

CERTIFICATE OF CALIBRATION

Issue:- Certificate Number: **97350**
97350_10 Date of Issue: **30-Apr-24**

Approved Signatory: **Tom Williams**

Page 1 of 2

Signed:

T. Williams



Submitter:-

Mecmesin Limited
Newton House
Spring Copse Business Park
Slinfold
West Sussex
RH13 0SZ

Issued by:-

Kent Scientific Services
8 Abbey Wood Road
Kings Hill
West Malling
Kent
ME19 4YT
Tel: 03000 415 100
Fax: 01732 220006

EQUIPMENT: Weights [Set S2](#)

SERIAL NUMBER: S201 - S227

MAKE/TYPE: N/A

STANDARDS USED: Local Standard Set 16521

DATE RECEIVED: 15 April 2024

DATE CALIBRATED: 26 April 2024

DETAILS: 27 Stainless Steel Discs

MEASUREMENTS:

Kent Scientific Services method used: CAL SMALL, Calibration of Small Masses.

The calibrations took place in a controlled environment with the temperature held between 18°C and 22°C, and with the relative humidity held between 40% and 60%.

The measurement results obtained in the table, where each measured value given represents not the true mass, but the mass of a hypothetical weight of density 8,000 kg.m⁻³, which in air of density 1.2 kg.m⁻³ would balance the corresponding weight identified in the first column at 20°C.

The method of weighing was by substitution (Borda's method). In each instance the standard weight used had been calibrated by UKAS Calibration Laboratory number 0474, 0260 or 0352 within the previous three years. The uncertainty of measurements for each of the different denominations is listed in the last column of the table. Duplicate weights, where present, are indicated by a dot or dots.

Customer supplied information is notated with a ~, and results relate only to the item(s) calibrated.

Unless otherwise notated, samples are tested in as received condition at Kent Scientific Services.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

TABLE OF MEASUREMENT RESULTS

<u>Identity Mark</u>	<u>Nominal Mass</u>	<u>Measured Value</u>	<u>Error from Nominal</u>	<u>Estimated Uncertainty</u>
S201	5N	509.605 2 g	- 3.0 mg	± 1.6 mg
S202	5N	509.611 0 g	+ 2.9 mg	± 1.6 mg
S203	10N	1019.203 9 g	- 12.4 mg	± 3.1 mg
S204	10N	1019.192 7 g	- 23.6 mg	± 3.1 mg
S205	10N	1019.184 9 g	- 31.4 mg	± 3.1 mg
S206	10N	1019.198 8 g	- 17.5 mg	± 3.1 mg
S207	10N	1019.183 5 g	- 32.8 mg	± 3.1 mg
S208	10N	1019.224 6 g	+ 8.3 mg	± 3.1 mg
S209	10N	1019.211 7 g	- 4.6 mg	± 3.1 mg
S210	10N	1019.188 4 g	- 27.9 mg	± 3.1 mg
S211	10N	1019.221 1 g	+ 4.8 mg	± 3.1 mg
S212	10N	1019.201 1 g	- 15.2 mg	± 3.1 mg
S213	10N	1019.193 9 g	- 22.4 mg	± 3.1 mg
S214	10N	1019.213 2 g	- 3.1 mg	± 3.1 mg
S215	10N	1019.198 4 g	- 17.9 mg	± 3.1 mg
S216	10N	1019.182 9 g	- 33.4 mg	± 3.1 mg
S217	10N	1019.180 4 g	- 35.9 mg	± 3.1 mg
S218	10N	1019.217 3 g	+ 1.0 mg	± 3.1 mg
S219	10N	1019.219 4 g	+ 3.1 mg	± 3.1 mg
S220	10N	1019.207 4 g	- 8.9 mg	± 3.1 mg
S221	10N	1019.181 1 g	- 35.2 mg	± 3.1 mg
S222	50N	5096.046 g	- 36 mg	± 16 mg
S223	50N	5096.028 g	- 53 mg	± 16 mg
S224	50N	5096.126 g	+ 44 mg	± 16 mg
S225	50N	5096.088 g	+ 7 mg	± 16 mg
S226	50N	5096.066 g	- 16 mg	± 16 mg
S227	50N	5096.056 g	- 26 mg	± 16 mg
S204*	10N	1019.217 4 g	+ 1.1 mg	± 3.1 mg
S205*	10N	1019.210 4 g	- 5.9 mg	± 3.1 mg
S206*	10N	1019.216 0 g	- .3 mg	± 3.1 mg
S207*	10N	1019.222 1 g	+ 5.8 mg	± 3.1 mg
S210*	10N	1019.209 1 g	- 7.2 mg	± 3.1 mg
S212*	10N	1019.224 9 g	+ 8.6 mg	± 3.1 mg
S213*	10N	1019.217 4 g	+ 1.1 mg	± 3.1 mg
S215*	10N	1019.212 6 g	- 3.7 mg	± 3.1 mg
S216*	10N	1019.212 9 g	- 3.4 mg	± 3.1 mg
S217*	10N	1019.221 4 g	+ 5.1 mg	± 3.1 mg
S219*	10N	1019.21 72 g	+ .9 mg	± 3.1 mg
S221*	10N	1019.221 1 g	+ 4.8 mg	± 3.1 mg

* Denotes post adjustment calibration

The basis for conversion between force units and mass units is that a 1kg mass will experience a force of g newtons where g is the strength of the local gravitational field. At Kent Scientific Services the estimated local $g = 9.81146 \text{ ms}^{-2}$.

END OF RESULTS

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$ providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.