



Statutory Rules 1986 No. 1

172/

National Measurement Regulations² (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 25 JUNE 1986.

BY APPOINTMENT

Governor-General

By His Excellency's Command,

BARRY O. JONES
Minister of State for Science

Commencement

1. These Regulations shall come into operation on 1 July 1986.

Principal Regulations

2. In these Regulations, "Principal Regulations" means the National Measurement Regulations.

Units of measurement of mass

3. Regulation 8 of the Principal Regulations is amended by adding at the end the following sub-regulation—

"(4) The troy ounce, being a unit of measurement equal to 480(0.453 592 37)/7 000 of a kilogram, is an additional legal unit of measurement of mass for use—

- (a) for the purpose of ascertaining the mass of precious metals; or
- (b) for the purpose of contracts, dealings or other transactions made or entered into for any work, goods or other thing that is to be done, sold, carried or agreed for by measurement of the mass of precious metals,

and may be referred to by the symbol 'oz tr'."

The Degree

4. Regulation 17 of the Principal Regulations is amended by omitting from sub-regulation (2), “this regulation” and substituting “sub-regulation (1)”.

Units of measurement of velocity and speed

5. Regulation 24 of the Principal Regulations is amended by adding at the end the following sub-regulation—

“(4) The foot per minute, being a unit of measurement equal to $0.3048/60$ of a metre per second, is an additional legal unit of measurement of velocity and speed for use—

- (a) for the purpose of measuring vehicular vertical speed; or
- (b) for the purpose of contracts, dealings or other transactions made or entered into for any work, goods or other thing that is to be done, sold, carried or agreed for by measurement of vehicular vertical speed,

and may be referred to by the symbol ‘ft/min’.”.

Units of measurement of work and energy

6. Regulation 30 of the Principal Regulations is amended by adding at the end the following sub-regulation—

“(4) The kilocalorie, being a unit of measurement equal to 4.1868×10^3 joules, is an additional legal unit of measurement of work and energy for use—

- (a) for the purpose of measuring food energy values; or
- (b) for the purpose of contracts, dealings or other transactions made or entered into for any work, goods or other thing that is to be done, sold, carried or agreed for by measurement of food energy values,

and may be referred to by the symbol ‘kcal’.”.

Units of measurement of power

7. Regulation 32 of the Principal Regulations is amended by adding at the end the following sub-regulations—

“(5) Horsepower, being a unit of measurement equal to 745.7 watts, is an additional legal unit of measurement of power for use—

- (a) for the purpose of measuring engine ratings in the aviation industry;
- (b) for the purpose of contracts, dealings or other transactions made or entered into for any work, goods or other thing that is to be done, sold, carried or agreed for by measurement of engine ratings in the aviation industry;
- (c) for the purpose of measuring engine ratings in defence equipment; or
- (d) for the purpose of contracts, dealings or other transactions made or entered into for any work, goods or other thing that is to be done,

sold, carried or agreed for by measurement of engine ratings in defence equipment,
and may be referred to by the symbol 'hp'.

“(6) In this regulation, ‘defence equipment’ means equipment used, or intended for use, by the Department of Defence.”.

Units of measurement of pressure

8. Regulation 34 of the Principal Regulations is amended by adding at the end the following sub-regulations—

“(5) The millibar, being a unit of measurement equal to 100 pascals, is an additional legal unit of measurement for pressure for use—

- (a) for the purpose of measuring air pressure in relation to aviation; or
- (b) for the purpose of contracts, dealings or other transactions made or entered into for any work, goods or other thing that is to be done, sold, carried or agreed for by measurement of air pressure,

and may be referred to by the symbols ‘mb or mbar’.

“(6) A millimetre of mercury, being a unit of measurement equal to 133.322 19 pascals, is an additional legal unit of measurement of pressure for use—

- (a) for the purpose of measuring blood pressure; or
- (b) for the purpose of contracts, dealings or other transactions made or entered into for any work, goods or other thing that is to be done, sold, carried or agreed for by measurement of blood pressure,

and may be referred to by the symbol ‘mmHg’.”.

9. Regulation 84 of the Principal Regulations is repealed and the following regulations substituted:

Conversion factors

“84. (1) For the purposes of section 11 of the Act, the conversion factor specified in Column 4 of an item in Schedule 33 is prescribed for the purpose of converting a measurement of a physical quantity expressed in terms of the Australian legal unit of measurement of that physical quantity specified in Column 2 of that item to a measurement expressed in terms of the Australian legal unit of measurement specified in Column 3 of that item.

