space between instruments for ventilation. See Table 2 and Table 3 for GC voltage requirements.



*68 cm for non-EPC version.

Figure 1. Common GC system configurations—top views

Table 1. Dimensions, Power, Heat Production, and Weight

Instrument	Height	Width	Depth	Power (VA)	Heat	Weight
6890 Gas Chromatograph						
EPC version	54 cm 21 inch	59 cm 23 inch	54 cm 21 inch	2,250	8,100 KJoules 7,681 Btu/hr	50 kg 112 lb
Non-EPC version	51 cm 21 inch	68 cm 26.7 inch	54 cm 21 inch	2,250	8,100 KJoules 7,681 Btu/hr	56.8 kg 125 lb
Fast heating oven, same for EPC and non-EPC	—	—	—	2,950	10,620 KJoules 10,071 Btu/hr	—
GC Automatic Liquid Sampler						
G1512A Controller (7673)	10 cm 4 inch	33 cm 13 inch	38 cm 15 inch	320 max	545 KJoules 515 Btu/Hr	7.3 kg 16.0 lb
G1513A or G2613A Injector	44 cm above GC 17 inch above GC					
18596 or G2614A Tray	30.3 cm left of GC 9 inch left of GC					
Computer*						
Computer with monitor	54 cm 21 inch	42 cm 17 inch	39 cm 15 inch	N/A	N/A	N/A
Keyboard	5 cm 2 inch	47 cm 18 inch	18 cm 7 inch	N/A	N/A	N/A
5972A Mass Selective Detector	35 cm 13.6 inch	17 cm 6.7 inch	65 cm 25.6 inch	254 max	3,158 Btu/hr, 3,000 with GC	22.7 kg 50.0 lb
7694 Headspace Sampler	31 cm 16 inch	56 cm 22 inch	39 cm 22 inch	420 max	2,215 KJoules 2,100 Btu/hr	35.8 kg 79.0 lb
Printers						
Laser printer	30 cm 11.7 inch	42 cm 16.4 inch	40 cm 15.9 inch	300 max	N/A	16.8 kg 37.0 lb
Integrators						
3397 Series, 3396 Series III and, 3395 Integrators	13 cm 4.5 inch	46 cm 18 inch	46 cm 18 inch	50	135 KJoules 120 Btu/hr	4.3 kg 9.5 lb
35900C/D/E Analog-to-Digital Converter	11 cm 4 inch	33 cm 13 inch	29 cm 11 inch	40	216 KJoules 205 Btu/hr	4.1 kg 9.0 lb

* General specifications for a mid-size, desktop computer

Electrical requirements

Grounding

Caution A proper earth ground is required for GC operations.

To protect users, the metal instrument panels and cabinet are grounded through the three-conductor power line cord in accordance with International Electrotechnical Commission (IEC) requirements.

The three-conductor power line cord, when plugged into a properly grounded receptacle, grounds the instrument and minimizes shock hazard. A properly grounded receptacle is one that is connected to a suitable earth ground. Proper receptacle grounding should be verified.

Make sure the GC is connected to a dedicated receptacle. Use of a dedicator receptacle reduces interference.

Caution Any interruption of the grounding conductor or disconnection of the power cord could cause a shock that could result in personal injury.

Line voltage

The GC operates from one of the AC voltage supplies listed in Table 2, depending on the standard voltage of the country from which it was ordered. GCs are designed to work with a specific voltage; make sure your GC voltage option is appropriate for your lab. The voltage requirements for your GC are printed near the power cord attachment.

Table 2. Line Voltage Requirements

Voltage	Maximum power consumption (VA)	Power line requirement	Oven type
120 V (±5%)	2,250	20-amp dedicated	Slow-heating
200 V (±5%)	2,950	15-amp dedicated	Fast-heating
220 V (±5%)	2,950	15-amp dedicated	Fast-heating
230 V (±5%)	2,950	16-amp dedicated	Fast-heating
230 V (±5%)	2,250	10-amp dedicated	Slow-heating
(Switzerland or Denmark with 10-amp maximum service)			
240 V (±5%)	2,950	13- or 16-amp dedicated	Fast-heating

Frequency range for all voltages is 48 to 66 Hz.

