



ISOTECH[®]

ISOTECH LABORATORIES INC

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High Precision Isotopic Analysis

Why Isotech?

Isotech has established itself as one of the premier commercial isotope laboratories in the world. The following points summarize our procedures for providing the highest quality data. For specific applications, please review our other information sheets.

Minimum of 20% of all analyses are for QA/QC

- One of every 10 analyses is a duplicate sample analysis
- One of every 10 analyses is a working standard
- Wide variety of working standards chosen to match sample makeup
- Multiple calibration standards, not just single point calibration

Multiple systems for data validation

- Six Isotope Ratio Mass Spectrometers for Dual Inlet, EA-IRMS, TCEA-IRMS, GC-C-IRMS
- Redundant systems provide backup
- Data can be generated using either online or off-line dual-inlet systems
- Ability to run samples on completely different systems is an advantage most other commercial laboratories cannot match

Proven and tested results

- Interlaboratory comparisons and blind tests by clients have proven the quality of our data
- Isotech was co-selected by NIST (National Institute for Science and Testing) to perform the isotopic calibration of natural gas standards which are distributed internationally

Analytical Precision

Gas Chromatographic Analysis	
Complete compositional analysis of gas samples	+/- 5% (C ₁ -C ₄) +/- 10% (C ₅ -C ₈ +) + Duplicates (5%)
Hydrocarbons & major fixed gases only (N ₂ , CO ₂ , O ₂ +Ar)	+/- 5% (C ₁ -C ₃) +/- 10% (C ₄ -C ₈ +) + Duplicates (5%)
Gas Isotope Analysis - Conventional Off-Line Prep./Dual Inlet M.S.	
² H/ ¹ H (δD) analysis of gas components	+/- 4.0 ‰ _∞
¹³ C/ ¹² C (δ ¹³ C) analysis of gas components	+/- 0.2 ‰ _∞
² H/ ¹ H (δD) analysis of gas components on CRDS laser	+/- 2.0 ‰ _∞
Gas Isotope Analysis - Compound Specific, GC-C-IRMS	
¹³ C/ ¹² C (δ ¹³ C) analysis of gas components	+/- 0.3 ‰ _∞
¹³ C/ ¹² C (δ ¹³ C) analysis of gas components with cryogenic enrichment	+/- 0.5 ‰ _∞
² H/ ¹ H (δD) analysis of gas components by GC-P-IRMS	+/- 5.0 ‰ _∞
¹⁵ N/ ¹⁴ N (δ ¹⁵ N) analysis of nitrogen in gas sample	+/- 0.3 ‰ _∞
Stable Isotopes of Water	
¹³ C/ ¹² C (δ ¹³ C) analysis of DIC in water	+/- 0.2 ‰ _∞
² H/ ¹ H (δD) analysis of water	+/- 2.0 ‰ _∞
¹⁸ O/ ¹⁶ O (δ ¹⁸ O) analysis of water	+/- 0.3 ‰ _∞
¹⁵ N/ ¹⁴ N (δ ¹⁵ N) analysis of dissolved nitrate	+/- 0.3 ‰ _∞
¹⁸ O/ ¹⁶ O (δ ¹⁸ O) analysis of dissolved nitrate/sulfate	+/- 0.5 ‰ _∞
³⁴ S/ ³² S (δ ³⁴ S) analysis of dissolved sulfate	+/- 0.5 ‰ _∞
Isotopic Analyses of Organic Solids & Liquids by EA-IRMS	
¹³ C/ ¹² C (δ ¹³ C) analysis	+/- 0.3 ‰ _∞
¹⁵ N/ ¹⁴ N (δ ¹⁵ N) analysis	+/- 0.3 ‰ _∞
³⁴ S/ ³² S (δ ³⁴ S) analysis	+/- 0.5 ‰ _∞
¹⁸ O/ ¹⁶ O (δ ¹⁸ O) analysis by TCEA-IRMS	+/- 0.5 ‰ _∞
² H/ ¹ H (δD) analysis by TCEA-IRMS	+/- 5.0 ‰ _∞
Carbonates by acid digestion and CF-IRMS	
¹³ C/ ¹² C (δ ¹³ C) analysis only	+/- 0.2 ‰ _∞
¹⁸ O/ ¹⁶ O (δ ¹⁸ O) analysis	+/- 0.2 ‰ _∞



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