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Statutory Rules 1991 No. 146

National Measurement Regulations[2] (Amendment)

I, THE GOVERNOR-GENERAL of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, hereby make the following Regulations under the *National Measurement Act 1960*.

Dated 19 June 1991.

BILL HAYDEN
Governor-General

By His Excellency's Command,

Ross V. Free
~~Minister of State for Industry, Technology and Commerce~~
Minister of State for Science and Technology

1. Amendment

1.1 The National Measurement Regulations are amended as set out in these Regulations.

2. Regulation 79 (Verification etc. of State primary standards of measurement)

2.1 Subregulation 79 (3):

Omit "and expressed".

(S.R. 251/90—Cat. No.) 14-19.4.1991

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2.2 Subregulation 79 (3):

Omit "authorized" (wherever occurring), substitute "authorised".

2.3 Add at the end:

"(4) For the purposes of paragraph (2) (b), the accuracy of the verification of a State primary standard of measurement must be expressed as an uncertainty that does not exceed:

(a) in the case of a State primary standard for the measurement of length that is of a denomination referred to in Column 1 in Schedule 31—the amount of permissible uncertainty specified in Column 2 in that Schedule in relation to that denomination; or

(b) in the case of a State primary standard for the measurement of mass that is of a denomination referred to in Column 1 in Schedule 31A—the amount of permissible uncertainty specified in Column 2 in that Schedule in relation to that denomination; or

(c) in the case of a State primary standard for the measurement of mass that is of a denomination not referred to in Column 1 in Schedule 31A—the amount of permissible uncertainty appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of permissible uncertainty specified in Column 2 in that Schedule.

"(5) For the purposes of paragraph (2) (d), the value of the standard of measurement is the value ascertained under standard reference conditions of 20° Celsius temperature and 101.325 kilopascals pressure.".

3. Regulation 80 (Verification of reference standards of measurement)

3.1 Paragraphs 80 (1) (b) and (c):

Omit "a verifying authority", substitute "an appropriate verifying authority".

3.2 Subregulation 80 (8):

Omit "and expressed".

3.3 Subregulation 80 (8):

Omit "authorized" (wherever occurring), substitute "authorised".

3.4 Subregulation 80 (9):

Omit "and expressed".

3.5 Add at the end:

"(11) For the purposes of paragraph (7) (b), the accuracy of the verification of a State secondary standard of measurement must be expressed as an uncertainty that does not exceed:

(a) in the case of a State secondary standard for the measurement of length that is of a denomination referred to in Column 1 in Schedule 31—the amount of permissible uncertainty specified

in Column 3 in that Schedule in relation to that denomination; or

(b) in the case of a State secondary standard for the measurement of mass that is of a denomination referred to in Column 1 in Schedule 31A—the amount of permissible uncertainty specified in Column 3 in that Schedule in relation to that denomination; or

(c) in the case of a State secondary standard for the measurement of volume that is of a denomination referred to in Column 1 in Schedule 31B—the amount of permissible uncertainty specified in Column 2 in that Schedule in relation to that denomination; or

(d) in the case of a State secondary standard for the measurement of mass or volume that is of a denomination not referred to in Column 1 in Schedule 31A or 31B—the amount of permissible uncertainty appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of permissible uncertainty specified:

(i) in the case of a standard for the measurement of mass—in Column 3 in Schedule 31A; or

(ii) in the case of a standard for the measurement of volume—in Column 2 in Schedule 31B.

"(12) For the purposes of paragraph (7) (b), the accuracy of the verification of a State tertiary standard of measurement must be expressed as an uncertainty that does not exceed:

(a) in the case of a State tertiary standard for the measurement of mass that is of a denomination referred to in Column 1 in Schedule 31A—the amount of permissible uncertainty specified in Column 4 in that Schedule in relation to that denomination; or

(b) in the case of a State tertiary standard for the measurement of volume that is of a denomination referred to in Column 1 in Schedule 31B—the amount of permissible uncertainty specified in Column 3 in that Schedule in relation to that denomination; or

(c) in the case of a State tertiary standard for the measurement of mass or volume that is of a denomination not referred to in Column 1 in Schedule 31A or 31B—the amount of permissible uncertainty appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of permissible uncertainty specified:

(i) in the case of a standard for the measurement of mass—in Column 4 in Schedule 31A; or

(ii) in the case of a standard for the measurement of volume—in Column 3 in Schedule 31B.

