

CRYOGENIC COLD TRAPS

Easily Installed Kits for Cryofocusing in Gas Chromatography

- Focusing of components into a narrow band
- Gives ideal peak shape
- Suitable for Purge and Trap systems
- An extra dimension in multidimension chromatography
- Direct and Indirect Versions available

INTRODUCTION

Peak tailing and band broadening in capillary chromatography is sometimes the result of a sample introduction technique that fails to deposit the sample in a narrow band at the head of the column.

Cryogenic cold traps focus the sample in a narrow band at the head of the column by cooling a short section of the column. The traps are designed for rapid cooling and efficient re-heating, ensuring reproducibility and optimum peak shape.

- On-Column Trace**
- Enrichment**
- Air and Gas Sampling**
- Purge and Trap**
- Multidimensional Techniques**
- Head Space Analysis**

DESCRIPTION

Three cryogenic cold trapping systems are available, two of which may be described as "direct" cooling where the liquid CO₂ or Nitrogen is injected directly into the oven. The third system, which might best be described as "indirect" cooling is one where air or some other gas is cooled outside the instrument using a cooling medium and this cooled gas is fed to the oven.

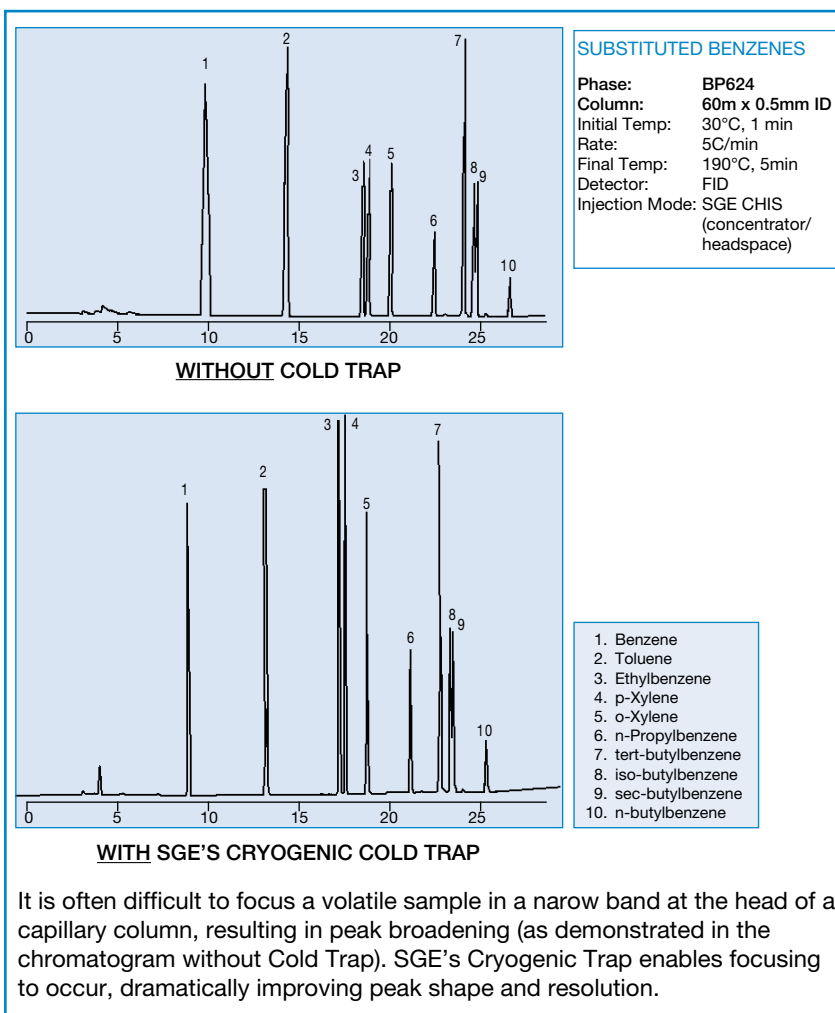
DIRECT COOLING

1. Using Liquid Carbon Dioxide
The liquid CO₂ system is suitable for holding components with

boiling points equivalent to C₇ for 10 to 20 minutes at oven temperatures up to of the order of 300°C.