“(2) For the purposes of section 11 of the Act, the conversion factor specified in Column 4 of an item in Schedule 34 is prescribed for the purpose of converting a measurement of a physical quantity expressed in terms of a unit of measurement (not being an Australian legal unit of measurement) of that physical quantity specified in Column 2 of that item to a measurement expressed in terms of the Australian legal unit of measurement specified in Column 3 of that item.

Additional legal units of measurement for use in futures contracts

“85. (1) The unit of measurement specified in Column 2 of an item in Schedule 35, being a unit of measurement of a physical quantity specified in Column 3 of the item, is an additional legal unit of measurement for use for the purpose of futures contracts.

“(2) An additional legal unit of measurement specified in Column 2 of an item in Schedule 35 is related to the Australian legal unit of measurement specified in Column 4 of that item as specified in Column 5 of that item.

“(3) In this regulation ‘futures contract’ has the same meaning as that expression has in the *Futures Industry Act 1986*.”

Schedule 3

10. Schedule 3 to the Principal Regulations is amended by omitting items 13 to 21 (inclusive) and items 23 to 25 (inclusive).

Schedule 4

11. Schedule 4 to the Principal Regulations is amended by omitting items 17 to 26 (inclusive).

Schedule 9

12. Schedule 9 to the Principal Regulations is amended by omitting items 6 and 7.

Schedule 12

13. Schedule 12 to the Principal Regulations is amended by omitting items 12 to 14 (inclusive).

Schedule 13

14. Schedule 13 to the Principal Regulations is amended by omitting item 9.

Schedule 14

15. Schedule 14 to the Principal Regulations is amended by omitting items 7 and 8.

Schedule 31

16. Schedule 31 to the Principal Regulations is amended—

(a) by omitting Parts D, E, I, J and K; and

(b) by omitting Part G and substituting the following Part—

G Standards of Measurement of Mass expressed in terms of the troy ounce

	Permissible variation in milligrams
Denominations exceeding 300 troy ounces	Twenty six hundredths of the denomination in troy ounces
Denominations exceeding five troy ounces but not exceeding 300 troy ounces	Nineteen hundredths of the square root of four hundred and eighty times the denomination in troy ounces
Denominations not exceeding five troy ounces	0.02

Schedule 32

17. Schedule 32 to the Principal Regulations is amended by omitting Part B.

Addition of Schedules 33, 34 and 35

18. The Principal Regulations are amended by adding the following Schedules:

SCHEDULE 33

Regulation 84

CONVERSION FACTORS

Column 1 Item	Column 2 Unit of measurement	Column 3 Unit of measurement	Column 4 Factor
Length			
1.	mile	metre	1 609.344
2.	chain	metre	22(0.914 4)
3.	yard	metre	0.914 4
4.	link	metre	22(0.914 4)/100
Area			
5.	square yard	square metre	(0.914 4) ²
6.	square foot	square metre	(0.914 4) ² /9
7.	square inch	square metre	(0.914 4) ² /1 296
8.	acre	square metre	4 840 (0.914 4) ²
9.	rood	square metre	1 210 (0.914 4) ²
10.	perch	square metre	30.25 (0.914 4) ²

SCHEDULE 34

Regulation 84

CONVERSION FACTORS

Column 1 Item	Column 2 Unit of measurement	Column 3 Unit of measurement	Column 4 Conversion Factor
Mass			
1.	ton	kilogram	2 240 (0.453 592 37)
2.	short ton (sh tn)	kilogram	2 000 (0.453 592 37)