The fast-heating oven requires at least 200 V. Most countries' standard voltage meets this requirement. GCs for use in the USA, Denmark, and Switzerland will be equipped with a slow-heating oven unless they are ordered with power option 002, which specifies a fast-heating oven.

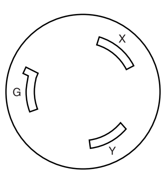
Although your GC should arrive ready for operation in your country, compare its voltage requirements with those listed in Table 3. If the voltage option you ordered is not suitable for your installation, contact Agilent Technologies.

Table 3. Voltage Requirements by Country

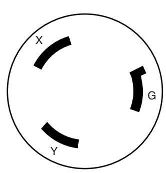
Country	Voltage	Oven type
Australia, 10 amp	240 V	Slow–heating
Australia, India, South Africa	240 V	Fast–heating
China	220 V	Slow–heating
China, Hong Kong	220 V	Fast–heating
Continental Europe, dual phase	230 V	Fast–heating
Continental Europe, single phase	220 V	Fast–heating
Denmark, Switzerland, 10 amp	230 V	Slow–heating
Denmark, Switzerland, 16 amp	230 V	Fast–heating
Israel	220 V	Fast–heating
Japan	200 V	Fast–heating
United Kingdom, Ireland	240 V	Fast–heating
USA	120 V	Slow–heating
USA	240 V	Fast–heating

USA fast heating oven

The fast heating oven requires 240 V/15A power. Do not use 208 V power. Lower voltage causes slow oven ramps and prevents proper temperature control. The power cord supplied with your GC is rated for 250 V/15A, and is a two pole, three wire cord with grounding (type L6-15R/L6-15P). See the figure below.



Receptacle
L6-15R



Plug
L6-15P

Canadian installation

When installing a GC in Canada, make sure your GC's power supply circuit meets the following additional requirements:

- The circuit breaker for the branch circuit, which is dedicated to the instrument, must be rated for continuous operation.
- The service box branch circuit must be marked as a "Dedicated Circuit."

Configuring the GC for an MSD

If you are installing an Agilent Mass Selective Detector, you must configure the GC to properly control the heated transfer line.

1. Press [Config][Aux], and select [1] if the MSD is installed in the front position or [2] for the back position.

2 Press [Mode/Type].

3 Use the scroll keys to select `MSD` as the Aux zone type. Press [Enter].

If you do not configure the Aux zone for MSD, Warning 101, *Invalid heater power for front (back) detector*, *inlet*, *and aux 1(2)*, will appear on the GC display, and the heated zones will be set to *not installed*.

Gas requirements

Gases for packed columns

The carrier gas you use depends upon the type of detector and the performance requirements. Table 4 lists gas recommendations for packed column use. In general, makeup gases are not required with packed columns.

Table 4. Gas Recommendations for Packed Columns

Detector	Carrier gas	Comments	Detector, anode purge, or reference gas
Electron Capture	Nitrogen	Maximum sensitivity	Nitrogen
	Argon/Methane	Maximum dynamic range	Argon/Methane
Flame Ionization	Nitrogen	Maximum sensitivity	Hydrogen and air for detector
	Helium	Acceptable alternative	
Flame Photometric	Hydrogen		Hydrogen and air for detector
	Helium		
	Nitrogen		
	Argon		
Nitrogen-Phosphorus	Helium	Optimum performance	Hydrogen and air for detector
	Nitrogen	Acceptable alternative	
Thermal Conductivity	Helium	General use	Reference must be same as carrier
	Hydrogen	Maximum sensitivity (Note A)	
	Nitrogen	Hydrogen detection (Note B)	
	Argon	Maximum hydrogen sensitivity (Note B)	

Note A: Slightly greater sensitivity than helium. Incompatible with some compounds.
Note B: For analysis of hydrogen or helium. Greatly reduces sensitivity for other compounds.

Gases for capillary columns

When used with capillary columns, GC detectors require a separate makeup gas for optimum sensitivity. For each detector and carrier gas, there is a preferred choice for makeup gas. Table 5 lists gas recommendations for capillary columns.

