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Eraly & Associés - France



# Presentation

1- Eraly

2- PYROXYDIZER

3- Software (HELIOS)

9<sup>th</sup> OBT W - ANTWERP 2023

# ERALY & ASSOCIÉS

- Since 1972
- Located - outskirts of Paris
- 9 Employes + 2 Shareholders
- 4 R&D Partners
- 17 Distributors



**Sulfur, Nitrogen, Chlorine, Pyroxydizer for Tritium and 14C, Furnaces**

# TUBE FURNACES



Furnace 3 heating zones



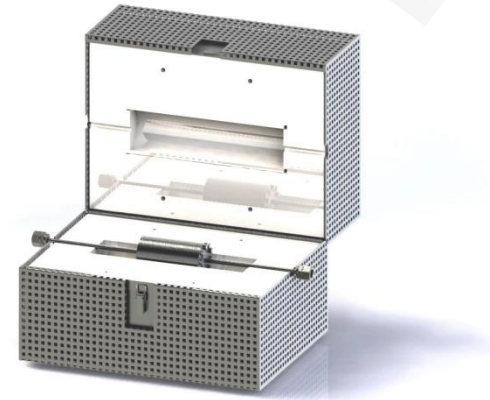
Furnace type «well »



Furnace with cooling system



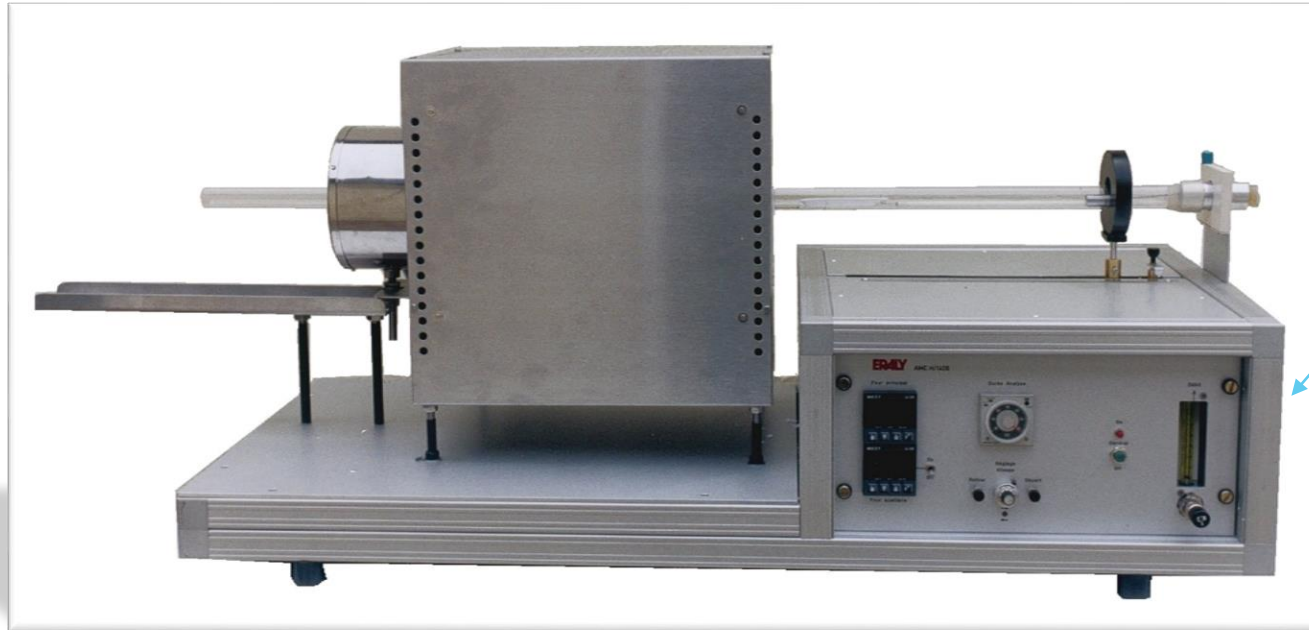
Small Furnace (Ø 1 cm)



Split tube furnace

# PYROXYDIZER - 1992

Oxygen only.



Control box,  
temperature  
and flowrate

AMCH / Furnace + combustion tube with Common entrance for gas and sample



# PYROXYDIZER - 1997

Two gases :  
Oxygen and Inert.

Control box,  
temperature.



Pressure and  
flowrate.

Pyro-Oxidation / Furnace + combustion tube with separated entrances for gases and sample

# PYROXYDIZER - 1999

Two gases :  
Oxygen and Inert.

