SRA IST

Storage Interface for

TGA-GC/MS

SRA INSTRUMENTS
CHROMATOGRAPHY SOLUTIONS

Programmable storage interface for detailed GC/MS analyses of evolved gases during thermogravimetric experiment.

With IST storage interface it's possible:

- to sequentially store sample in up to 16 loops. Time between each storage can be set in the software and be equal for all your experiment or be adapted to the TGA profile with different storage times.
- to inject automatically one by one into the GC the stored samples.

The standard version of IST (16 loops x 250µL) includes a gas sampling valve which is then not needed on top of the GC. The transfer line is connected directly to the GC injector which can still be used easily as a standard split / splitless liquid injector.

Heated transfer lines to and from the IST are made with stainless steel capillaries including an inert surface treatment. Transfer lines, valves oven and loops temperature is typically 250ºC.

The SRA IST Storage Interface is an automated multi-loop unit for coupling with a TGA apparatus.
During thermal degradation of materials, the composition of evolved gas from TGA varies too fast for the GC or GC/MS device to follow properly its characterization.
With the IST interface, GC analysis duration is not anymore a limitation for the TGA profile study.

- IST collects samples from TGA during the thermal transition according to a user-defined sequence.
- Samples are stored in up to sixteen 250µL loops
- IST can starts the GC analysis sequence after the storage completion.

The IST interface is controlled by a software that allows setting of the storage timetable according to the TGA profile.
The instrument is fully compatible with 7890 GC serie from Agilent Technologies or can be adapted to other brand of GC.

Software and connection

The IST is provided with its own software package.
It is possible to edit sequences and save methods. The software manages automatically the GC start via a remote connection.
Communication between IST and software is made over ethernet protocole.
With the friendly user-interface, operator can program storage times schedule for all loops independently.

Some options allows to set:

- automatic GC runs after the storage cycle
- automatic loops wash sequence after GC or GC/MS analyses cycle
- direct multi-injection mode using a single loop for injection every minute in the GC for enhanced resolution of main compounds.

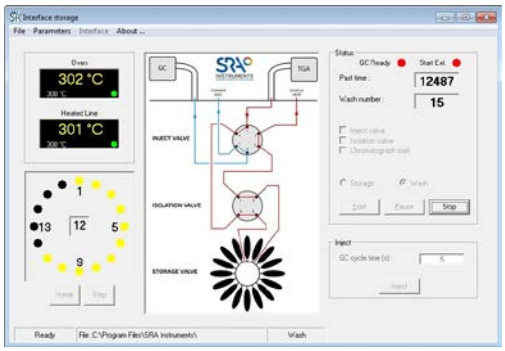

Fig. 1: IST software

Principle of operation

IST is equipped with:

- two heated transfer lines with Sulfinert™ treatment (for both TGA and GC coupling), maximum temperature is 300ºC.
- two 6-ports heated valve and a heated 16-loops valve.

During the storage step, the TGA evolved gas flushes continuously one of the 16 loops. Then it will be stored once the storage valve moves to next position according to the time table.
During injection step, after completion of all storages, the carrier gas from GC will carry one by one the stored sample of each loop for injection in the GC column through the heated transfer line.

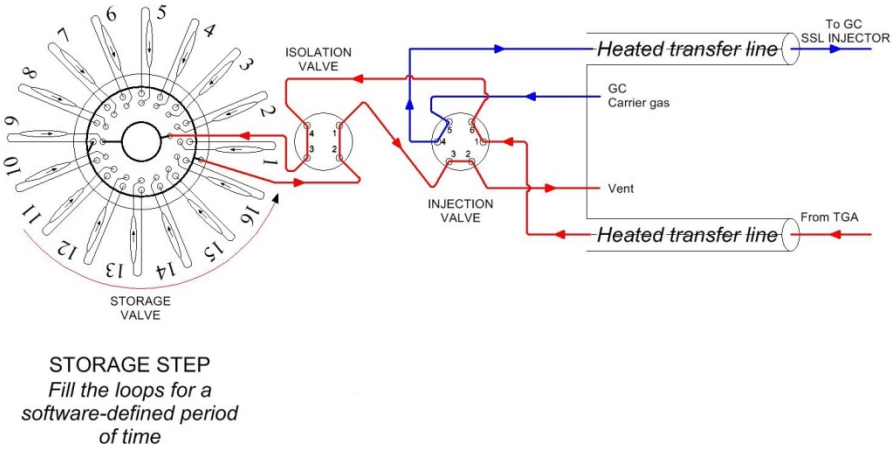

Fig.2: IST interface principle : storage step

Technical features

- **Number of loop:**
16 in Sulfinert™ stainless steel
- **Number of valves:**
3 (injection, storage, isolation) with automatic management
- **Heated zones:**
2 electronically regulated
- **Loop volume:**
250µL in standard, customized volumes on demand
- **Heated transfert lines:**
low internal diameter x 1.15 meter in Sulfinert™ stainless steel ;
T_{max} = 300ºC
- **Valve box temperature**
250ºC as standard working temperature (300ºC can be reached for some special applications)

Fig.3: IST interface (center) coupled with Agilent GC/MS (left) and METTLER TOLEDO TGA/DSC 1 (right)

Installation requirements

The SRA IST interface must be located between TGA and GC. It requires at least 40 cm (W) of space.

Power : 220-240 VAC ; 1000 W max

GC specification : require a split/splitless inlet, remote start-in, remote ready-out

PC requirements: Windows 7, ethernet connection

TGA requirements: remote start-out (contact closure)

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