

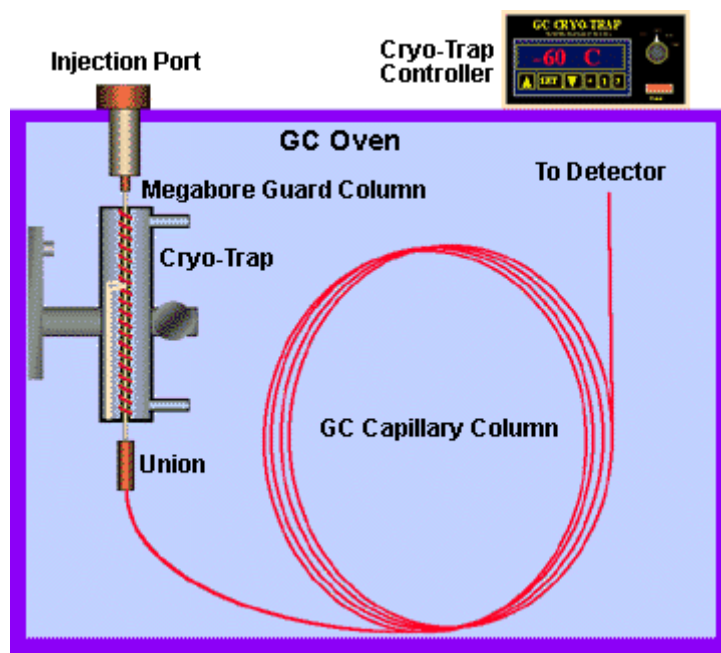
Features:

- Reduction of CO₂ or LN₂ use by 90% as compared to cooling the entire oven.
- Improve Chromatographic resolution of early eluting peaks
- Dual programmable cryo-cooling and heating cycles
- Trap compounds in the GC oven at the head of the GC column.
- Remote input connector for cryo-cooling to heating cycle switching via GC, Desorption system or manually.
- Rapid heating up to 400 deg C at > 800 deg C per minute.
- Remote start output signal for starting GC, MS or recorder.

Applications:

- Thermal Desorption Sample Trapping
- Purge and Trap Systems
- GC Headspace Sample Analysis
- Multi-dimensional GC applications

Theory Of Application:



Cryo-trap in GC oven.

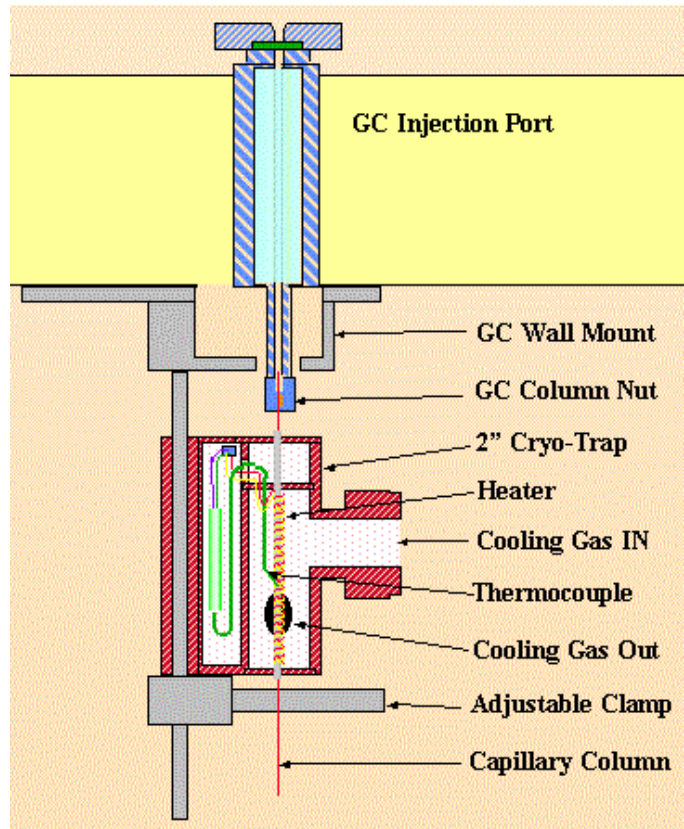
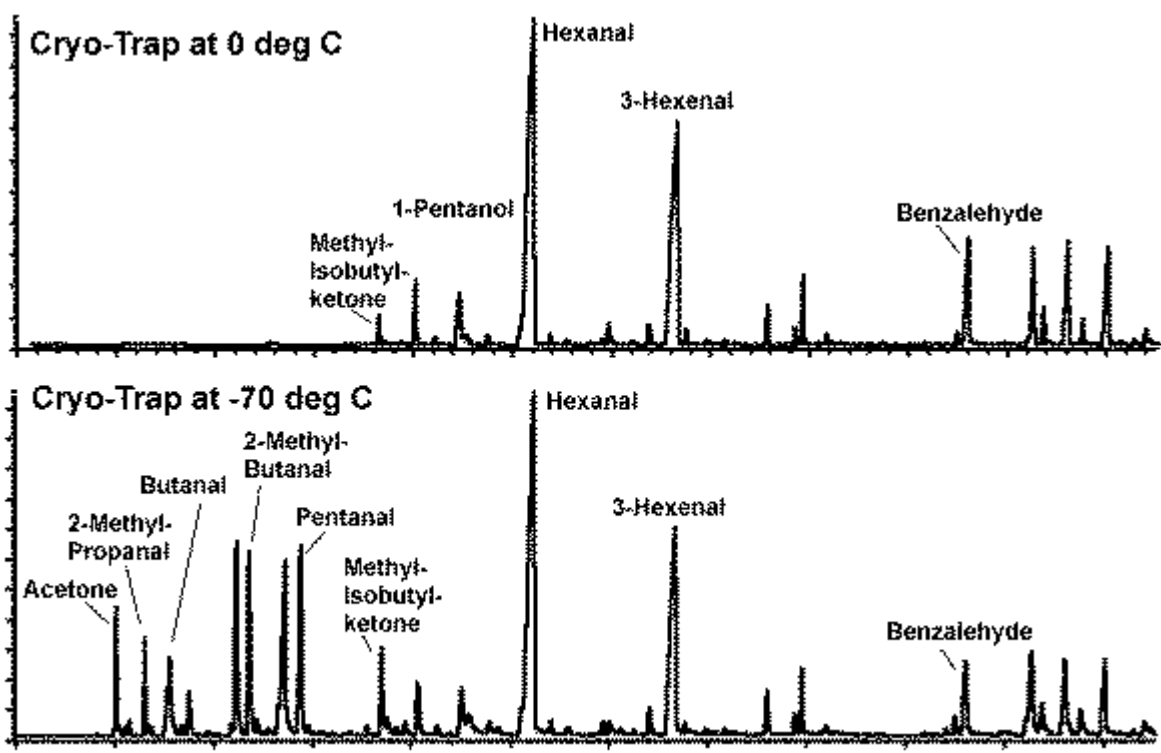


