

Synthra Methionine/Choline (Catalog No. 007)

Synthra Methionine/Choline is a specially designed radiosynthesizer for the efficient production of [^{11}C]labeled compounds [^{11}C]methionine and [^{11}C]choline. Automating the synthesis is simple with the easy-to-use configuration software SynthraView. The Synthra Methionine/Choline module offers both, fully automatic as well as manual modes of operation.

Gas Phase Capabilities

- ➔ High specific activities are achieved from in-target produced [^{11}C]CO₂ ranging from 5 Ci/μmol to 20 Ci/μmol (Higher specific activities are possible when using methane target).

The [^{11}C]CO₂ produced in target is quantitatively trapped in the stainless steel capillary tubing at -180 °C. Subsequently, the [^{11}C]CO₂ is released into the methane oven where it is converted to [^{11}C]CH₄ by reduction on a Ni-catalyst. The [^{11}C]CH₄ is trapped at -120 °C on Carboxen®. In a successive gas phase reaction the iodination of [^{11}C]CH₄ to [^{11}C]MeI is carried out in a gas phase recirculation system with gaseous I₂ at 730 °C. During circulation [^{11}C]MeI accumulates on a Porapak™ column. Finally, it is released at 200°C and ready for any kind of labeling reaction.

[^{11}C]Labeling Possibilities

- ✓ **[^{11}C]Methyl iodide Production:** [^{11}C]MeI is ready for release 7 minutes after trapping the [^{11}C]CO₂. The yield for the [^{11}C]methyl iodide formation is under good conditions above 50 % non-decay corrected. (ndc).
 - Up to 10 sequential methyl iodide preparations are possible from a single box set-up.
 - The [^{11}C]methyl iodide can be used to synthesize [^{11}C]choline by captive chemistry in a loop or to synthesize [^{11}C]methionine by solid support heterogeneous reactions on a cartridge.

General Features

- ✓ **Heating and cooling capabilities**
 - Six heating zones
 - Three with cooling capabilities
 - Temperature range: -196 °C – 950 °C
- ✓ **Detectors and controllers**
 - Four shielded radiation detectors



- Three electronic flow controllers (HCN option: Four flow controllers)
- One Pressure sensors as leak detector
- ✓ **Valves**
 - Chemically inert valves with small dead volume < 35 μL, 5 bar rated
- ✓ **Dimensions** (w x d x h): 42 x 50 x 41 cm
- ✓ **Weight:** approx. 25 kg

Synthesis Features

- ✓ **Four reagent vials**
 - One small (1 – 3 mL) and three large (10 - 15 mL) volume glass vials for reagents
- ✓ **One cartridge holder**
- ✓ **SPE unit** for final product formulation

Additional Synthesis Options

- ➔ **Methane option:** A reduced gas phase suitable for the use of CH₄ target.
- ➔ **[^{11}C]HCN option** (Catalog No.003hcn): The [^{11}C]CH₄ is released with NH₃ gas into a high temperature area where it undergoes a Pt-catalyzed conversion into [^{11}C]HCN at 950 °C.

Synthra C-11 Family

Product Description and Technical Specifications



→ Product solvent evaporator

(Catalog No. 000pse)

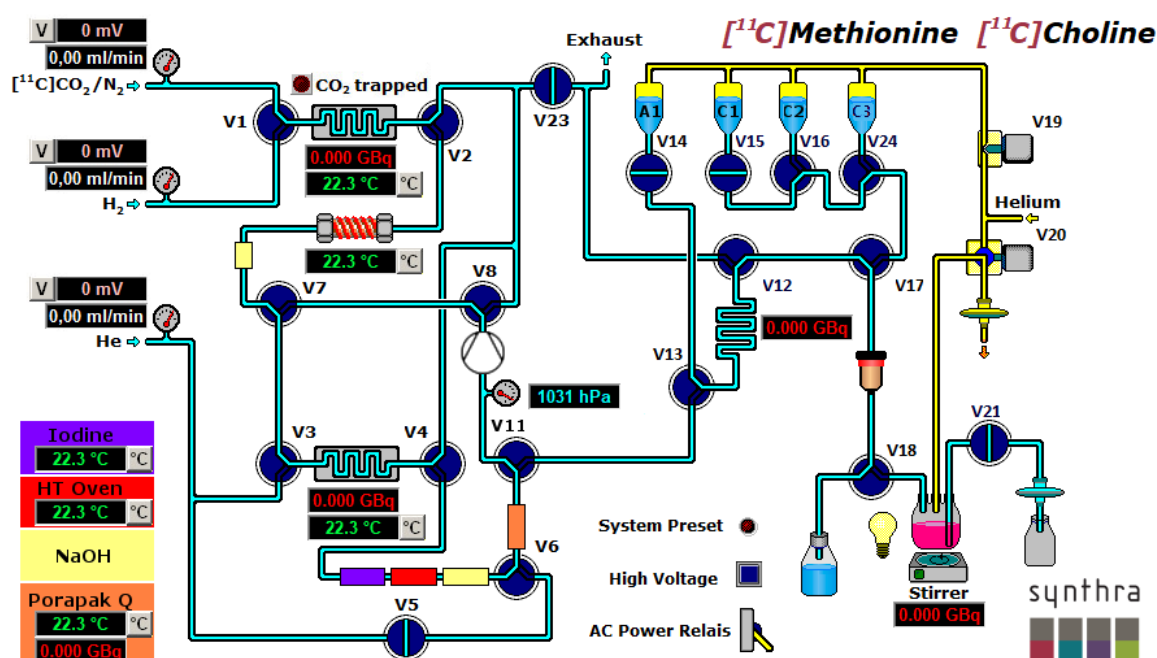
→ Triflate/column oven (RT – 200 °C)

GMP Features

- ✓ Synthesis files for [¹¹C]methionine and [¹¹C]choline
- ✓ **GMP compliant.** Electronic control and data collection (27/18 channels)
- ✓ **21CFRpart11 & LIMS** compatible

Terminal Control

- ✓ A laptop (Win 10 Pro) with preinstalled controlling software SynthraView is included
- ✓ Four digital inputs for communication with external devices upon request



The Graphical User Interface (GUI) of the SynthraView software.