2. Using Liquid Nitrogen.
The liquid N₂ system is used when lower boiling point components (<C₇) are to be retained.

Coolant flow to the traps is controlled using a special pneumatic valve. Compressed gas is used to open the valve which is supplied through an on/off toggle switch. The system can be automated very easily by replacing the toggle switch with an optional solenoid valve controlled via an instrument "Time" file or a Data System.



INDIRECT COOLING

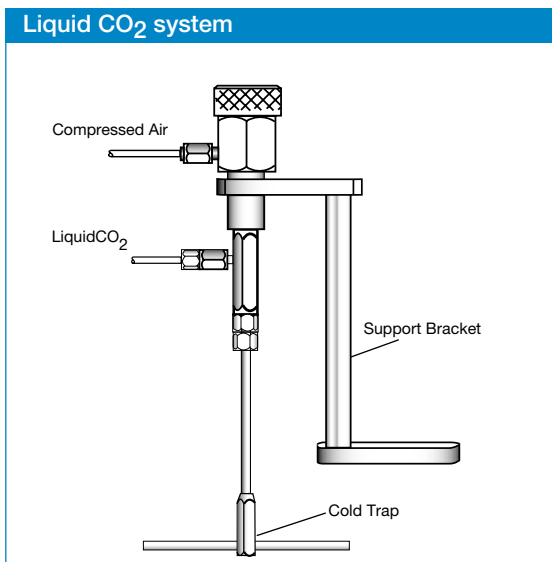
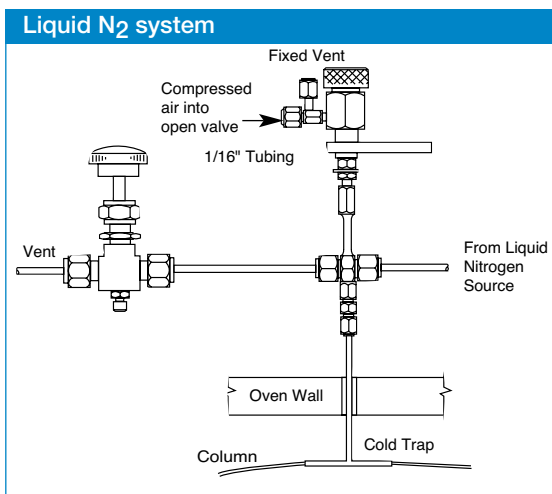
Some laboratories do not have direct access to bulk liquid Nitrogen because the location is remote. On the other hand they may have access to other liquefied gases.

Instead of passing liquid CO₂ or Liquid Nitrogen directly into the cooling "Tee", the SGE indirectly cooled cryogenic trap passes a gas which may be air, nitrogen and so on through a heat exchanger immersed in the cooling medium and then into the cold trap.

In this way the cooling medium can be any liquefied gas or indeed alcohol/"dry ice" mixtures or even ice/salt/water. Cooling and re-heating is just as effective as in the corresponding directly cooled units.

The system consists of a "Tee" mounted through the oven wall, connected via an insulated transfer line to a copper cooling coil which is immersed in the cooling medium. This may be contained in a Dewar flask or similar (not supplied).

The cooling coil is connected to a Control Module through which compressed air or nitrogen is passed. The cooled gas is then conveyed via the transfer line to the GC oven and the "Tee". A switching valve allows the cold gas to be harmlessly vented as it warms up, once the cooling cycle is completed.



INSTALLATION

Each Direct Mode Kit contains:

- Cold Trap Tee, with pneumatic head switching valve
- Toggle switch for compressed gas
- Ferrules
- Tubing
- Fittings and tools for installation

Comprehensive installation and operating instructions are supplied with each kit.

ORDERING INFORMATION CRYOGENIC COLD TRAPS

Part No.	Description
093345	Liquid N ₂ Cryogenic Cold Trap
093346	Liquid CO ₂ Cryogenic Cold Trap
0933451	Indirect Cryogenic Cold Trap



Publication No. PD-0044-A Rev:01 02/01

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