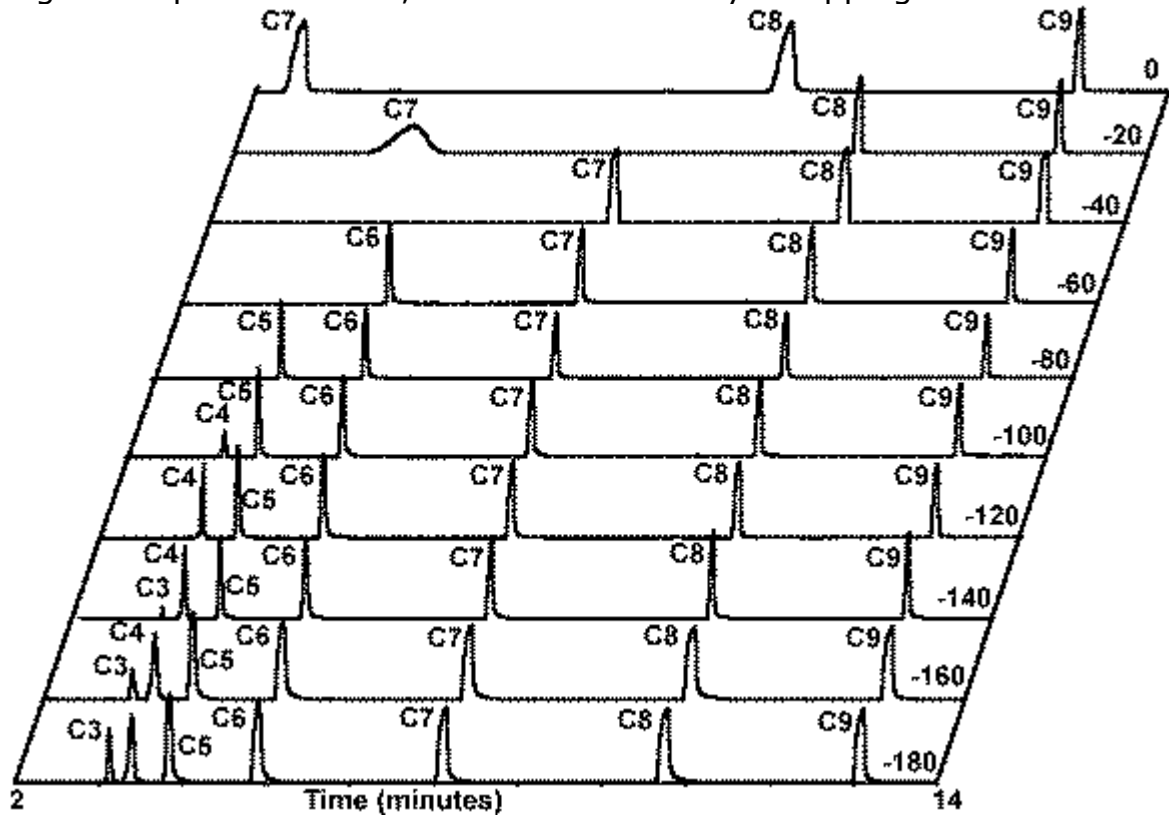
Diagram of cryo-trap.



