

IRMS standards from Elemental Microanalysis

New kelp powder IRMS standard added, expanding our IRMS range

Elemental Microanalysis has recently introduced a new IRMS standard to add to its comprehensive range – B2224, a kelp powder IRMS standard for ^{13}C , ^2H , ^{15}N , ^{18}O and ^{34}S analysis, sold in 1 g vials.

The current isotopic and elemental values for B2224 are shown below in the table.

Our R&D department plans to add further organic IRMS standards that are analysed for all five isotopic values in the future.



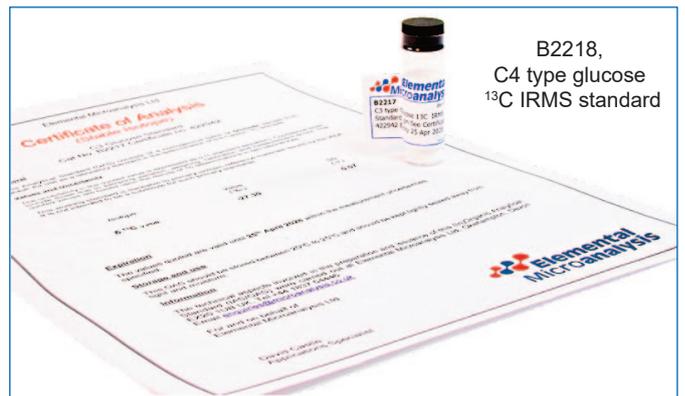
B2224, Kelp powder IRMS standard for CHNOS analysis

| B2224, Kelp powder IRMS standard for ^{13}C , ^2H , ^{15}N , ^{18}O , ^{34}S analysis | $\delta^{13}\text{C}$ ‰ | $\delta^2\text{H}$ ‰ | $\delta^{15}\text{N}$ ‰ | $\delta^{18}\text{O}$ ‰ | $\delta^{34}\text{S}$ ‰ | % C | % H | % N | % O | % S |
|--|-------------------------|----------------------|-------------------------|-------------------------|-------------------------|-------|------|------|-------|------|
| | -17.90 | -55.43 | 6.38 | 20.06 | 21.73 | 32.74 | 5.02 | 1.51 | 39.17 | 2.31 |

IRMS Standards for all your needs

Elemental's full range of IRMS standards includes a wide range of natural materials such as flour, gelatin and soils; various pure chemical standards including silver phosphate and L-alanine; and a range of water standards, including enriched waters. This wide variety of materials allows customers to find a standard that is a suitable match for the matrix of their sample, depending on their field of analysis.

The current isotopic and elemental values for our full range of IRMS standards are shown on the next page.



B2218, C4 type glucose ^{13}C IRMS standard

IRMS Water standards
B2240 to B2247



www.elementalmicroanalysis.com

These products offer the same high quality and value for money that is typical of Elemental Microanalysis' entire product range. Available to order from our ISO 9001 factory online, by email, telephone or fax. Elemental Microanalysis offers extensive knowledge of analysis, over 45 years of experience and a worldwide reputation for excellence.

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Available from your local Dealer:



