RADDEC INTERNATIONAL

Incorporating advanced HMI-PLC touch-screen controller

Pyrolyser-6 Trio Gen^{IV}

Six worktube, 3-zone thermal extraction system for stable and radionuclide volatile species

- The new Pyrolyser-6 Trio Gen^{IV} furnace system is the latest development of the Pyrolyser-6-Trio
- Intuitive HMI-PLC touch-screen controller/programmer; 10" HMI)
- The class leading innovative extraction system based on rigorous R&D (established 2000)
- Efficient extraction of volatile species from foods, biota, soil, concrete, metals and bioassay samples
- Thermal liberation of volatile species (^{3}H, ^{14}C, ^{36}Cl, ^{129}I) extractable from virtually any material.
- Worktube outputs can be combined to increase sample size and sensitivity
- Underpinned by research and evidenced by numerous published articles

DATA SHEET: **Pyrolyser-6 Trio Gen^{IV}** furnace system

Overall mass:

Approx. 120 kg

Power supply

7 kW, 40A, 1-phase, ~220-240 Volt

Instrument footprint (w h d):

1000 mm x 800 mm x 800 mm (instrument only)

Key features

- Intuitive HMI-PLC touch-screen programming and control
- Unique multi-worktube thermal extraction system
- Fully integrated 3-zone furnace, with each zone running up to 950°C
- Designed for efficiency and compactness
- Sample sizes of 10+ g organic
- Internationally adopted by nuclear, environmental, defence and research sectors
- Rigorously tested and evaluated through published scientific research and international intercomparison exercises
- Over 200 Pyrolysers installed worldwide

Pyrolyser-6 Trio Gen^{IV} Furnace
Intelligent design for easy servicing

Specifications & system requirements

General	Pyrolyser-6 Trio Gen^{IV}
Number of fully independent furnace zones	3
Number of independent sample work-tubes	6
Minimum sample throughput	6 samples per 8 hour working day for normal heating cycle - faster cycles possible
Maximum sample size per tube	Depends on combustibility - up to 10 g (dry) fish per tube successfully tested per worktube
Typical catalyst lifetime per worktube	10 g loading lasts about 20 determinations
Typical lifetime of silica liners and worktubes	~ 2 years
Time for thermally cleaning silica worktube	3 hours or overnight
Overall mass	Approx 120 kg
Instrument dimensions Example bench footprint needed	1000 x 600 x 800 mm 2300 x 700 x 1000 mm
Power demand (other options available on request)	7 kW 32 A, 220 -240 V, 1-phase electrical supply
System cooling to aid new cycle of sample loading	Unique fan-assisted cooling for rapid cycling
Controllers	
Sample zone temperature control	HMI-PLC system (Siemens and Eurotherm) All three furnace zones independently controllable for maximum flexibility
Mid zone temperature control	
Catalyst zone temperature control	
Over-temperature protection	3 x Eurotherm EPC 2000
Number of user-defined programs	20 (each with 15 segment programming)
Data logging	Yes
Gas supplies required	Oxygen and Air at 1 BarG (Nitrogen option also available)
Integrated automatic gas switching	Yes - controlled by the PLC system
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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