Picture of cryo-trap in GCoven.



Purge & Trap of Black Tea, before and after cryo-trapping.



Trapping Efficiency of Hydrocarbons on 0.53 mm DB5 (1.5u film thickness) at various cryo-trapping temperatures 0 to -180 °C.

Literature/Installation:

- [Theory of Operation - Description](#)
- [Model 951/961 Operation](#)
- [Model 951 Installation](#)
- [Model 961 Installation](#)
- [Application Note # 19 - Design and Application of the SIS GC Cryo-Trap](#)
- [Application Note # 24 - Selection of GC Guard Columns for Use with the GC Cryo-Trap](#)
- [Model 951 Operating Manual](#) (CO2)
- [Model 961 Operating Manual](#) (LN2)

CO2/LN2 Gas:

New Programmable Cryo-cooling and heating trap for the Cryo-focusing of volatiles and semivolatiles at the head of GC capillary columns.

Two models of the GC Cryo-Trap are now available. The Model 951 is designed for liquid CO₂ use only for cryo-trapping temperatures down to -70 deg. C. The Model 961 is designed for Liquid Nitrogen use only for cryo-trapping temperatures down to -180 deg C. Each model can maintain any cooling temperature within +/- 3 deg C from its minimum temperature up to room temperature. In order to release the trapped volatiles from the GC Cryo-Traps, both models can heat the GC Cryo-Trap at temperatures up to 400 deg C at a heating ramp rate in excess of 800 deg/minute. Most users prefer to use the CO₂ version of the GC Cryo-Trap (Model 951) due to the ease of handling liquid CO₂ and for applications where -70 deg C is an acceptable lower temperature limit.

If lower temperatures are required, then the liquid nitrogen version of the GC Cryo-Trap (Model 961) must be used. The liquid nitrogen delivery lines are larger than the CO₂ lines and the liquid nitrogen lines must be insulated. This makes installation somewhat more cumbersome. In addition the Liquid Nitrogen version uses more cooling gas and is slightly more audible.

Depending on the make and model of your GC, an installation kit must be ordered separately as described below. First you must decide which model of Cryo-Trap is required for your application; the Model 951 for use with CO₂, or the Model 961 for use with liquid Nitrogen. The parts of the two models are not interchangeable. Neither the GC Cryo-Trap or its related electronics are interchangeable between the two cooling gases.

You must then select which installation kit is required based on the make and model of your gas chromatograph. Either of the two Cryo-Trap models will fit in the mounting brackets included with the installation kits listed below.

Model 951 GC Cryo-Trap for use with Liquid CO₂

The Model 951 GC Cryo-Trap is designed for use with liquid CO₂ tanks with a DIP tube. The minimum temperature of cooling is -70 deg C. This model comes with the GC Cryo-Trap, the dual temperature electronics controller, connecting cables and stainless steel

connecting line. *It does not include mounting bracket or installation package which are ordered separately below.*

Model 961 GC Cryo-Trap for use with Liquid Nitrogen

The Model 961 GC Cryo-Trap is designed for use with liquid nitrogen tanks (low pressure). The minimum temperature of cooling is -180 deg. C. This model comes with the GC Cryo Trap, the dual temperature electronics controller, connecting cables and a stainless steel connecting line. *It does not include a mounting bracket or installation package which are ordered separately below.*

Installation Kits:

Depending on the make and model of Gas Chromatograph, one of the installation packages must be ordered for the installation of the GC Cryo-Trap. Three packages are currently available.

The Agilent installation package (900112) includes an injection port mounting bracket which is designed to mount onto the GC injection port body on the Agilent 6890 and 7890 series GC's. No drilling or additional holes in the GC are needed. The Agilent package also includes a remote switching cable and 110 volt relay to permit the connection of the GC Cryo-Trap to the remote valve connector outputs on the GC main control panel. This will enable the user to automatically control the switching of the GC Cryo-Trap from the cooling to the heating mode via the GC program for unattended operation. A standard remote start cable and a remote start cable for the S.I.S. Thermal Desorption System are also included.

The installation packages for use on the Varian 3400 (900200) and the Shimadzu gas chromatographs (900300) mount via a clamp onto the GC injection port connector. No drilling or additional hardware is required. All of the installation packages include remote start cables to permit the automatic switching of the GC Cryo-Trap between the cooling and heating modes via the GC program. Accessories for connecting to the remote output connectors on the gas chromatograph as well as a remote start cable designed to communicate with the S.I.S. thermal desorption unit are also included.

Additional installation packages will be added as required so give us a call if you would like to use a GC not listed below.