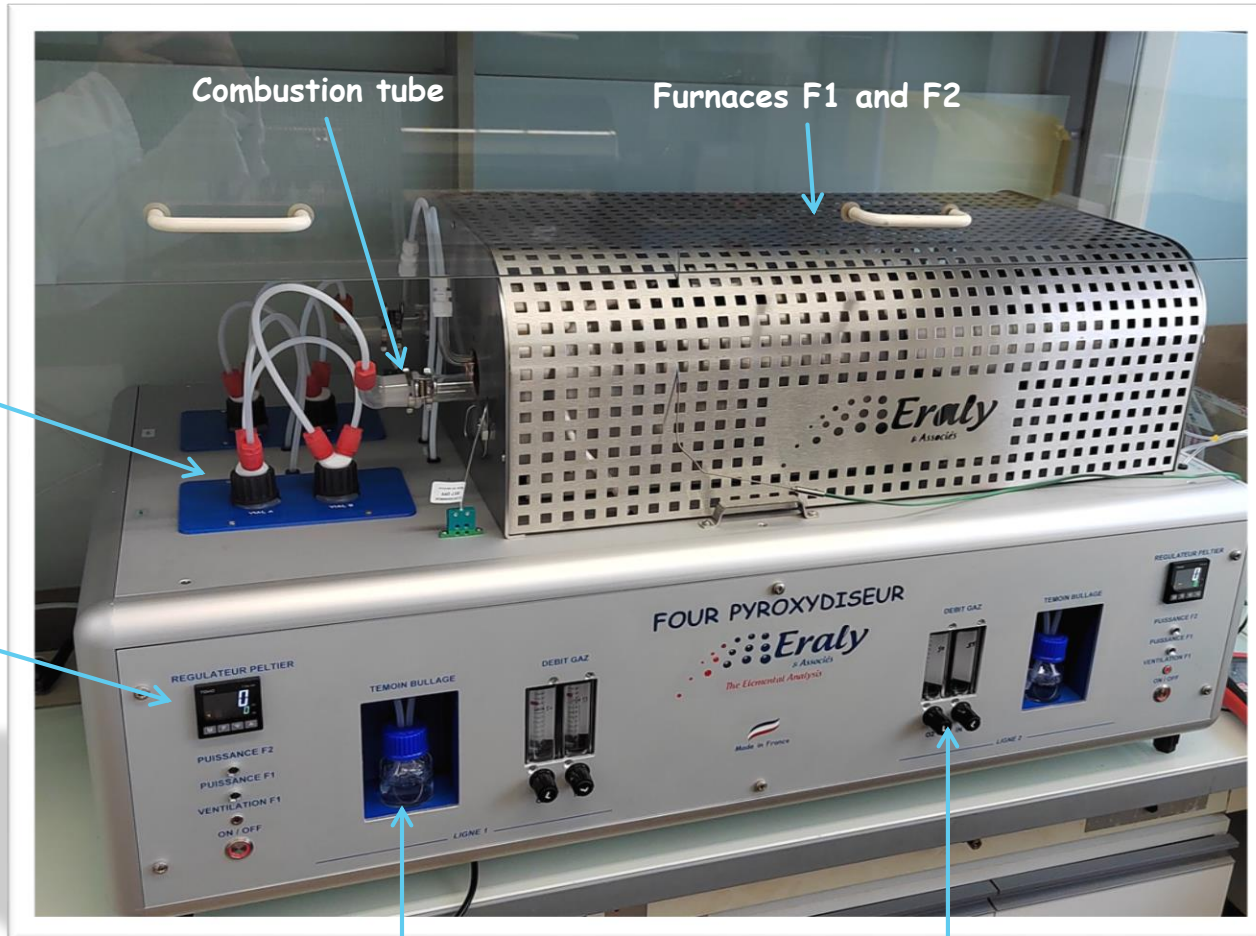
Control box,  
temperature.



Pressure and  
flowrate.

