

Certificate of Analysis (Elemental Composition)

Wheat Flour Standard OAS
Cat No. B2157 – Certificate No. 114858

General

This Organic Analytical Standard (OAS) consists of a homogenous batch of Wheat Flour Standard for use as a routine working microanalytical standard for the determination of Carbon, Nitrogen and Sulphur.

Certified Values and Uncertainty

The uncertainty in the certified value is expressed as expanded uncertainty, U, at 95% confidence and is calculated in accordance with ISO/IEC17025 according to GUM (Guidelines to Uncertainty in Measurement). Confidence limits include those due to sampling variation, weighing, calibration and measurement errors. The certified values are based upon the results of 15 determinations.

The certified value for Nitrogen was determined by elemental analyser calibrated to Apple leaves 1515 from National Institute of Standards and Technology (NIST), Maryland, USA.

The certified values for Carbon was determined by elemental analyser calibrated to Cystine 143d from National Institute of Standards and Technology (NIST), Maryland, USA.

The certified values for Sulphur were determined by elemental analyser calibrated to Cystine 143d from National Institute of Standards and Technology (NIST), Maryland, USA.

| <i>Element</i> | <i>Certified value</i> (% w/w) | <i>Uncertainty</i> (+/- %) |
|-----------------|-----------------------------------|-------------------------------|
| Carbon | 39.38 | 0.19 |
| Nitrogen | 1.36 | 0.23 |
| Sulphur | 0.092 | 0.006 |

Expiration of Certification

The certification of this OAS is valid until 01 May 2021 within the measurement uncertainties specified.

Storage and use

This OAS should be stored between 20°C to 25°C and should be kept tightly sealed away from light and moisture. It is non-hygroscopic under normal conditions and can be used without preliminary drying.

Certification Information

The technical aspects involved in the preparation, certification and issuance of this (In)Organic Analytical Standard (IAS/OAS) were carried out at Elemental Microanalysis Ltd, Okehampton, Devon EX20 1UB UK, Tel +44 1837 54446, Fax +44 1837 54544, Email info@microanalysis.co.uk.

For and on behalf of
Elemental Microanalysis Ltd

Jon Davies
Technical Director



Certificate of Analysis (Isotopic Composition)

Wheat Flour Standard OAS
Cat No. B2157 – Certificate No. 114858

General

This Organic Analytical Standard (OAS) consists of a homogenous batch of Wheat Flour standard for use as a routine working microanalytical standard for the determination of the Carbon, Nitrogen and Sulphur isotopes ^{13}C , ^{15}N , ^{34}S .

Certified Values and Uncertainty

The uncertainty in the certified value is expressed as expanded uncertainty, U, at 95% confidence and is calculated in accordance with ISO/IEC17025 according to GUM (Guidelines to Uncertainty in Measurement). Confidence limits include those due to sampling variation, weighing, calibration and measurement errors. The certified values are based upon the results of 15 determinations

The certified value for Carbon was determined by EA-IRMS calibrated to IAEA-CH-6 (IAEA, Vienna)
The certified value for Nitrogen was determined by EA-IRMS calibrated to IAEA-N-1 (IAEA, Vienna)
The certified value for Sulphur was determined by EA-IRMS calibrated to NBS-127 (IAEA, Vienna)

| <i>Isotope</i> | <i>Certified value</i> (‰) | <i>Uncertainty</i> (+/- ‰) |
|-----------------------------|-------------------------------|-------------------------------|
| $\delta^{13}\text{C}$ v-PDB | -27.21 | 0.13 |
| $\delta^{15}\text{N}$ AIR | +2.85 | 0.17 |
| $\delta^{34}\text{S}$ v-CDT | -1.42 | 0.80 |

Expiration of Certification

The certification of this OAS is valid until 01 May 2021 within the measurement uncertainties specified.

Storage and use

This OAS should be stored between 20°C to 25°C and should be kept tightly sealed away from light and moisture. It is non-hygroscopic under normal conditions and can be used without preliminary drying.

Certification Information

The technical aspects involved in the preparation, certification and issuance of this (In)Organic Analytical Standard (IAS/OAS) were carried out at Elemental Microanalysis Ltd, Okehampton, Devon EX20 1UB UK, Tel +44 1837 54446, Fax +44 1837 54544, Email enquires@microanalysis.co.uk

For and on behalf of
Elemental Microanalysis Ltd

Jon Davies
Technical Director

