

# Explora GPU

The Siemens Explora® family of radiochemistry modules offers a comprehensive line of products for efficient PET compound preparation. All modules are computer controlled using a Windows®-based graphical user interface, offering both convenience and flexibility.

The Explora GPU is a general purpose gas processing module which provides for conversion of  $^{15}\text{O}-\text{O}_2$  to carbon monoxide and carbon dioxide and also converts  $^{11}\text{C}-\text{CO}_2$  to CO. The GPU also serves as a gas product switchyard, connecting both  $^{15}\text{O}$  and  $^{11}\text{C}$  gas targets to one or two other destinations (Siemens chemistry modules or user supplied equipment) each.

The Explora GPU components are mounted inside the cyclotron shields allowing easy accessible transfers of all substances, obviating the need for dedicated hot cell space.

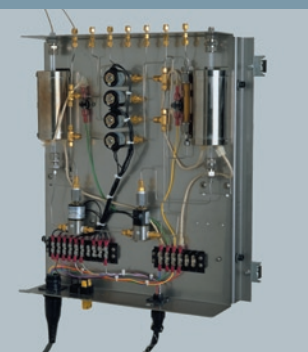
Made simply and reliably, the GPU requires minimal maintenance.

## Reaction Method

The primary components of the Explora GPU are two furnaces containing activated carbon. One furnace contains activated carbon and copper powder for  $\text{CO}_2$  production. The other furnace contains activated carbon only, followed by a soda lime trap. Stainless steel tubing and computer-controlled solenoid valves route the gases through the appropriate components.

Each carbon reaction vessel consists of a quartz tube with O-ring seals on each end and is surrounded at the midsection by a cylindrical ceramic furnace containing an electrical resistance heating element. A temperature sensor is located within each furnace and is connected to a temperature controller.

The first furnace operates at  $500\text{ }^\circ\text{C}$  and converts  $^{15}\text{O}-\text{O}_2$  to  $^{15}\text{O}-\text{CO}_2$ . The second furnace operates at  $950\text{ }^\circ\text{C}$  and converts either  $^{11}\text{C}-\text{CO}_2$  to  $^{11}\text{C}-\text{CO}$  or  $^{15}\text{O}-\text{CO}_2$  to  $^{15}\text{O}-\text{CO}$ . The outlet of the second furnace passes through a small soda lime trap to remove residual  $\text{CO}_2$ .



Automated Radiochemistry

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## Typical System Performance

Yield of Synthesis (decay corrected to EOB)

$^{11}\text{C-CO}_2$  to  $^{11}\text{C-CO}$  65%

$^{15}\text{O-O}_2$  to  $^{15}\text{O-CO}_2$  30%

$^{15}\text{O-O}_2$  to  $^{15}\text{O-CO}$  40%

Conditioning Time 10 minutes

Synthesis Time 2 minutes

## Dimensions

Width 16 in (41 cm)

Depth 4 in (10 cm)

Height 16 in (41 cm)

Weight 25 lbs (11 kg)

The automated chemistry modules are delivered as laboratory equipment for the production of radiochemicals. No claim is made as to the suitability for human use of the products made with these modules. It is the exclusive responsibility of the user to determine if such products can be used for human subjects according to local and federal regulations, and Siemens disclaims all responsibility in this respect.

ISO 13485 certified, meeting internationally recognized quality standards for good manufacturing practices.

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