Table 5. Gas Recommendations for Capillary Columns

Detector	Carrier gas	Preferred makeup gas	Second choice	Detector, anode purge, or reference gas
Electron Capture	Hydrogen	Argon/Methane	Nitrogen	Anode purge must be same as makeup
	Helium	Argon/Methane	Nitrogen	
	Nitrogen	Nitrogen	Argon/Methane	
	Argon/Methane	Argon/Methane	Nitrogen	
Flame Ionization	Hydrogen	Nitrogen	Helium	Hydrogen and air for detector
	Helium	Nitrogen	Helium	
	Nitrogen	Nitrogen	Helium	
Flame Photometric	Hydrogen	Nitrogen		Hydrogen and air for detector
	Helium	Nitrogen		
	Nitrogen	Nitrogen		
	Argon	Nitrogen		
Nitrogen-Phosphorus	Helium	Nitrogen	Helium**	Hydrogen and air for detector
	Nitrogen	Nitrogen	Helium**	
Thermal Conductivity	Hydrogen*	Must be same as carrier and reference gas	Must be same as carrier and reference gas	Reference must be same as carrier and makeup
	Helium			
	Nitrogen			

* When using hydrogen with a thermal conductivity detector, vent the detector exhaust to a fume hood or a dedicated exhaust to avoid buildup of hydrogen gas.

** Helium is not recommended as a makeup gas at flow rates > 5 mL/min. Flow rates above 5 mL/min shorten detector life.

Gas purity

Some gas suppliers furnish “instrument” or “chromatographic” purity grades of gas that are specifically intended for chromatographic use. We recommend these grades for use with the GC.

Generally, all gas supplies used should be in the 99.995% to 99.9995% purity range. Only very low levels ($\leq$ 0.5 ppm) of oxygen and total hydrocarbons should be present. Oil-pumped air supplies are not recommended because they may contain large amounts of hydrocarbons.

The addition of high-quality moisture and hydrocarbon traps immediately after the main tank pressure regulator is highly recommended. Refer to the next section, "Assembling the Gas Plumbing," for more information on using traps.

Table 6. Gas Purity Recommendations

Carrier gases and capillary makeup gases	
Helium	99.9995%
Nitrogen	99.9995%
Hydrogen	99.9995%
Argon/Methane	99.9995%
Detector support gases	
Hydrogen	99.9995%
Air (dry)	Zero-grade or better

The gas plumbing

WARNING All compressed gas cylinders should be securely fastened to an immovable structure or permanent wall. Compressed gases should be stored and handled in accordance with the relevant safety codes.

Gas cylinders should not be located in the path of heated oven exhaust.

To avoid possible eye injury, wear eye protection when using compressed gas.

Follow the general plumbing diagram in when preparing gas supply plumbing.