"(13) For the purposes of paragraph (7) (b), the accuracy of the verification of an Inspectors' Class 1 standard of measurement must be expressed as an uncertainty that does not exceed:

(a) in the case of an Inspectors' Class 1 standard for the measurement of length that is of a denomination referred to in Column 1 in Schedule 32—the amount of permissible uncertainty specified in Column 2 in that Schedule in relation to that denomination; or

(b) in the case of an Inspectors' Class 1 standard for the measurement of area that is of a denomination referred to in Column 1 in Schedule 32A—the amount of permissible uncertainty specified in Column 2 in that Schedule in relation to that denomination; or

(c) in the case of an Inspectors' Class 1 standard for the measurement of mass that is of a denomination referred to in Column 1 in Schedule 32B—the amount of permissible uncertainty specified in Column 2 in that Schedule in relation to that denomination; or

(d) in the case of an Inspectors' Class 1 standard for the measurement of volume that is of a denomination referred to in Column 1 in Schedule 32C—the amount of permissible uncertainty specified in Column 2 in that Schedule in relation to that denomination; or

(e) in the case of an Inspectors' Class 1 standard for the measurement of area, mass or volume that is of a denomination not referred to in Column 1 in Schedule 32A, 32B or 32C—the amount of permissible uncertainty appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of uncertainty specified:

(i) in the case of a standard for the measurement of area—in Column 2 in Schedule 32A; or

(ii) in the case of a standard for the measurement of mass—in Column 2 in Schedule 32B; or

(iii) in the case of a standard for the measurement of volume—in Column 2 in Schedule 32C.

"(14) For the purposes of paragraph (7) (b), the accuracy of the verification of an Inspectors' Class 2 standard of measurement must be expressed as an uncertainty that does not exceed:

(a) in the case of an Inspectors' Class 2 standard for the measurement of length that is of a denomination referred to in Column 1 in Schedule 32—the amount of permissible uncertainty specified in Column 4 in that Schedule in relation to that denomination; or

(b) in the case of an Inspectors' Class 2 standard for the measurement of mass that is of a denomination referred to in

Column 1 in Schedule 32B—the amount of permissible uncertainty specified in Column 4 in that Schedule in relation to that denomination; or

(c) in the case of an Inspectors' Class 2 standard for the measurement of mass that is of any other denomination—the amount of permissible uncertainty appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of permissible uncertainty specified in Column 4 in that Schedule.

"(15) For the purposes of paragraph (7) (b), the accuracy of the verification of an Inspectors' Class 3 standard of measurement must be expressed as an uncertainty that does not exceed:

(a) in the case of an Inspectors' Class 3 standard for the measurement of mass that is of a denomination referred to in Column 1 in Schedule 32B—the amount of permissible uncertainty specified in Column 6 in that Schedule in relation to that denomination; or

(b) in the case of an Inspectors' Class 3 standard for the measurement of mass that is of any other denomination—the amount of permissible uncertainty appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of permissible uncertainty specified in Column 6 in that Schedule.

"(16) For the purposes of paragraph (7) (d), the value of the standard of measurement must be:

(a) the value ascertained under standard reference conditions of 20° Celsius temperature and 101.325 kilopascals of pressure; or

(b) in respect of a standard of measurement of a substance or thing in relation to which reference conditions are specified in a determination of the Commission under subregulation (17), the value ascertained under those conditions.

"(17) For the purposes of paragraph (16) (b), the Commission may, from time to time, determine the conditions under which the value of a reference standard of measurement for a particular substance or thing shall be ascertained.

"(18) Notice of a determination made under subregulation (17) must be given by, or on behalf of, the Commission, to each verifying authority that is a verifying authority in relation to a reference standard of measurement to which the determination relates.

"(19) In this regulation:

'verifying authority' includes any person authorised by the Organisation to sign and issue certificates:

(a) under paragraph 78A (1) (b); or

(b) under paragraph 79 (1) (b).".

4. Regulation 81 (Cancelling of certificates)

4.1 Paragraph 81 (2) (b):

Omit the paragraph, substitute:

"(b) in the case of a certificate issued by a verifying authority referred to in regulation 80, an officer or employee of such a verifying authority or a person empowered by such a verifying authority under subparagraph 80 (6) (b) (ii) to sign and issue certificates:

(i) by the Commission; or

(ii) by the verifying authority; or

(iii) by a person authorised in writing by the Commission to cancel a certificate of that kind.".