AMCH / Furnace + combustion tube with separated entrances for gases and sample

# PYROXYDIZER - FRONT FACE



Combustion tube

Furnaces F1 and F2

Trapping vials and cooling system

Temperature controller of cooling system

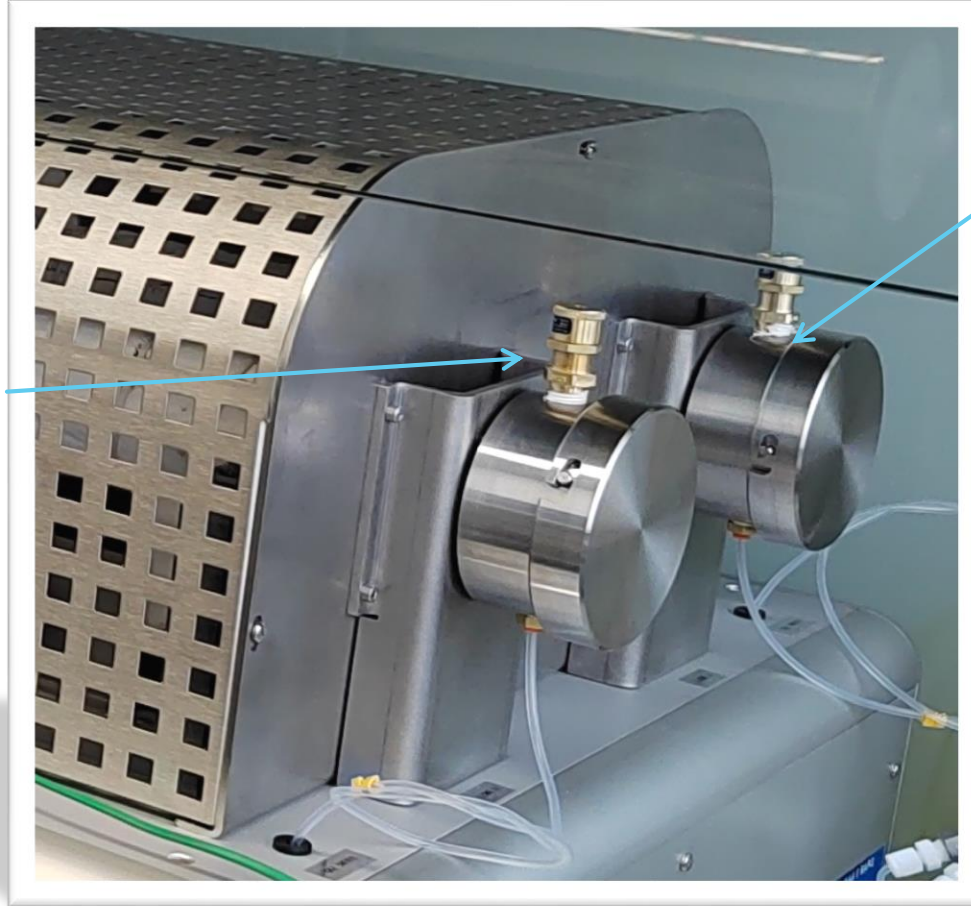
Witness gas flow

Flowmeters for inert gas and oxygen

- Compact
- Reliable and robust
- Could be customized
- Monitored by software

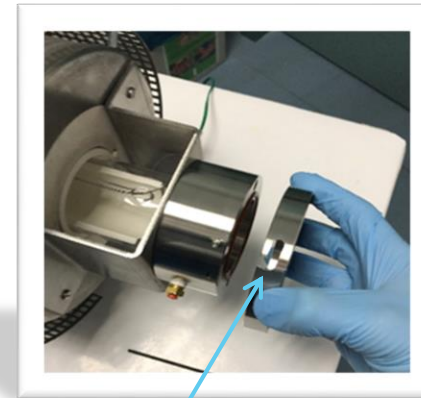


# PYROXYDIZER - VALVE & FLANGE



Closing flange

Safety valve

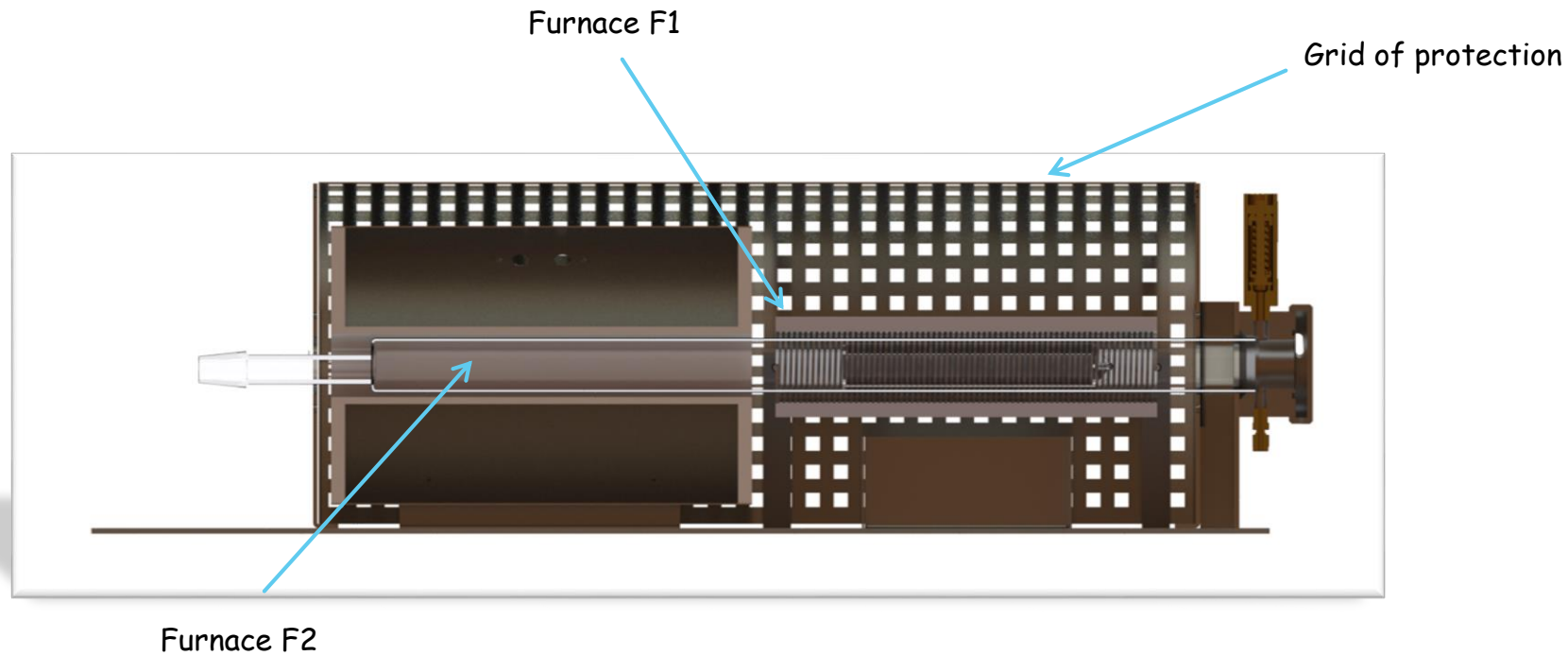


Removable cover



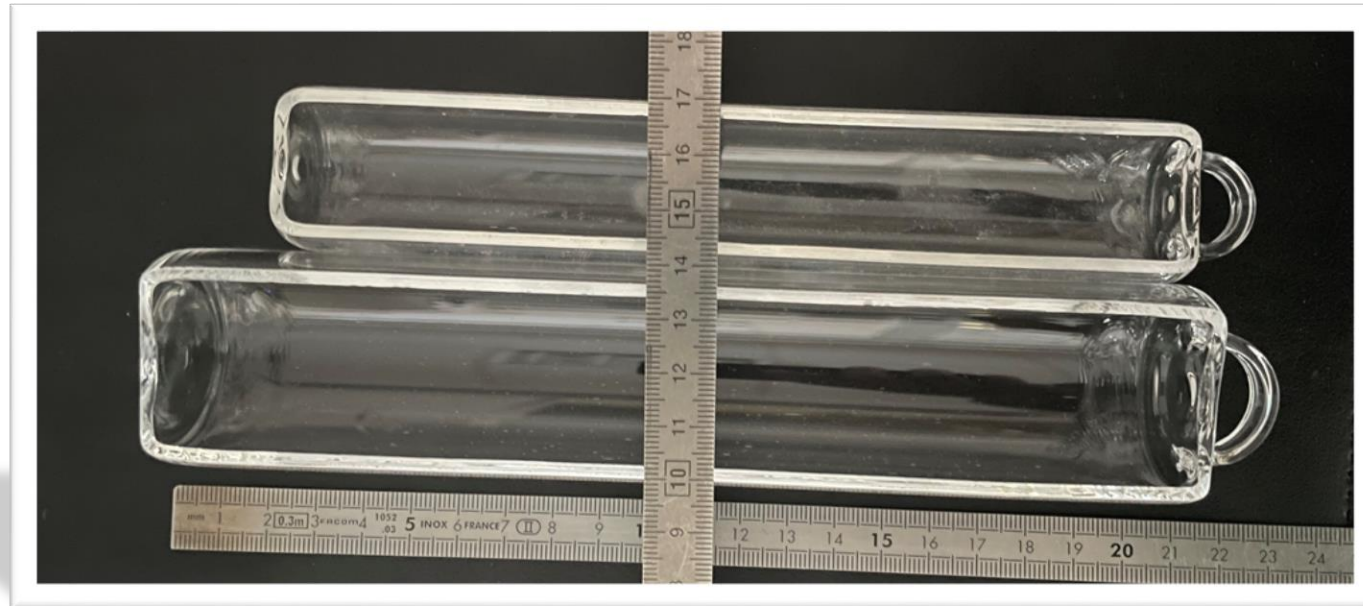
# PYROXYDIZER - FURNACES F1 & F2

Sectional view of furnace F1 and furnace F2



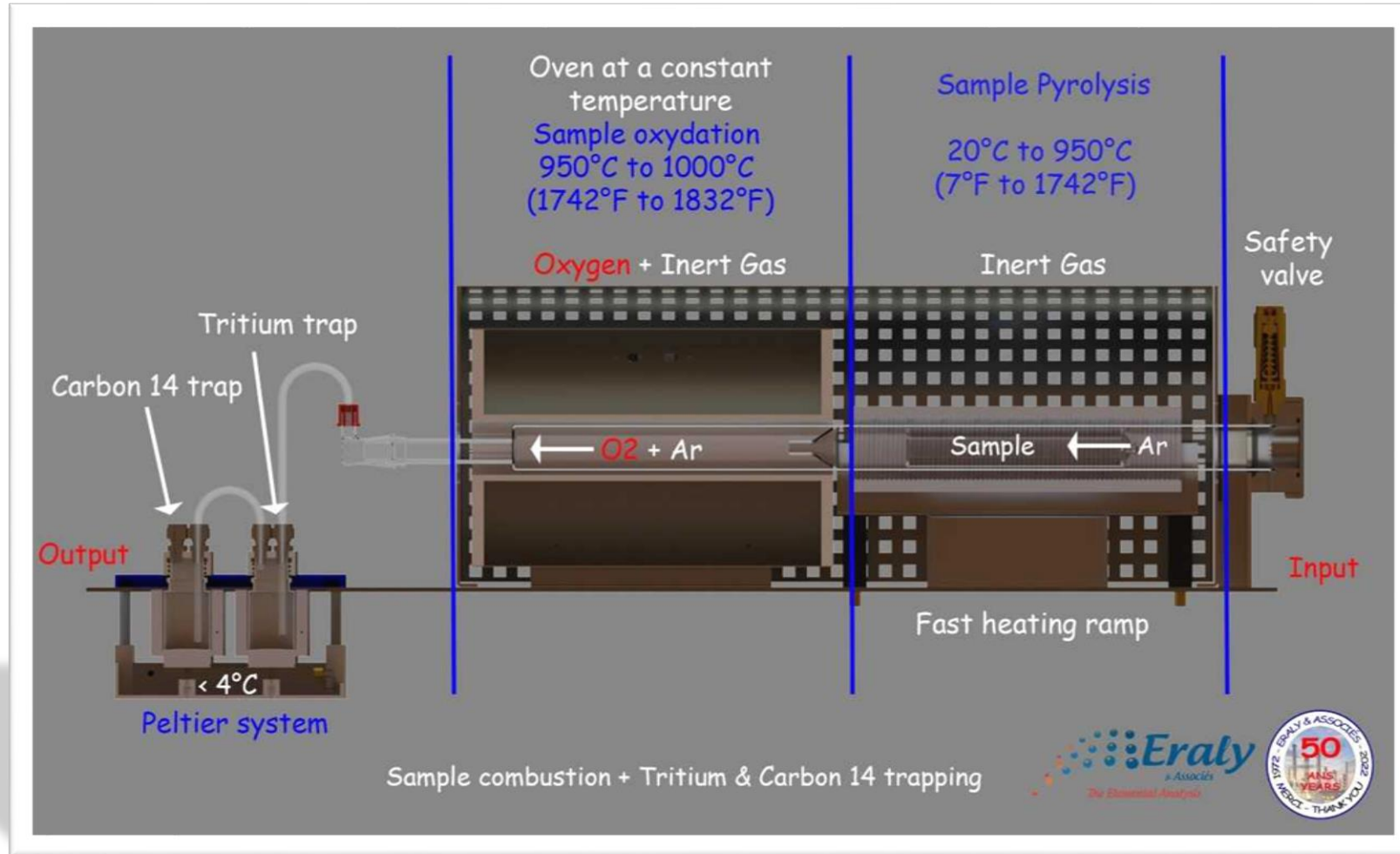
# PYROXYDIZER - COMBUSTION BOAT

QUARTZ BOAT - SMALL AND MEDIUM VOLUME



**Combustion boat,**  
Available in quartz or in porcelain.  
Adsorbant cartridge for liquid and viscous samples.

# PYROXYDIZER - PRINCIPLE



# PYROXYDIZER - TECHNICAL SPEC.

|                                  |   |
|----------------------------------|---|
| <b>Combustion lines:</b>         | 1 to 3 works tubes                                  |
| <b>Sample size:</b>              | 8 to 12 cm <sup>3</sup> , up to 250 cm <sup>3</sup> |
| <b>Combustion time:</b>          | 20 minutes to 4 hours (according program)           |
| <b>Back to room temperature:</b> | 15 minutes to 1h30,                                 |
| <b>Recovery:</b>                 | better than 97% for 3H and 14C                      |
| <b>Memory effect:</b>            | negligible  |

## Supply:

**Oxygen** - 3 bar / 100 to 150 ml/min

**Argon** - 3 bar / 100 to 150 ml/min (or Helium)

**Electric**, 1200 W/1 phase or 3 x 800 W / 3 phases

## Features

### Wide variety of samples:

Soil, Sediment,  
Solvents,  
Algae, Leaves,  
Fish, Cement,  
Concrete,  
Plastics,  
food.....

