Tonga

WEIGHTS AND MEASURES ACT

Chapter 40.32

2016 Revised Edition

WEIGHTS AND MEASURES ACT

Arrangement of Sections

Section

WEIGHTS AND MEASURES ACT

AN ACT TO PROVIDE FOR THE ESTABLISHMENT AND USE THROUGHOUT THE KINGDOM OF UNIFORM STANDARDS OF MEASUREMENT AND UNIFORM UNITS OF MEASUREMENT AND TO REGULATE ALL MATTERS PERTAINING THERETO[1]

Commencement [30th January, 1981]

1 Short title

This Act may be cited as the Weights and Measures Act.

2 Interpretation

In this Act, unless the context otherwise requires —

"**Inspector**" means an inspector of weights and measures appointed under section 7 of this Act;

"**Legal unit of measurement**" means a unit specified in accordance with section 5 of this Act;

"**Metric system of measurement**" means the same as in section 2 of the Metrication Act;

"**Minister**" means the Minister responsible for commerce;[2]

"**Non-metric**" means being excluded from the metric system of measurement;

"**Physical quantity**" means the same as in section 2 of the Metrication Act;

"**SI unit**" means a unit of the International System of Units for the time being approved by the General Conference of delegates of member states of the Metre Convention and which is listed in Schedule I to the Metrication Act[3];

"**Sub-inspector**" means a sub-inspector of weights and measures appointed under section 7 of this Act;

"**Weighing or measuring machine**" means any contraption, device, gadget or thing used for weighing, measuring, counting, recording or ascertaining weight, mass, volume, capacity, length or any physical quantity.

3 Standard weights and measures of the Kingdom

(1) Subject to the provisions of subsection (2) hereof, the several weights and measures more particularly described in Schedule A hereto, which, by virtue of this Act, the Minister is authorised to deposit in his Ministry, and such other weights and measures as may from time to time be deposited therein by the Minister with the consent of Cabinet either in addition thereto or in substitution therefore shall be there safely kept and shall be the standard weights and measures of the Kingdom for the time being.[4]

(2) The several weights and measures described in Part II of Schedule A, hereto as from the 30th day of June 1980 cease to be standard weights and measures of the Kingdom.

4 Copies to be made

(1) It shall be lawful for the Minister to cause copies and models of the several weights and measures so deposited in the Ministry as aforesaid to be made and deposited with inspectors or sub-inspectors of weights and measures as he may in writing direct for the purposes of this Act.

(2) Every such copy or model shall be legibly impressed or engraven by the Minister with the word and letters: "COPY S.W." or "COPY S.M." signifying standard weight or standard measure as the case may be, and with the denomination of such weight or measure.

(3) Any person who shall falsify, injure, remove or otherwise interfere with such copies or models without lawful justification shall be liable upon conviction before a magistrate to a fine not exceeding $100.

5 Legal units of measurement

(1) The several units of measurement specified in Schedule E and subject to the provisions of subsection (2) hereof, the several units specified in Schedule F hereto shall be the legal units of measurement of the Kingdom for the time being.

(2) The several units of measurement specified in Schedule F hereto shall as from the 30th day of June 1980 cease to be legal units of measurement of the Kingdom.

6 Use of non-legal units invalid

No contract, agreement, transaction or any dealing shall be enforceable in any court of law if the same has been done or carried out or agreed to be done or carried out in any unit of measurement other than a legal unit of measurement which existed at the time of making of such contract, agreement, transaction or dealing:

Provided that this provision shall not apply to any contract, agreement, transaction or dealing in connection with the exportation of goods from or the importation of goods into the Kingdom.

7 Re-appointment of inspectors etc.

Any person who was at the date of the commencement of this Act an inspector or sub-inspector of weights and measures under the Weights and Measures Act repealed hereunder, is hereby appointed an inspector or sub-inspector of weights and measures as the case may be:

Provided that the Minister may, with the consent of Cabinet, appoint, dismiss, discipline or otherwise deal with any person appointed hereunder or appointed in addition thereto for the purpose of this Act.

8 Comparing of weights and measures

(1) It shall be lawful for any person to bring any weight, measurement or weighing or measuring machine to an inspector or sub-inspector with whom copies or models have been deposited in accordance with Section 4 hereof for the purpose of comparing or checking of the same. He shall pay such fees as shall be required in accordance with Schedule B hereto.

(2) Such inspector or sub-inspector shall upon such comparison being made issue to such person a certificate, a copy of which he shall retain, of the particulars contained in Schedule C and Schedule D hereto.