5. Regulation 82 (Permissible variations in certain subsidiary standards of measurement—Schedule 31)

5.1 Omit the regulation, substitute:

Permissible variation in certain reference standards of measurement

"82. (1) Subject to subregulation (3), a standard for the measurement of length, area, mass or volume, being an Inspectors' Class 1 standard of measurement, an Inspectors' Class 2 standard of measurement or an Inspectors' Class 3 standard of measurement, that, on verification, is found not to be inaccurate by an amount exceeding the relevant permissible variation in relation to its denomination has, for the purposes of the certificate referred to in regulation 80, a value equal to that denomination.

"(2) For the purposes of subregulation (1), **'relevant permissible variation'** means:

(a) in the case of an Inspectors' Class 1 standard for the measurement of length, area, mass or volume that is of a denomination referred to in Schedule 32, 32A, 32B or 32C (as the case requires)—the amount specified in Column 3 in that Schedule in relation to that denomination; or

(b) in the case of an Inspectors' Class 1 standard for the measurement of area, mass or volume that is not of a denomination referred to in Column 1 in Schedule 32A, 32B or 32C—the amount appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of permissible variation specified:

(i) in the case of a denomination of area—in Column 3 in Schedule 32A; or

(ii) in the case of a denomination of mass—in Column 3 in Schedule 32B; or

(iii) in the case of a denomination of volume—in Column 3 in Schedule 32C; or

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(c) in the case of an Inspectors' Class 2 standard for the measurement of length or mass that is of a denomination referred to in Column 1 of Schedule 32 or 32B (as the case requires)—the amount specified, in relation to that denomination:

(i) in the case of a denomination of length—in Column 5 in Schedule 32; or

(ii) in the case of a denomination of mass—in Column 5 in Schedule 32B; or

(d) in the case of an Inspectors' Class 2 standard for the measurement of mass that is of a denomination not referred to in Column 1 in Schedule 32B—the amount appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of permissible variation specified in Column 5 in that Schedule; or

(e) in the case of an Inspectors' Class 3 standard for the measurement of mass that is of a denomination referred to in Column 1 in Schedule 32B—the amount specified in Column 7 in that Schedule in relation to that denomination; or

(f) in the case of an Inspectors' Class 3 standard for the measurement of mass that is of a denomination not referred to in Column 1 in Schedule 32B—the amount appropriate to that denomination when the mathematical method known as linear interpolation is applied to the amounts of permissible variation specified in Column 7 in that Schedule.

"(3) A standard of measurement referred to in this regulation must not be taken to have a value equal to the value of a particular denomination of length, area, mass or volume, unless the accuracy with which that standard is verified is of an uncertainty that does not exceed the amount of permissible uncertainty referred to in respect of that denomination:

(a) in the case of an Inspectors' Class 1 standard of measurement—in subregulation 80 (13); or

(b) in the case of an Inspectors' Class 2 standard of measurement—in subregulation 80 (14); or

(c) in the case of an Inspectors' Class 3 standard of measurement—in subregulation 80 (15).".

6. Regulation 83 (Permissible variations in certain subsidiary standards of measurement—Schedule 32)

6.1 Omit the regulation, substitute:

Uncertainty

"83. A reference in this Part to an amount of uncertainty in relation to the accuracy of verification of a standard of measurement is a reference to an uncertainty calculated on the basis that there is not

more than 1 chance in 100 that the verified value of the standard of measurement differs from the true value by more than the calculated uncertainty.".

7. Regulation 85 (Additional legal units of measurement for use in futures contracts)

7.1 Omit the regulation.

8. Schedule 31 (Permissible variation upon verification or reverification of certain subsidiary standards of measurement)

8.1 Omit the Schedule, substitute:

SCHEDULE 31

Regulations 79 and 80

PERMISSIBLE UNCERTAINTY—LENGTH (STATE PRIMARY STANDARDS AND STATE SECONDARY STANDARDS)

PART 1—FLEXIBLE STANDARDS

Column 1	Column 2	Column 3
Denomination	Permissible uncertainty: State primary standard	Permissible uncertainty: State secondary standard
Denominations not exceeding 10 metres	± 0.1mm	± 0.2mm
Denominations exceeding 10 metres	± 0.001%	±0.002%

PART 2—RIGID STANDARDS

Column 1	Column 2	Column 3
Denomination	Permissible uncertainty: State primary standard	Permissible uncertainty: State secondary standard
Denominations not exceeding one metre	± 0.01mm	± 0.02mm

SCHEDULE 31A

Regulations 79 and 80

PERMISSIBLE UNCERTAINTY—MASS (STATE PRIMARY STANDARDS, STATE SECONDARY STANDARDS AND STATE TERTIARY STANDARDS)