### Efficient and

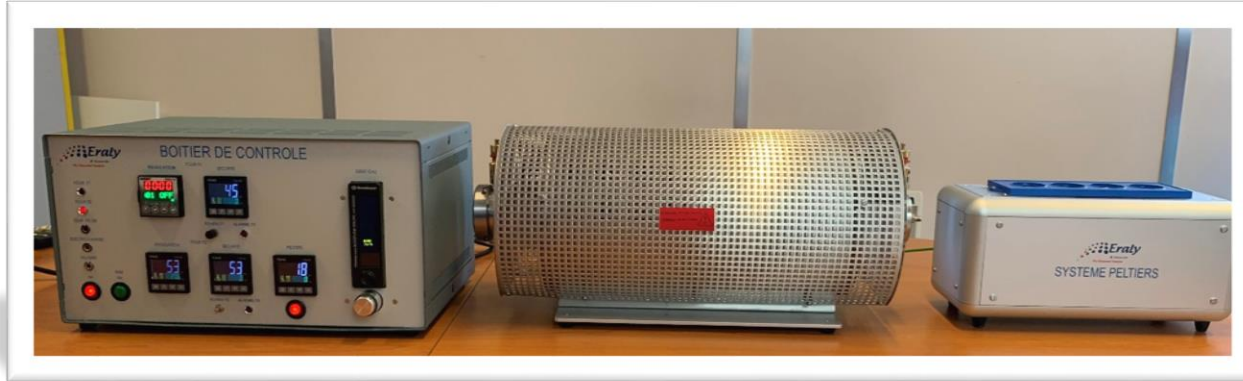
### rapid:

up to 7 samples  
per day per  
work tube.



# PYROXYDIZER - CUSTOMIZATION

## A SYSTEM IN THREE SEPARATE UNITS

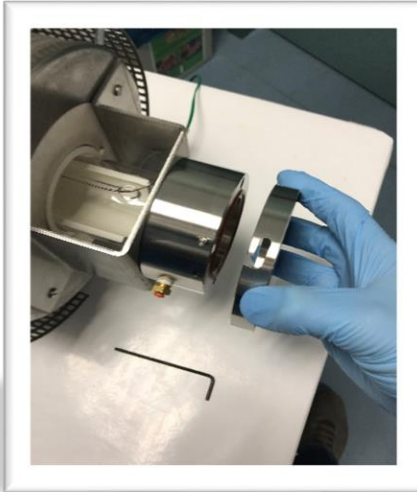


Help to save space in  
your laboratory;  
Suitable for  
installation in glove  
box.

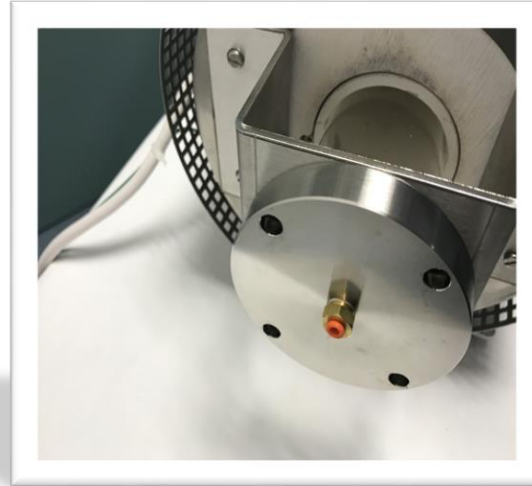
Vials support, standard size  
with adapters for more  
sizes.



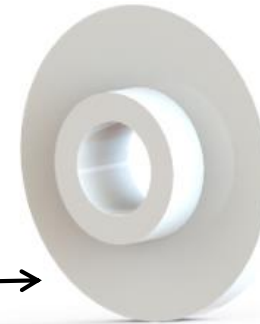
# PYROXYDIZER - CUSTOMIZATION



Inlet of combustion tube  
With stopper.



Outlet of  
combustion tube  
With secure cap.



Adapter for  
combustion tube.

# SOFTWARE - HELIOS

# MAIN WINDOWS - HELIOS

HELIOS (BY ERALY & ASSOCIÉS) TRITIUM

MENU TOOLS ANALYSE UTILITY MAINTENANCE

**SLEEP** WAKE UP

TRITIUM: Stand by

Quit

● USB Link

DIAGRAMS RESULT



Furnace 1 (°C)  
27

Furnace 2 (°C)  
25

Order F1  
0

FINAL SET

600

Press Oxyg. (mb)  
26

Press Inert (mb)  
35

Gases  
OFF

Gases reverse  
OFF



# PARAMETERS - HELIOS

Reading / Modification of parameters / Method loading


| Parameters                             | Values   |
|--|----------|
| MODE (SOLID/LIQUID/GAS)                | Solid    |
| F2 TEMPERATURE (°C)                    | 980      |
| F1 REGULATION MODE (Ventilated or not) | Yes      |
| °C F1 HUPPER LIMIT STOPPING FAN        | 20       |
| PELTIER MODE (yes or no)               | No       |
| SEQUENCE                               | STANDARD |
| ELEMENT_1                              | TRITIUM  |
| F1 °C LIMIT START (solid)              | 100      |
| START DELAY (s)                        | 1        |
|  |          |
|  |          |
|  |          |
|  |          |
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|  |          |
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|  |          |
|  |          |
|  |          |
|  |          |