(3) Any inspector or sub-inspector refusing to compare any weights, measures, weighing or measuring machine brought to him during official working hours for comparison shall be liable upon conviction before a magistrate to a fine not exceeding $100.[5]

9 Using weights and measures not compared or stamped

Every person for the purpose of any contract, bargain or sale who shall use any weight or measure weighing or measuring machine other than such as shall have

been compared and stamped under the provisions hereof and every person who shall use any weight or measure other than those authorized by this Act and the Regulations thereto or an aliquot part or multiple thereof or which shall be found light or otherwise unjust shall on conviction be liable to a fine not exceeding $100 and any contract bargain or sale made by such weights or measures shall be wholly null and void and every such light or unjust weight or measure shall on being discovered by the inspector appointed as aforesaid be seized and shall be forfeited.

10 Weights and measures to be stamped

All weights shall have the exact mass contained therein stamped, impressed or cast on the top or side thereof in legible figures and letters and all measures of capacity shall have their contents denominated stamped or marked on the outside of such measures respectively in legible figures and letters.

11 Weights made of lead or pewter not to be used

No weight made of lead or pewter or any mixture thereof shall be stamped or used provided always that nothing herein contained shall prevent the use of lead or pewter or of any mixture thereof in the manufacture of weights if they be wholly and substantially cased with brass copper or iron and legibly stamped or marked (cased) or shall prevent the insertion of such a plug of lead or pewter into such weights as shall be bona fide necessary for the purpose of adjusting them and of affixing thereon the stamps hereinafter mentioned.

12 Penalty for forging, etc. stamps and for using weights marked with forged stamps, etc.

If any person make forge or counterfeit or cause or procure to be made forged or counterfeited or knowingly act or assist in the making, forging or counterfeiting any stamp brand or mark used for stamping or marking of any weights or measures under this Act such person shall on conviction be liable to a fine not exceeding $500 and if any person shall knowingly sell, utter, dispose of or expose for sale any weight or measure with such forged or counterfeit stamp brand or mark thereon he shall on conviction be liable for every such offence to a fine not exceeding $200.[6]

13 Power of entry and examination

It shall be lawful for any inspector or sub-inspector of weights and measures at all reasonable times to enter any shop, storehouse, warehouse, stall, yard or place whatsoever wherein goods shall be kept or exposed for sale or shall be weighed or measured for purchase, conveyance or carriage and there to examine all weights, measures, steelyards or other weighing or measuring machines and to compare and try the same with the copies of standard weights and measures required and authorised to be provided under this Act and —

(i) if upon such examination it shall appear that the said weights are light or otherwise unjust or if it shall appear that such measures steelyards or other weighing machines are incorrect or otherwise unjust the same shall be liable to be seized and forfeited and the person in whose possession the same shall be found shall upon conviction thereof be liable to a fine not exceeding $500 unless such weights or such weighing machines shall have been used or shall be such as is commonly used to weigh gold, silver, platinum or diamonds or other precious metals or stones in which cases such penalty shall be any sum not exceeding $1,000; or[7]

(ii) if upon such examination it shall appear that the said weights, measures, steelyards or other weighing or measuring machines are correct and in accordance with the standard weights and measures provided under this Act, and that the same have not been similarly examined within 6 months previously, the inspector or sub-inspector shall issue to the person in possession of the same in respect of each weighing or measuring machine, a certificate, a copy of which the inspector or sub-inspector shall retain of the particulars contained in Schedules C and D of this Act, upon that person having paid to the inspector, in respect of each certificate, a fee of $5.[8]

14 Penalty for obstructing inspector or sub-inspector

If any person wilfully obstructs, resists, hinders or opposes an inspector or sub-inspector of weights and measures in the execution of his office or if any person selling, conveying or carrying by weight or measure refuses to produce and deliver his weights, measures, steelyards or other weighing machines to such inspector or sub-inspector he shall on conviction for every offence be liable to a fine not exceeding $100.[9]

15 Limitations of actions

All actions brought against any person for anything done in pursuance or in the intended execution of this Act shall be laid and brought within 3 months after cause of action shall have arisen and the defendant in such action may plead a general denial and give the special matter in evidence at the trial to be had thereupon.

16 Regulations

The Minister may with consent of Cabinet make regulations prescribing any matter which may be necessary or desirable for carrying out or giving effect to this Act.[10]

SCHEDULE A

(Section 3)

SCHEDULE OF STANDARD WEIGHTS AND MEASURES OF THE KINGDOM

PART I:

Standard Weights and Measures of the Metric System of Measurement.

Mass:	one kilogram
Length:	one metre
Volume (capacity):	one litre

PART II:

Standard Weights and Measures of Systems other than the Metric System of Measurement.