Column 1 Denomination	Column 2 Permissible uncertainty: State primary standard (in milligrams)	Column 3 Permissible uncertainty: State secondary standard (in milligrams)	Column 4 Permissible uncertainty: State tertiary standard (in milligrams)
50 kilograms		150	200
25 kilograms		75	100
20 kilograms	20	60	80
10 kilograms	10	30	40
5 kilograms	5	15	20
2 kilograms	2	6	13
1 kilogram	1	3	9
500 grams	0.5	1.5	6.5
200 grams	0.2	0.6	4.2
100 grams	0.1	0.3	3.0
50 grams	0.05	0.15	2.1
20 grams	0.02	0.06	1.3
10 grams	0.01	0.03	0.9
5 grams	0.01	0.03	0.65
2 grams	0.01	0.03	0.42
1 gram	0.01	0.03	0.30
500 milligrams	0.005	0.015	0.21
200 milligrams	0.005	0.015	0.13
100 milligrams	0.005	0.015	0.09
50 milligrams	0.002	0.006	0.06
20 milligrams	0.002	0.006	0.04
10 milligrams	0.002	0.006	0.03
5 milligrams	0.002	0.006	0.02
2 milligrams	0.002	0.006	0.01
1 milligram	0.002	0.006	0.01

SCHEDULE 31B

Regulation 80

PERMISSIBLE UNCERTAINTY—VOLUME (STATE SECONDARY STANDARDS AND STATE TERTIARY STANDARDS)

Column 1 Denomination	Column 2 Permissible uncertainty: State secondary standard (in millilitres)	Column 3 Permissible uncertainty: State tertiary standard (in millilitres)
10 000 litres	1 000	2 000
5 000 litres	500	1 000
2 000 litres	200	400
1 000 litres	100	200
500 litres	50	100
200 litres	20	40
100 litres	10	20
50 litres	5	9
20 litres	2	5
15 litres	1.5	4
10 litres	1.0	3
5 litres	0.5	2
2 litres	0.2	1
1 litre	0.1	0.6
500 millilitres	0.05	0.4
250 millilitres	0.02	0.26
200 millilitres	0.02	0.22
100 millilitres	0.01	0.14
50 millilitres	0.005	0.09
25 millilitres	0.005	0.06
20 millilitres	0.005	0.05
10 millilitres	0.005	0.03
5 millilitres	0.005	0.02
2 millilitres	0.005	0.01
1 millilitre	0.002	0.006
0.5 millilitre	0.001	0.003
0.2 millilitre	0.001	0.003
0.1 millilitre	0.001	0.003

9. Schedule 32 (Permissible variation upon verification or reverification of certain subsidiary standards of measurement that are constructed of iron)

9.1 Omit the Schedule, substitute:

SCHEDULE 32

Regulation 82

PERMISSIBLE UNCERTAINTY AND PERMISSIBLE VARIATION—LENGTH (INSPECTORS' CLASS 1 STANDARDS AND INSPECTORS' CLASS 2 STANDARDS)

PART 1—FLEXIBLE STANDARDS

Column 1 Denomination	Column 2 Permissible uncertainty: Inspectors' Class 1 standard	Column 3 Permissible variation: Inspectors' Class 1 standard	Column 4 Permissible uncertainty: Inspectors' Class 2 standard	Column 5 Permissible variation: Inspectors' Class 2 standard
Denominations not exceeding 10 metres	± 0.5mm	± 1.5mm	± 1.5mm	± 5.0mm
Denominations exceeding 10 metres	± 0.005%	± 0.015%	± 0.015%	± 0.05%

PART 2—RIGID STANDARDS

Column 1 Denomination	Column 2 Permissible uncertainty: Inspectors' Class 1 standard	Column 3 Permissible variation: Inspectors' Class 1 standard	Column 4 Permissible uncertainty: Inspectors' Class 2 standard	Column 5 Permissible variation: Inspectors' Class 2 standard
Denominations not exceeding 500 millimetres	± 0.05mm	± 0.15mm		
Denominations exceeding 500 millimetres but not exceeding one metre	± 0.05mm	± 0.2mm		
Denominations exceeding 1 metre but not exceeding 2 metres	± 0.07mm	± 0.2mm		

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SCHEDULE 32A

Regulation 82

PERMISSIBLE UNCERTAINTY AND PERMISSIBLE VARIATION—AREA (INSPECTORS' CLASS 1 STANDARDS)