EDIT BY VAL NUM

OVEN N°2 °C        F1 LIMITE VENTIL   


Waiting        F1 LIMITE START


  
EXIT


  
VALIDATION

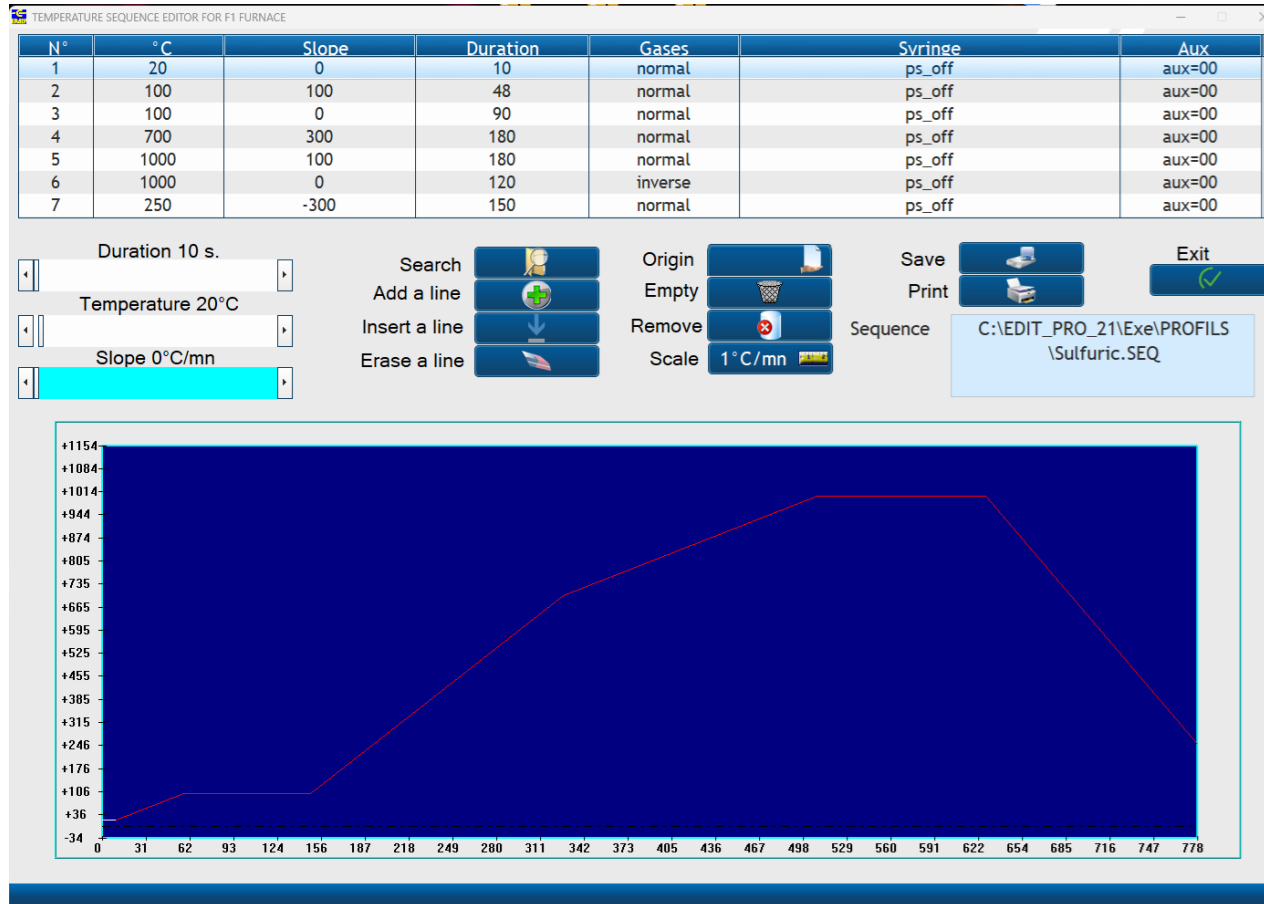

  
SAVE


  
DEFAULT


  
RESEARCH

# HEATING PROGRAMS - HELIOS

Helps to dry, to heat and to burn (completely or partialy) your samples.



For example:

A segment at around 90 °C for a drying phase.

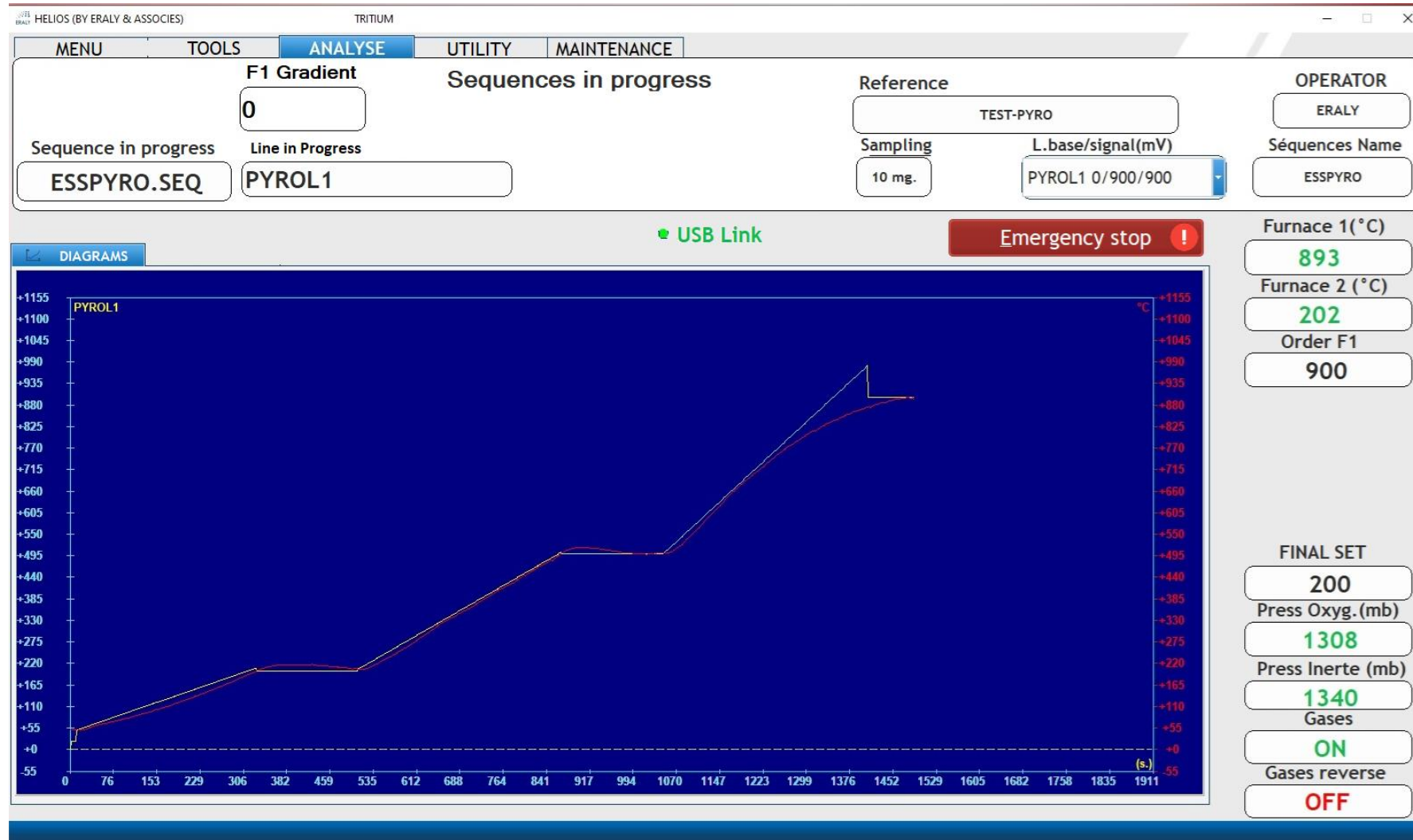
A slope of 40 °C / min to 300 °C to begin removing the volatiles.

