

# Custom Synthesis Expertise

## Technical Know-How

Our years of experience in **designing chemical & biosynthetic routes** for a wide variety of labeled compounds give Isotec an advantage to develop new processes for special needs.

Our synthesis expertise includes:

- Alkylations
- Asymmetric Synthesis
- Biosynthesis (Algae, Bacteria)
- Brominations & Iodinations
- Carbohydrate Chemistry
- Carbonylations
- Catalytic Reductions (High & Low Pressure)
- Diazotizations
- Deils-Alder Reactions
- Enzymatic Reactions
- Esterifications
- Friedel-Crafts Acylations
- Gas Phase Chemistry
- Grignard Reactions
- High Temperature & Pressure Reactions
- High Purity Distillations (Gas & Solvents)
- Optical Resolutions
- Oxidation Reactions
- Phosgenations
- Pyrolysis



## Scale & Capacity

- Scale from milligrams to kilograms
- Our laboratory houses
  - ✓ Up to 50 liter glass reactors
  - ✓ Up to 20 liter rotary evaporators
  - ✓ 0.5, 1, 5 and 10 gallon high pressure reaction vessels up to 5000 psi
  - ✓ 20, 50 and 72 liter fractional distillation stills



Since 1987, Isotec has been engaged in the custom synthesis of labeled compounds. Our synthesis team is comprised of an impressive group of experienced professionals who have **performed thousands of custom synthesis projects** including:

- Pharmaceutical Intermediates
- Biologically Active Molecules
- Isotopically Labeled Reference Standards
- Controlled Drug Standards (DEA)
- NMR Reference Standards
- Metabolites

## Our Most Valued Resources

- 10 Ph.D. Chemists
- 8 Chemical Engineers
- 33 Masters, Bachelors-Level Chemists, and Technicians
- Teams dedicated to custom synthesis
- Teams dedicated to biochemistry and enzymatic reactions
- Individual technical support
- Dedicated customer service & sales representatives

## State of the Art Analytical Instrumentation & Capabilities



Isotec uses controls *throughout* all production processes to **minimize variation** and ensure superior product **QUALITY**, the highest **RELIABILITY** and highest **CONSISTENCY**. Our analytical laboratory is equipped with a wide array of instrumentation and techniques including:

- High-Field NMRs
- Mass Spectrometers
- HPLCs
- ICs
- FTIR
- Karl Fischer
- Gas Chromatography
- GC/MS
- UV/VIS
- Gas Moisture Detection



Isotec's analytical capabilities include:

- Multi-thousand Products' Analysis
- Method Development
- Method Validation
- Qualitative/Quantitative Determination
- In-Process Controls
- Reference Standard Analysis
- Gas Analysis



## Our History

Founded in 1979, purchased in 2001 and financially backed by the Sigma-Aldrich Company (\$1 Billion), Isotec was the first commercial company to build and maintain cryogenic distillation and thermal diffusion columns for the production of stable isotopes. Isotec was also the **first isotope company to successfully meet the US FDA manufacturing requirements** for the production of  $^{13}\text{C}$ -Urea (UBT grade) to detect *H. Pylori* bacteria, linked to ulcers and strongly associated with gastric cancer. Currently Isotec supplies labeled research products to virtually every major pharmaceutical company in the world including isotopically labeled analogs of pharmaceuticals.



## Engineering Technologies

In addition to synthesis technologies, our staff of engineers designs and builds algae production facilities for biomedical products, gas manufacturing and distillation plants, and chemical synthesis systems. Our staff of engineers maintains our **multi-million dollar plants**, continually upgrading them with new enrichment technologies. This engineering knowledge gives Isotec the **flexibility to meet customer scale-up** requirements.

Isotec can provide the fastest turn around on custom synthesis **improving time-to-market** and reducing costs.

Our willingness to solve your problems sets us apart. Customer satisfaction is our highest priority and we will go the extra mile to make sure your needs are met. Customer Confidentiality Agreements are available upon request. For further information or to request a quotation, contact our Product Manager at ext. 266.

# ISOTEC

A MEMBER OF THE SIGMA-ALDRICH FAMILY

We are Committed to the Success of our Customers, Employees and Shareholders through Leadership in Life Sciences, High Technology and Service.

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# Providing Complete Custom Synthesis Capabilities...



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