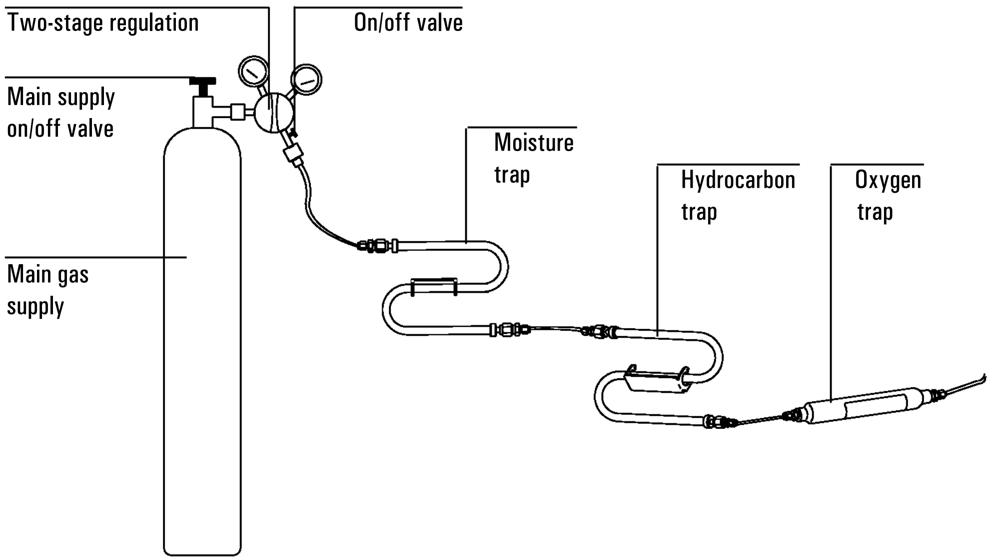


Figure 2. General plumbing diagram

- Two-stage regulators are strongly recommended to eliminate pressure surges. High-quality, stainless-steel diaphragm-type regulators are especially recommended.
- On/off valves mounted on the outlet fitting of the two-stage regulator are not essential but are very useful. Be sure the valves have stainless-steel, packless diaphragms.
- FID, FPD, and NPD detectors require a dedicated air supply. Operation may be affected by pressure pulses in air lines shared with other devices.
- Flow- and pressure-controlling devices require at least 10 psi (138 kPa) pressure differential across them to operate properly. Source pressures and capacities must be high enough to ensure this.
- Auxiliary pressure regulators should be located close to the GC inlet fittings. This insures that the supply pressure is measured at the instrument rather than at the source; pressure at the source may be different if the gas supply lines are long or narrow.

Supply tubing for carrier and detector gases

Caution Do not use methylene chloride or other halogenated solvent to clean tubing that will be used with an electron capture detector. They will cause elevated baselines and detector noise until they are completely flushed out of the system.

Gases should be supplied to the instrument only through preconditioned copper tubing (part no. 5180-4196). Do not use ordinary copper tubing—it contains oils and contaminants.

Caution Do not use plastic tubing for suppling detector and inlet gases to the GC. It is permeable to oxygen and other contaminants that can damage columns and detectors, and can melt if near hot exhaust or components.

The tubing diameter depends upon the distance between the supply gas and the GC and the total flow rate for the particular gas. One-eighth-inch tubing is adequate when the supply line is less than 15 feet (4.6 m) long.

Use larger diameter tubing (1/4-inch) for distances greater then 15 feet (4.6 m) or when multiple instruments are connected to the same source. You should also use larger diameter tubing if high demand is anticipated (for example, air for an FID).

Be generous when cutting tubing for local supply lines—a coil of flexible tubing between the supply and the instrument lets you move the GC without moving the gas supply. Take this extra length into account when choosing the tubing diameter.

Two-stage pressure regulators

To eliminate pressure surges, use a two-stage regulator with each gas tank. Stainless steel, diaphragm-type regulators are recommended.

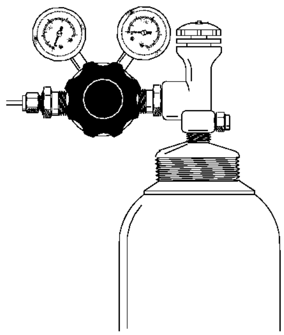


Figure 3. Two-stage pressure regulator

The type of regulator you use depends upon gas type and supplier. The Agilent catalog for consumables and supplies contains information to help you identify the correct regulator, as determined by the Compressed Gas Association (CGA). Agilent Technologies offers pressure-regulator kits that contain all the materials needed to install regulators properly.

Pressure regulator-gas supply tubing connections

The pipe-thread connection between the pressure regulator outlet and the fitting to which you connect the gas tubing must be sealed with Teflon tape. **Instrument grade** Teflon tape (part no. 0460-1266), from which volatiles have been removed, is recommended for all fittings. Do not use **pipe dope** to seal the threads; it contains volatile materials that will contaminate the tubing.

Traps

Using chromatographic-grade gases insures that the gas in your system is pure. However, for optimum sensitivity, it is highly recommended that you install high-quality traps to remove traces of water or other contaminants. After installing a trap, check the gas supply lines for leaks.

Table 7. Recommended Traps

Description	Part no.
Preconditioned moisture trap: metal casing, s-shaped trap for carrier gas cleanup. Contains Molecular Sieve 5A, 45/60 mesh, and 1/8-inch fittings.	5060-9084
Hydrocarbon trap: metal casing, s-shaped trap filled with 40/60 mesh activated charcoal, and 1/8-inch fittings	5060-9096
Oxygen trap (for carrier and ECD gases): metal casing, and 1/8-inch brass fittings. Oxygen trap cannot be reconditioned.	3150-0414

Moisture in carrier gas damages columns. We recommend a type 5A Molecular Sieve trap after the source regulator and before any other traps.

A hydrocarbon trap removes organics from gases. It should be placed after a molecular sieve trap and before an oxygen trap, if they are present.

An oxygen trap removes 99% of the oxygen from a gas plus traces of water. It should be last in a series of traps. Because trace amounts of oxygen can damage columns and degrade ECD performance, use an oxygen trap with carrier and ECD gases. Do not use it with FID, FPD, or NPD fuel gases.