A slope of 200 °C / min up to 950 °C to complete the pyrolysis.

A bearing at 950 °C with inversion of gas to oxidize any residues.

A downward slope from -200 °C / min to 500 °C.

# GRAPH OF COMBUSTION - HELIOS



# CYCLE STATUS - HELIOS

HELIOS (BY ERALY & ASSOCIÉS) TRITIUM

MENU TOOLS **ANALYSE** UTILITY MAINTENANCE

F1 Gradient: 0

Sequences in progress: **ESSPYRO.SEQ** Line in Progress: **PYROL1**

Reference: TEST-PYRO

Sampling: 10 mg. L.base/signal(mV): PYROL1 0/900/900

OPERATOR: ERALY

Séquences Name: ESSPYRO

USB Link Emergency stop !

Furnace 1 (°C): 893

Furnace 2 (°C): 202

Order F1: 900

FINAL SET: 200

Press Oxyg.(mb): 1308

Press Inerte (mb): 1340

Gases: ON

Gases reverse: OFF

DIAGRAMS

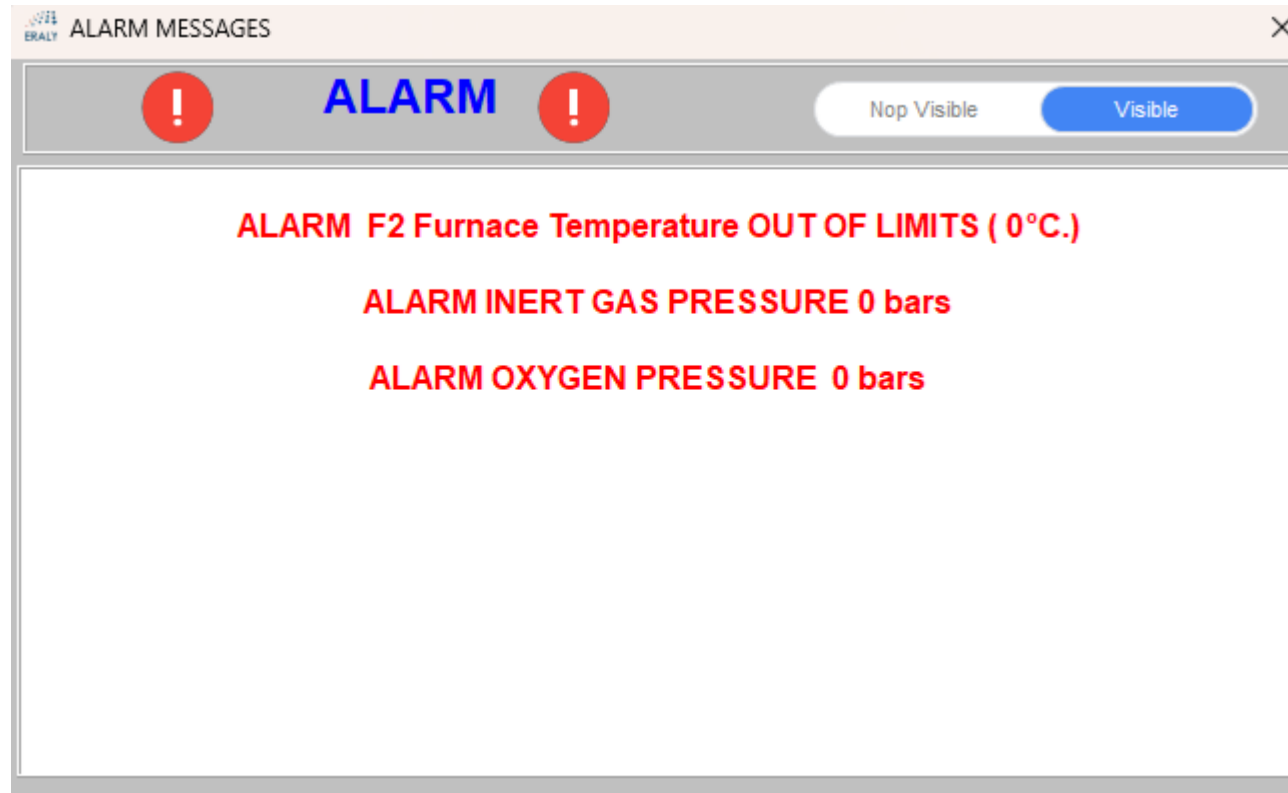
Current sequence: ESSPYRO

| N ° | ° C | °C/mn | Duration | Gases   | P.S    | Aux.   |
|-----|-----|-------|----------|---------|--------|--------|
| 1   | 20  | 0     | 10       | normal  | ps_off | arret  |
| 2   | 200 | 30    | 360      | normal  | ps_off | arret  |
| 3   | 200 | 0     | 180      | normal  | ps_off | arret  |
| 4   | 500 | 50    | 360      | normal  | ps_off | arret  |
| 5   | 500 | 0     | 180      | inverse | ps_off | arret  |
| 6   | 900 | 80    | 300      | inverse | ps_off | arret  |
| 7   | 900 | 0     | 90       | normal  | ps_off | aux=00 |