Column 1 Denomination (in square decimetres)	Column 2 Permissible uncertainty (in square decimetres)	Column 3 Permissible variation (in square decimetres)
Denominations not exceeding 35	0.06	0.18
40	0.07	0.20
50	0.08	0.25
60	0.10	0.30
70	0.12	0.35
80	0.13	0.40
90	0.15	0.45
100	0.17	0.50
150	0.25	0.75

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SCHEDULE 32B

Regulations 80 and 82

PERMISSIBLE UNCERTAINTY AND PERMISSIBLE VARIATION—MASS (INSPECTORS' CLASS 1 STANDARDS, INSPECTORS' CLASS 2 STANDARDS AND INSPECTORS' CLASS 3 STANDARDS)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Denomination	Permissible uncertainty: Inspectors' Class 1 standard (in milligrams)	Permissible variation: Inspectors' Class 1 standard (in milligrams)	Permissible uncertainty: Inspectors' Class 2 standard (in milligrams)	Permissible variation: Inspectors' Class 2 standard (in milligrams)	Permissible uncertainty: Inspectors' Class 3 standard (in milligrams)	Permissible variation: Inspectors' Class 3 standard (in milligrams)
1 000 kilograms					23 300	70 000
500 kilograms					11 600	35 000
200 kilograms					4 600	14 000
100 kilograms					2 300	7 000
50 kilograms	200	200	200	400	1 150	3 500
25 kilograms	100	100	100	200	580	1 750
20 kilograms	80	80	80	160	500	1 550
10 kilograms	40	40	40	80	360	1 100
5 kilograms	20	28	20	55	260	780
2 kilograms	13	18	13	35	165	500
1 kilogram	9	13	9	25	115	350
500 grams	6.5	9	6.5	18	80	250
200 grams	4.2	6	4.2	11	50	160
100 grams	3.0	4	3.0	8	35	110
50 grams	2.1	3	2.1	5		
20 grams	1.3	2	1.3	3.5		
10 grams	0.9	1.5	0.9	2.5		
5 grams	0.65	1.0	0.65	2.0		
2 grams	0.42	0.6	0.42	1.0		
1 gram	0.30	0.4	0.30	0.8		
500 milligrams	0.21	0.3	0.21	0.6		
200 milligrams	0.13	0.2	0.13	0.35		
100 milligrams	0.09	0.15	0.09	0.25		
50 milligrams	0.06	0.10	0.06	0.20		
20 milligrams	0.04	0.06	0.04	0.10		
10 milligrams	0.03	0.04	0.03	0.08		
5 milligrams	0.02	0.03	0.02	0.06		
2 milligrams	0.01	0.02	0.01	0.035		
1 milligram	0.01	0.02	0.01	0.025		

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SCHEDULE 32C

Regulation 82

PERMISSIBLE UNCERTAINTY AND PERMISSIBLE VARIATION—VOLUME (INSPECTORS' CLASS 1 STANDARDS)

Column 1 Denomination	Column 2 Permissible uncertainty (in millilitres)	Column 3 Permissible variation (in millilitres)
10 000 litres	2 000	6 000
5 000 litres	1 000	3 000
2 000 litres	400	1 200
1 000 litres	200	600
500 litres	100	300
200 litres	40	120
100 litres	20	60
50 litres	9	27
20 litres	5	15
15 litres	4	12
10 litres	3	9
5 litres	2	6
2 litres	1	3
1 litre	0.6	2
500 millilitres	0.4	1.2
250 millilitres	0.26	0.8
200 millilitres	0.22	0.7
100 millilitres	0.14	0.4
50 millilitres	0.09	0.27
25 millilitres	0.06	0.17
20 millilitres	0.05	0.15
10 millilitres	0.03	0.09
5 millilitres	0.02	0.06
2 millilitres	0.01	0.03
1 millilitre	0.006	0.02
0.5 millilitre	0.003	0.01
0.2 millilitre	0.003	0.01
0.1 millilitre	0.003	0.01

10. Schedule 35 (Additional legal units of measurement for use in futures contracts)

10.1 Omit the Schedule.

NOTES

1. Notified in the *Commonwealth of Australia Gazette* on k 1991. 26 June/

2. Statutory Rules 1961 No. 142 as amended by 1963 No. 126; 1964 No. 146; 1965 No. 13; 1968 No. 150; 1970 No. 40; 1972 Nos. 62, 133 and 160; 1973 Nos. 68 and 253; 1977 No. 150; 1979 No. 65; 1981 No. 195; 1983 No. 64; 1984 Nos. 195 and 231; 1985 No. 315; 1986 Nos. 172 and 399; 1988 Nos. 258 and 259~~; 1989 No. 325~~.

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