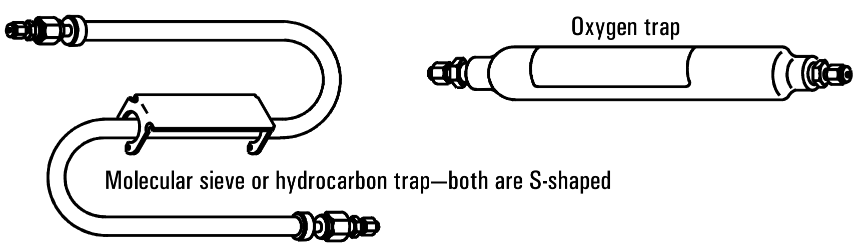


Figure 4. Traps

Cryogenic cooling requirements

Cryogenic cooling allows you to cool the oven below ambient temperature. A solenoid valve introduces liquid coolant, either carbon dioxide (CO_2) or nitrogen (N_2), to cool the oven to the desired temperature.

CO_2 and N_2 require different hardware. You must replace the entire valve assembly if you want to change coolants. The liquid CO_2 valve kit is part no. G1565-65510 and the liquid N_2 kit is part no. G1566-65517.

Choosing a coolant

When selecting a coolant, consider these points:

- The lowest temperature you need to reach
- How frequently you will use cryogenic cooling
- The availability and price of coolant
- The size of the tanks in relation to the size of the laboratory
- Liquid N_2 cools reliably to –80°C
- Liquid CO_2 cools reliably to –40°C

CO_2 is the choice for *infrequent* cryogenic cooling because it does not evaporate and is less expensive than N_2. However, a tank of CO_2 contains much less coolant than a tank of N_2 and more CO_2 is used for the same amount of cooling.

Although liquid N_2 evaporates from the tank regardless of frequency of use, N_2 tanks contain more coolant than do CO_2 tanks and therefore may be better for frequent use.

Using carbon dioxide

WARNING Pressurized liquid CO_2 is a hazardous material. Take precautions to protect personnel from high pressures and low temperatures. CO_2 in high concentrations is toxic to humans; take precautions to prevent hazardous concentrations. Consult your local supplier for recommended safety precautions and delivery system design.

Caution Liquid CO_2 should not be used as a coolant for temperatures below –40°C because the expanding liquid may form solid CO_2—dry ice—in the GC oven. If dry ice builds up in the oven, it can seriously damage the GC.

Liquid CO_2 is available in high-pressure tanks containing 50 pounds of liquid. The CO_2 should be free of particulate material, oil, and other contaminants.

These contaminants could clog the expansion orifice or affect the proper operation of the GC.

Additional requirements for the liquid CO_2 system include:

- The tank must have an internal dip tube or eductor tube to deliver liquid CO_2 instead of gas (see Figure 5).
- The liquid CO_2 must be provided to the GC at a pressure of 700 to 1,000 psi at a temperature of 25°C.
- Use 1/8-inch diameter heavy-wall stainless steel tubing for supply tubing. The tubing should be between 5 to 50 feet long.
- Coil and fasten the ends of the tubing to prevent it from "whipping" if it breaks.
- Do not install a pressure regulator on the CO_2 tank, as vaporization and cooling would occur in the regulator instead of the oven.
- Do not use a padded tank (one to which another gas is added to increase the pressure).

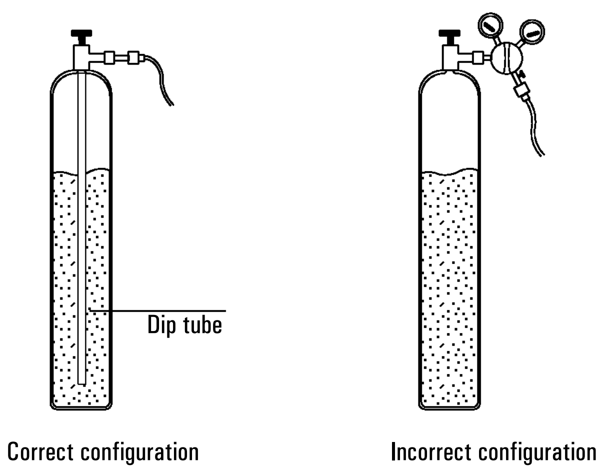


Figure 5. Correct and incorrect liquid CO_2 tank configuration

WARNING Do not use copper tubing or thin-wall stainless steel tubing with liquid CO_2. Both harden at stress points and may explode.