Current sequence: ESSPYRO



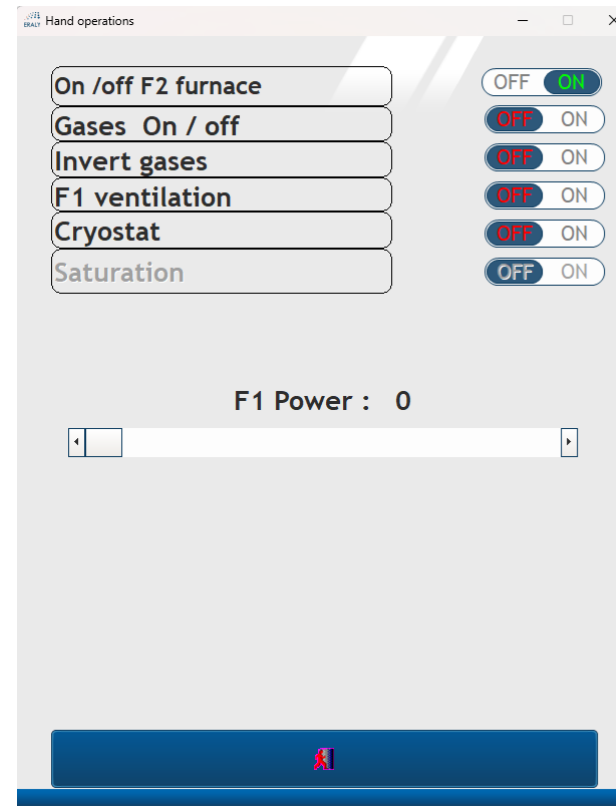
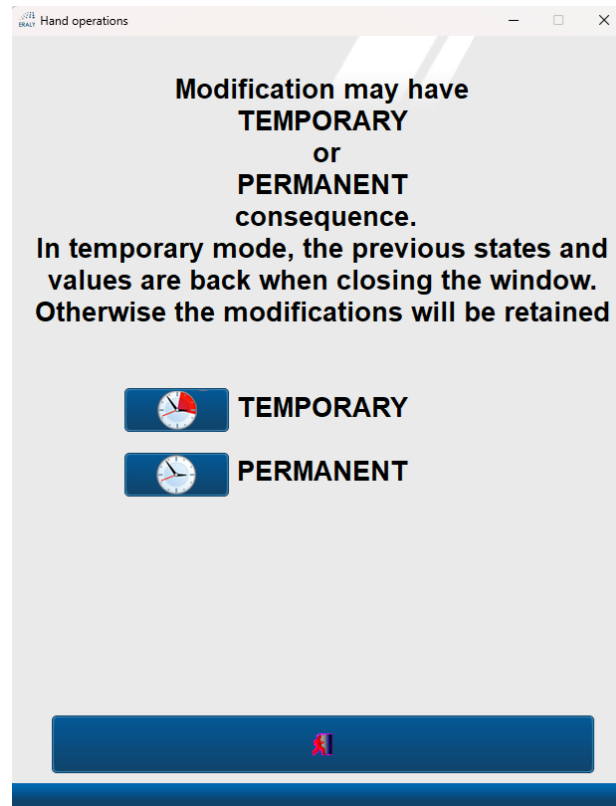
# SAFETY & ALARMS - HELIOS



- ✓ Impossible to run a combustion when all conditions aren't good...high safety.

# START / STANDBY - HELIOS

**Stop just:** gas, furnaces, ventilation, cooling system



# START / STANDBY - HELIOS

Timer Programmer

Date

Day

Time

Automatic stand by mode  Disable  Enable

**Power ON Gases**

| Day(s)                          | Hours                              |
|---------------------------------|------------------------------------|
| <input type="radio"/> Monday    | <input type="text" value="__:__"/> |
| <input type="radio"/> Tuesday   | <input type="text" value="__:__"/> |
| <input type="radio"/> Wednesday | <input type="text" value="__:__"/> |
| <input type="radio"/> Thursday  | <input type="text" value="__:__"/> |
| <input type="radio"/> Friday    | <input type="text" value="__:__"/> |
| <input type="radio"/> Saturday  | <input type="text" value="__:__"/> |
| <input type="radio"/> Sunday    | <input type="text" value="__:__"/> |

**Power ON Furnaces**

| Day(s)                          | Hours                              |
|---------------------------------|------------------------------------|
| <input type="radio"/> Monday    | <input type="text" value="__:__"/> |
| <input type="radio"/> Tuesday   | <input type="text" value="__:__"/> |
| <input type="radio"/> Wednesday | <input type="text" value="__:__"/> |
| <input type="radio"/> Thursday  | <input type="text" value="__:__"/> |
| <input type="radio"/> Friday    | <input type="text" value="__:__"/> |
| <input type="radio"/> Saturday  | <input type="text" value="__:__"/> |
| <input type="radio"/> Sunday    | <input type="text" value="__:__"/> |


# OPERATOR ACCESS - HELIOS


Authorized operators


New operator

Password

| Operator | Mot de passe |
|----------|--------------|
| ERALY    |              |
| ERALY1   |              |
| ERALY2   |              |
| ERALY3   |              |
|          |              |
|          |              |
|          |              |
|          |              |
|          |              |

Save 

Erase 

Exit 




# SPARE PARTS / ALERT - HELIOS

HELIOS (BY ERALY & ASSOCIÉS) TRITIUM

MENU TOOLS ANALYSE UTILITY **MAINTENANCE**


Catalyst  → Day Remaining  Opérateur

Date Maintenance ERALY  Date replacing TC  → Day Remaining

To XLS  Others 

● USB Link

DIAGRAMS RESULT




**FINAL SET**

Press Oxyg. (mb)

Press Inert (mb)

Gases

Gases reverse



**MANY THANKS FOR YOUR  
ATTENTION**