

## Product Datasheet

# Hague 7000

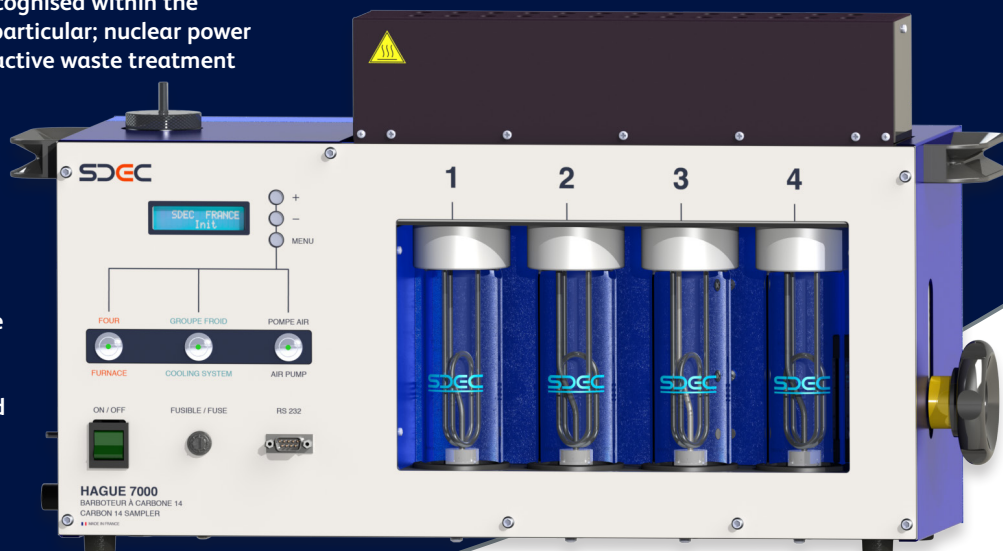
## Airborne and Organic Forms $^{14}\text{C}$ Sampling Device

The Hague 7000  $^{14}\text{C}$  sampler from SDEC is the perfect instrument for measuring low levels of  $^{14}\text{C}$  in air. Particular applications include sampling of air from stacks, hoods, rooms and the environment.

The Hague 7000 is widely used and recognised within the international nuclear industry, and in particular; nuclear power plants, nuclear research centres, radioactive waste treatment facilities and isotope laboratories.

The bubbler has been specifically designed with efficient  $^{14}\text{C}$  capture in mind, using a series of four vials, a cooling system and a catalytic oven to collect carbon in both gaseous ( $\text{CO}_2$  and  $\text{CO}$ ) and organic (C) forms.

The  $^{14}\text{C}$  activity in the collected sample can be measured with a liquid scintillation counter on a daily, weekly or monthly basis, and can then be used in combination with the sampled air volume to calculate the  $^{14}\text{C}$ -in-air concentration. This gives an efficient way to monitor  $^{14}\text{C}$  levels with a much higher sensitivity than even the most sophisticated real-time monitor.



### Features

- Trapping yield of 99% by bubbling air through sodium hydroxide solution.
- Both gaseous and organic  $^{14}\text{C}$  forms can be collected with the catalytic oven.
- Reduced evaporation due to the cooled trapping system, allowing weekly collection.
- Easy to use, with instant opening cabinet for sample retrieval.
- Accurate – electronic, accredited airflow meter COFRAC (equiv. UKAS) accredited.

### Airflow process

A pre-filter paper in the inlet ( $\varnothing 45$  mm) prevents dust intake and the electronic flow meter is protected by Gortex® filters. The airflow passes into the glass vials (250 ml capacity) through stainless steel air tubing. The air flow can be set from 10 to 50 litres per hour, regulated by a certified airflow meter.

### Oxidation oven

Stainless steel tubular oven equipped with Pt alumina catalyst pellets. The oven temperature can be set between  $+200^{\circ}\text{C}$  and  $+500^{\circ}\text{C}$ .

### Cooling system of the collecting vials

The sampler is fitted with a condenser cooling block, which allows the vials to be cooled to between  $+5^{\circ}\text{C}$  and  $+15^{\circ}\text{C}$  (depending on the ambient temperature). A pump ensures flow of the cooling liquid and a level gauge allows the direct control of the liquid level in the circuit. All tubing is made of stainless steel.

### Alarms and defaults

- Alarm buzzer for all detected defaults.
- Memory and recovery of the last 8 defaults via RS-232.

### Options

- Condensation collector tray (recommended).
- Sampling circuit cleaning pump.
- Alarm state relay.
- J-bus protocol for remote control.
- External pressure regulator.
- Flashing light alarm signal.



# Specifications

General	
Display	LCD Display featuring: <ul style="list-style-type: none"><li>• Oven temperature, cooling liquid temperature</li><li>• Instant air flow and total volume</li><li>• Duration of sampling and alarm</li></ul>
Front Panel	Scratch proof lexan cover
Frame	Monocoque in aluminium alloy Decontamination compliant housing plant
Power Supply	230 V / 50 Hz or 120 V / 60 Hz IEC plug
Power	700 Watts max.
Regulation	Electronic control of the airflow, oven temperature, cool temperature
Electrical Protection	Differential circuit breaker (sensitivity = 30mA)
Inlet Connections	Flexible plastic tube inner diameter 6 mm with fastenings
Temp (Operating)	+2°C to +45°C
Temp (Storage)	-5°C to +70°C
Dimensions	700 x 265 x 270 mm
Required Space	1000 x 600 x 530 mm
Weight	29 kg

Efficiency	
CO <sub>2</sub> trapping yield	96% ±4%
Oven conversion yield	93% ±7%
Reproducibility of the airflow	±0.8%
Airflow accuracy	±1%

No response to other radioactive elements.

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