Using liquid nitrogen

WARNING Liquid nitrogen is a hazard because of the extremely low temperatures and high pressures that may occur in improperly designed supply systems.

Liquid nitrogen can present an asphyxiant hazard if vaporizing nitrogen displaces oxygen in the air. Consult local suppliers for safety precautions and design information.

Liquid nitrogen is supplied in insulated Dewar tanks. The correct type for cooling purposes is a *low-pressure* Dewar equipped with a dip tube—to deliver liquid rather than gas—and a safety relief valve to prevent pressure build-up. The relief valve is set by the supplier at 20 to 25 psi.

WARNING If liquid nitrogen is trapped between a closed tank valve and the cryo valve on the GC, tremendous pressure will develop and may cause an explosion. For this reason, keep the delivery valve on the tank open so that the entire system is protected by the pressure relief valve.

To move or replace a tank, close the delivery valve and carefully disconnect the line at either end to let residual nitrogen escape.

Additional requirements for the liquid N_2 system include:

- Nitrogen must be provided to the GC as a liquid at 20 to 30 psi.
- The supply tubing for liquid N_2 must be *insulated*. Foam tubing used for refrigeration and air-conditioning lines is suitable for insulation. Since pressures are low, *insulated* copper tubing is adequate.
- The liquid nitrogen tank should be close (only 5 to 10 feet) to the GC to insure that liquid, not gas, is supplied to the inlet.

Supplying valve actuator air

Some valves use pressurized air for actuation (others are electrically or manually driven). Actuator air must be free of oil, moisture, and particulates. It can be supplied from a dried regulated cylinder, although “house” air supplies or air from a compressor are acceptable.

Most valves require 20 to 40 psi of pressure to operate. High-pressure valves may require 65 to 70 psi.

Valves require a dedicated air supply. Do not share valve air supplies with detectors.

See Chapter 9, “Valve Control,” in the Agilent 6890 GC Operating Manual, Volume 1 for more valve requirements.

Microanalytics 2000 Series Instrumentation - AromaTrax
Site Preparation

NOTE: Please refer to the enclosed Agilent Technologies Site Preparation manual above for general information. Some recommendations for the Model 2000 series instruments will differ from the standard Agilent Technologies recommendations. These variances will be noted by the symbol ☞.

General AromaTrax Site Preparation Checklist

- ☐ The site is well ventilated, and free of off-odors and other distracting odors/aromas.
- ☐ The site should be relatively quiet, and free of distracting foot traffic, telephones, printers, etc.
- ☐ The instrument bench is at the correct height so that the user can comfortably sit/stand at the olfactory detector.
- ☐ If sitting, the user should be provided with a chair and knee hole to be effectively positioned at the olfactory detector.
- ☐ The site is such that the oven exhaust does not impinge on any cabling, pneumatics, or other temperature sensitive materials, and that there are no overhanging shelves or other furniture.
- ☐ Ideally, the instrument should be completely accessible from the rear.

System Size and Bench Space Information

Instrument Diagram – Model 2100 with MSD and Olfactory Detector

The diagram above shows a typical Model 2100 AromaTrax instrument with mass spectrometer. The olfactor detector extends approximately 8.0" from the right hand side of the GC. There should be sufficient space to mount the optional touch screen monitor directly behind the olfactory detector, if possible.

Instrument Gases

- The photoionization detector (PID) used on most AromaTrax instruments requires GC grade helium for the makeup and window sweep gases. The third gas input is connected to instrument air to supply the humidified air to the olfactory detector.

- If a zero air generator is used to supply the instrument air, it must have sufficient pressure and capacity to operate the pneumatics system.

☞ The liquid CO_2 for the cryotrap valve should be bone-dry grade with a 1000 psi helium or nitrogen pad. The produces consistent feed to the cryotrap tee. SFC grade is NOT recommended, as it is prohibitively expensive for this usage. The cryotrap system is fitted with 3 (three) fritted filters to protect the valve mechanism. The connecting tubing, associated fittings, and tank adapter will be supplied with the instrument.