RADDEC INTERNATIONAL

Pyrolyser Mini

Raddec Pyrolyser Mini Furnace System

A compact furnace for the efficient and rapid extraction of tritium and ^{14}C from any material

The Pyrolyser Mini system is a compact two stage combustion furnace designed to complement the existing Pyrolyser-Trio family of combustion furnaces. The Pyrolyser Mini has been designed to be compact enabling the system to be installed and operated in confined spaces.

DATA SHEET: **Pyrolyser Mini** Raddec Pyrolyser Mini Furnace System

Key features

- Compact design capable of being installed in fume cupboards, glove boxes or mobile laboratories.
- Operates from a standard UK 240V/13A socket.
- Sample zone rated to 950°C.
- Uses only two heating zones, removing the need for a thermal isolation zone and reducing the overall dimensions of the system.
- Controls housed within a separate control box connected to the furnace via an umbilical. Control box can therefore be located outside the fume cupboard/ glove box for ease of operation.
- Two samples can be processed simultaneously during each run.
- Gas connections are directly onto the work tube. End caps can therefore be easily fitted and removed without the need to disconnect the gas lines.
- Work tubes are orientated vertically to enable straightforward loading / unloading from the top of the furnace. No side access to the furnace is required during routine operation.
- The furnace system is mounted on a swivel joint allowing the entire furnace to be rotated forwards to permit easy access to the work tubes during work tube replacement.
- Operates without oxygen.
- Bubbler system incorporates anti-suck back bubblers.

Specifications & system requirements

General	Pyrolyser-2 Mini
Number of independent furnace zones	2
Number of independent sample work-tubes	2
Minimum sample throughput	2 samples/day
Maximum sample size per tube	Up to 20 g (dry) but depends on combustibility
Typical catalyst lifetime per work-tube	10 g loading lasts about 20 determinations
Typical lifetime of silica liners and worktubes	2 years is typical if care is taken; repairs are quite feasible
Overall mass	Approx. 40 kg (furnace unit)
Overall instrument dimensions (w d h)	400 x 450 x 750 mm (furnace unit)
Power demand (North American option also available)	2.5 kW 13A 1-phase electrical supply
System cooling to aid new cycle of sample loading	Natural cooling

Controllers	
Sample zone temperature control	Eurotherm 3504 (in separate control box connected via umbilical)
Catalyst zone temperature control	
Over-temperature protection	Yes (2 policemen)
Number of user-defined programs	4
PC-based programming possible	No
Data logging (with USB output)	No
Gas supplies	Laboratory compressed air at 1 bar Controlled via flowmeters in separate control box
Automatic gas switching	N/A
Trapping media for HTO and CO_2	1% Nitric acid in water and Carbosorb™
Bubbler trapping efficiencies	>95% for ^{3}H and 95% ^{14}C
Typical detection limits (2s) - ^{3}H and ^{14}C	Nominally 0.010 Bq/g sample (for a 5 g sample and a 2 hour count)

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