| Part Number | Description | Pack | $\delta^{13}\text{C} \text{ ‰}$ | $\delta^2\text{H} \text{ ‰}$ | $\delta^{15}\text{N} \text{ ‰}$ | $\delta^{18}\text{O} \text{ ‰}$ | $\delta^{34}\text{S} \text{ ‰}$ | % Carbon | % Hydrogen | % Nitrogen | % Oxygen | % Sulfur | % TOC | $\delta^{13}\text{C-TOC} \text{ ‰}$ |
|--|---|-------|---------------------------------|------------------------------|---------------------------------|---------------------------------|---------------------------------|----------|------------|------------|----------|----------|-------|-------------------------------------|
| Interlaboratory Comparison Isotopic Standards ¹ | | | | | | | | | | | | | | |
| B2203 | IRMS standard EMA P1 | 3 g | -27.85 | -25.30 | | 20.99 | -3.01 | 61.51 | 3.46 | | 20.87 | 13.85 | | |
| B2205 | IRMS standard EMA P2 | 3 g | -28.19 | -87.80 | -1.57 | 26.88 | | 68.35 | 2.90 | 7.46 | 19.91 | | | |
| B2207 | Silver phosphate IRMS standard | 1 g | | | | 21.7 | | | | | | | | |
| B2214 | Carrara marble powder IRMS standard | 0.5 g | 2.10 | | | -2.01 | | | | | | | | |
| Isotopic Standards ² | | | | | | | | | | | | | | |
| B2153 | Low organic content soil IRMS standard OAS/isotope | 5 g | -22.88 | | 5.78 | | | 1.86 | | 0.122 | | 0.012 | | |
| B2155 | Protein IRMS standard OAS/isotope | 5 g | -26.98 | | 6.28 | | 6.18 * | 46.5 | | 13.32 | | 0.75 | | |
| B2157 | Wheat flour IRMS standard OAS/isotope | 5 g | -27.21 | | 2.73 | | -2.38 | 39.38 | | 1.36 | | 0.092 | | |
| B2159 | Sorghum flour IRMS standard OAS/isotope | 5 g | -13.78 | | 1.58 | | 10.11 | 41.26 | | 1.47 | | 0.095 | | |
| B2161 | Alfalfa ¹³ C, ¹⁵ N IRMS standard OAS/isotope | 5g | -28.32 | | 0.38 | | | 42.88 | | 3.20 | | 0.270 | | |
| B2172 | Olive oil isotopic standard for ¹³ C | 5 g | -29.06 | | | | | | | | | | | |
| B2174 | Urea isotopic standard for ¹³ C, ¹⁵ N | 5 g | -43.99 | | -0.82 | | | | | | | | | |
| B2213 | Spruce (wood) powder IRMS standard for ¹⁵ N, ¹³ C & ¹⁸ O | 3 g | -25.44 | | -4.9 | 23.59 | | 49.88 | 6.29 | 0.09 | 42.93 | | | |
| B2215 | Gelatin IRMS standard certified for ¹³ C, ¹⁵ N, ³⁴ S | 2 g | -22.98 | | 4.59 | | 0.69 | 43.18 | 6.97 | 16.33 | | 0.41 | | |
| B2216 | Caffeine IRMS standard certified for ¹³ C, ¹⁵ N | 0.5 g | -32.63 | | -3.29 | | | 49.48 | 5.16 | 28.83 | 16.47 | | | |
| B2217 | C3 type glucose ¹³ C IRMS standard | 1 g | -27.30 | | | | | 39.96 | | | | | | |
| B2218 | C4 type glucose ¹³ C IRMS standard | 1 g | -11.45 | | | | | 39.96 | | | | | | |
| B2219 | Coldwater fish gelatin IRMS standard certified for ¹³ C, ¹⁵ N, ³⁴ S | 2 g | -16.33 | | 14.71 | | 17.05 | 42.93 | 6.86 | 16.63 | | 0.43 | | |
| B2222 | Bovine gelatin powder IRMS standard certified for ¹³ C, ¹⁵ N, ³⁴ S | 2 g | -11.11 | | 7.54 | | 6.79 | 43.73 | 6.91 | 16.10 | | 0.43 | | |
| B2223 | L-alanine IRMS standard ¹³ C, ¹⁵ N | 0.5 g | -10.60 | | -2.07 | | | | | | | | | |
| B2224 | Kelp powder IRMS standard for ¹³ C, ² H, ¹⁵ N, ¹⁸ O, ³⁴ S analysis | 1 g | -17.90 | -55.43 | 6.38 | 20.06 | 21.73 | 32.74 | 5.02 | 1.51 | 39.17 | 2.31 | | |
| B2251 | Synthetic high organic content sediment IRMS standard for TC, TOC, N, S | 5 g | -24.41 | | 0.58 | | 6.46 | 7.39 | | 0.566 | | 0.605 | 7.07 | -25.95 |
| Water Isotopic Standards | | | | | | | | | | | | | | |
| B2240 | ² H & ¹⁸ O Antarctic water IRMS standard | 30 ml | | -447.88 | | -65.95 | | | | | | | | |
| B2241 | ² H & ¹⁸ O Arctic water IRMS standard | 30 ml | | -251.56 | | -37.33 | | | | | | | | |
| B2242 | ² H & ¹⁸ O Greenland water IRMS standard | 30 ml | | -111.23 | | -15.3 | | | | | | | | |
| B2243 | ² H & ¹⁸ O Icelandic water IRMS standard | 30 ml | | -50.11 | | -7.05 | | | | | | | | |
| B2244 | ² H & ¹⁸ O desert water IRMS standard | 30 ml | | 0.86 | | 0.43 | | | | | | | | |
| B2245 | ² H & ¹⁸ O slightly enriched water IRMS standard | 30 ml | | 79.69 | | 10.28 | | | | | | | | |
| B2246 | ² H & ¹⁸ O moderately enriched water IRMS standard | 30 ml | | 1348.78 | | 70.93 | | | | | | | | |
| B2247 | ² H & ¹⁸ O very enriched water IRMS standard | 30 ml | | 2505.97 | | 248.43 | | | | | | | | |

Notes 1. Interlaboratory Comparison Isotopic Standards – values derived through an international study involving 6 to 25 laboratories.

2. Isotopic Standards – values derived from data from two or more instruments on two or more runs on different days.

* Values given for information only.

Certified values vary from batch to batch - please refer to the analysis certificate on our website for values of current batch.