Mass:

Avoirdupois

fifty-six pounds
twenty-eight pounds
fourteen pounds
seven pounds
four pounds
two pounds
one pound
one-half pound
one-quarter pound
two ounces
one ounce

Length:

one yard
one foot
one inch

Volume (Capacity):

three gallons
one gallon

SCHEDULE B[11]

(Section 8)

SCHEDULE OF FEES TO BE COLLECTED BY INSPECTOR OF WEIGHTS AND MEASURES UNDER THE AUTHORITY OF THIS ACT

PART I:

Weights and Measures of the Metric System of Measurement.

For examining and comparing weights, including stamping:

Each twenty kilograms	$4.00
Each ten kilograms	$3.00
Each five kilograms	$2.00
Each weight under five kilograms	$1.00

For examining, comparing and stamping each weighing machine:

Possessing a capacity of or in excess of fifty kilograms	$10.00
Possessing a capacity of less than fifty kilograms	$5.00

For examining and comparing measures of volume or capacity including stamping when necessary:

For every five litres or part thereof	$1.00

For examining, comparing and stamping each flow meter or multiple reading volume measuring machine:

Possessing a capacity of or in excess of fifty litres	$10.00
Possessing a capacity of less than fifty litres	$5.00

PART II:

Weights and Measures of Systems other than the Metric System of Measurement:

For examining and comparing weights, including stamping—

Each half hundredweight	$4.00
Each quarter hundredweight	$3.00
Each fourteen pounds	$2.00
Each weight under fourteen pounds	$1.00

For examining and comparing and stamping each weighing machine:

Possessing a capacity of or in excess of one hundredweight	$10.00
Possessing a capacity of less than one hundredweight	$5.00

For examining and comparing all measures of capacity and length, including stamping when necessary:

Each bushel	$4.00
Each half bushel	$3.00
Each peck or measure less than one peck	$2.00
Each yard	$1.00

For examining, comparing and stamping all measures of capacity of liquids made of copper or other metal:

Each five gallons	$4.00
Each four gallons	$3.00
Each three gallons	$2.00
Each gallon or measure less than one gallon	$1.00

For examining, comparing and stamping each flowmeter or multiple reading volume measuring machine:

Possessing a capacity of or in excess of ten gallons	$10.00
Possessing a capacity of less than ten gallons	$5.00

SCHEDULE C

(Section 8)

MINUTE OF COMPARISON

Owner of Weights and Measures						Denomination of								
						Weight		Measure						
						Capacity			Length					
						Metric	Other	Metric	Other	Metric	Other			

Remarks
Fees Paid
When Compared

What Trade
Place of Business
Christian name
Surname alphabetically
No.

SCHEDULE D

(Section 8)

CERTIFICATE OF COMPARISON

I hereby certify that the above is a true copy of the minute of comparison made by me on the day of 20

(Date) (Signed)

Comparing Officer.

SCHEDULE E

(Section 5)

PRESCRIBED LEGAL UNITS OF MEASUREMENT OF THE METRIC SYSTEM OF MEASUREMENT

1. (1) Legal units of measurement of the metric system of measurement are hereby prescribed for the physical quantities referred to in Section 2 *et seq* hereunder listed.

(2) The definition of the SI unit for each physical quantity shall be that accorded by the General Conference of Weights and Measures which, or the equivalent of which is reproduced in Appendix A to this Schedule.

(3) For each physical quantity a unit of measurement specified in the first column may be referred to by the symbol specified in the second column opposite the reference to that unit in the first column.

(4) For each physical quantity the units of measurement specified in the first column are related to the SI unit of that physical quantity as respectively specified in the third column.

(5) An entry in the fourth column against a unit in the first column implies that a prohibition, restriction or provision as the case may be shall apply in respect of that unit.

2. (1) The SI unit of length is the metre.

(2) The legal units of measurement of length are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Length in metres**	**Fourth Column Prohibitions, Restrictions or Provisions**
international nautical mile	n mile	1852	Limited to use for purposes of navigation (aerial and marine) and meteorology only.
kilometre	km	1000	
metre	m	1	
centimetre	cm	0,01	
millimetre	mm	0,001	
micrometre	um	0,000001	

3. (1) The SI unit of area is the square metre.

(2) The legal units of measurement of mass are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Area in square metres**	**Fourth Column Prohibitions, Restrictions or Provisions**
square kilometre	km^2	1000000	
hectare	ha	10000	

First Column Name of Unit	Second Column Symbol	Third Column Area in square metres	Fourth Column Prohibitions, Restrictions or Provisions
square metre	m^2	1	
square centimetre	cm^2	0,0001	
square millimetre	mm^2	0,000001	

4. (1) (a) The SI unit of mass is the kilogram.