Column 1 Item	Column 2 Unit of measurement	Column 3 Unit of measurement	Column 4 Conversion factor
3.	hundredweight (cwt)	kilogram	112 (0.453 592 37)
4.	quarter (qr)	kilogram	28 (0.453 592 37)
5.	stone	kilogram	14 (0.453 592 37)
6.	pound (lb)	kilogram	0.453 592 37
7.	ounce (oz)	kilogram	(0.453 592 37)/16
8.	dram (dr)	kilogram	(0.453 592 37)/256
9.	grain (gr)	kilogram	(0.453 592 37)/7 000
10.	slug	kilogram	32.174 (0.453 592 37)
11.	troy ounce (oz tr)	kilogram	480 (0.453 592 37)/7 000
12.	pennyweight (dwt)	kilogram	24 (0.453 592 37)/7 000
Volume			
13.	cubic yard (cu yd or yd ³)	cubic metre	(0.914 4) ³
14.	cubic foot (cu ft or ft ³)	cubic metre	(0.914 4) ³ /27
15.	cubic inch (cu in or in ³)	cubic metre	(0.914 4) ³ /46 656
16.	gallon (gal)	cubic metre	4.546 09 × 10 ⁻³
17.	quart (qt)	cubic metre	(4.546 09 × 10 ⁻³)/4
18.	pint (pt)	cubic metre	(4.546 09 × 10 ⁻³)/8
19.	gill	cubic metre	(4.546 09 × 10 ⁻³)/32
20.	fluid ounce (fl oz)	cubic metre	(4.546 09 × 10 ⁻³)/160
21.	fluid drachm (fl dr)	cubic metre	(4.546 09 × 10 ⁻³)/1 280
22.	minim (min)	cubic metre	(4.546 09 × 10 ⁻³)/76 800
Velocity and Speed			
23.	mile per hour (mile/h or mph)	metre per second	1 609.344/3 600
24.	mile per hour	kilometre per hour	1.609 344
25.	foot per minute (ft/min)	metre per second	0.304 8/60
Work and Energy			
26.	kilocalorie (kcal)	joule	4.186 8 × 10 ³
27.	calorie (cal)	joule	4.186 8
28.	British thermal unit (Btu)	joule	1 055.056
Power			
29.	horsepower (hp)	watt	745.7
Pressure			
30.	millimetre of mercury (mm Hg)	pascal	133.322 19
31.	millibar (mb or mbar)	pascal	100

SCHEDULE 35

Regulation 85

ADDITIONAL LEGAL UNITS OF MEASUREMENT FOR USE IN FUTURES
CONTRACTS

Column 1 Item	Column 2 Additional legal unit of measurement	Column 3 Physical Quantity	Column 4 Australian legal unit of measurement	Column 5 Relationship to Australian legal unit of measurement
1.	ton	mass	kilogram	2 240 (0.453 592 37)
2.	short ton	mass	kilogram	2 000 (0.453 592 37)
3.	hundredweight	mass	kilogram	112 (0.453 592 37)
4.	quarter	mass	kilogram	28 (0.453 592 37)
5.	stone	mass	kilogram	14 (0.453 592 37)
6.	pound	mass	kilogram	0.453 592 37
7.	ounce	mass	kilogram	(0.453 592 37)/16
8.	dram	mass	kilogram	(0.453 592 37)/256
9.	grain	mass	kilogram	(0.453 592 37)/7000
10.	slug	mass	kilogram	32.174 (0.453 592 37)
11.	troy ounce	mass	kilogram	480 (0.453 592 37)/7 000
12.	pennyweight	mass	kilogram	24 (0.453 592 37)/7 000
13.	cubic yard	volume	cubic metre	$(0.914 4)^3$
14.	cubic foot	volume	cubic metre	$(0.914 4)^3/27$
15.	cubic inch	volume	cubic metre	$(0.914 4)^3/466 56$
16.	gallon	volume	cubic metre	$4.546 09 \times 10^{-3}$
17.	quart	volume	cubic metre	$(4.546 09 \times 10^{-3})/4$
18.	pint	volume	cubic metre	$(4.546 09 \times 10^{-3})/8$
19.	gill	volume	cubic metre	$(4.546 09 \times 10^{-3})/32$
20.	fluid ounce	volume	cubic metre	$(4.546 09 \times 10^{-3})/160$
21.	fluid drachm	volume	cubic metre	$(4.546 09 \times 10^{-3})/1 280$
22.	minim	volume	cubic metre	$(4.546 09 \times 10^{-3})/76 800$
23.	mile per hour	velocity and speed	metres per second	1609.344/3 600
24.	foot per minute	velocity and speed	metres per second	0.304 8/60
25.	kilocalorie	work and energy	joule	$4.186 8 \times 10^3$
26.	calorie	work and energy	joule	4.186 8
27.	British thermal unit	work and energy	joule	1055.056
28.	horsepower	power	watt	745.7
29.	millibar	pressure	pascal	100
30.	millimetre of mercury	pressure	pascal	133.322 19

NOTES

1. Notified in the *Commonwealth of Australia Gazette* on 6 1986.
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.

30 June/