(b) The units of mass are commonly referred to as units of weight.

(2) The legal units of measurement of area are as follows:

First Column Name of Unit	Second Column Symbol	Third Column Mass in kilograms	Fourth Column Prohibitions, Restrictions or Provisions
kilotonne	kt	1000000	
tonne	t	1000	
kilogram	kg	1	
gram	g	0,001	
milligram	mg	0,000001	
microgram	ug	0,000000001	

5. (1) The SI unit of volume is the cubic metre.

(2) The legal units of measurement of volume are as follows:

First Column Name of Unit	Second Column Symbol	Third Column Volume in cubic metres	Fourth Column Prohibitions, Restrictions or Provisions
megalitre	ML	1000	
cubic metre	m^3	1	
kilolitre	kL	1	
litre	L	0,001	
cubic centimetre	cm^3	0,000001	
millilitre	mL	0,000001	
cubic millimetre	mm^3	0,000000001	
microlitre	uL	0,000000001	

6. (1) THE SI unit of density is the kilogram per cubic metre.

(2) The legal units of measurement of density are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Density in kilograms per cubic metre**	**Fourth Column Prohibitions, Restrictions or Provisions**
tonne per cubic metre	t/m^3	1000	Limited to use for purposes of measurement of density of grains or seeds
kilogram per litre	kg/L	1000	
kilogram per hectolitre	kg/hL	10	
kilogram per cubic metre	kg/m^3	1	

7. (1) The SI unit of time interval is the second.

(2) The legal units of measurement of time interval are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Time interval in seconds**	**Fourth Column Prohibitions, Restrictions or Provisions**
day	d	86400	
hour	h	3600	
minute	min	60	
second	s	1	
millisecond	ms	0,001	
microsecond	us	0,000001	

8. (1) The SI unit of frequency is the hertz.

(2) The legal units of measurement of frequency are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Frequency in Hertz**	**Fourth Column Prohibitions, Restrictions or Provisions**
megahertz	MHz	1000000	
kilohertz	khHz	1000	
hertz	Hz	1	
revolution per second	r/s	1	Limited to rotational frequency only
revolution per minute	r/min	1/60	

9. (1) The SI unit of velocity or speed is the metre per second.

(2) The legal units of measurement of velocity or speed are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Velocity or speed in metres per second**	**Fourth Column Prohibitions, Restrictions or Provisions**
metre per second	m/s	1	Limited to use for purposes of navigation (aerial and marine) and meteorology.
knot	kn	463/900	
kilometre per hour	km/h	5/18	
millimetre per second	mm/s	0,001	

10. (1) The SI unit of acceleration is the metre per second squared.

(2) Its symbol is m/s^2.

11. (1) The SI unit of force is the newton.

(2) The legal units of measurement of force are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Force in Newtons**	**Fourth Column Prohibitions, Restrictions or Provisions**
kilonewton	kN	1000	
newton	N	1	
millinewton	mN	0,001	

12. (1) The SI unit of work and energy is the joule.

(2) The legal units of measurement of work or energy are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Work or Energy in joules**	**Fourth Column Prohibitions, Restrictions or Provisions**
gigajoule	GJ	1000000000	
megajoule	MJ	1000000	
kilo joule	kJ	1000	
joule	J	1	

13. (1) The SI unit of power is the watt.

(2) The legal units of measurement of power are as follows:

First Column Name of Unit	Second Column Symbol	Third Column Power in watts	Fourth Column Prohibitions, Restrictions or Provisions
gigawatt	GW	1000000000	
megawatt	MW	1000000	
kilowatt	kW	1000	
watt	W	1	
milliwatt	mW	0,001	
microwatt	uW	0,000001	

14. (1) The SI unit of pressure and stress is the pascal.

(2) The legal units of measurement of pressure and stress are as follows:

First Column Name of Unit	Second Column Symbol	Third Column Pressure or stress in pascals	Fourth Column Prohibitions, Restrictions or Provisions
megapascal	MPa	1000000	
kilopascal	kPa	1000	
pascal	Pa	1	
millipascal	mPa	0,001	

15. (1) The SI unit of dynamic viscosity is the pascal second.

(2) Its symbol is Pa.s.

16. (1) The SI unit of kinematic viscosity is the square metre per second. (2) Its symbol is m^2/s.

17. (1) The SI unit of electric current is the ampere.

(2) The legal units of measurement of electric current are as follows:

First Column Name of Unit	Second Column Symbol	Third Column Electric current in amperes	Fourth Column Prohibitions, Restrictions or Provisions
ampere	A	1	
milliampere	mA	0,001	
microampere	uA	0,000001	

18. (1) The SI unit of potential difference and electromotive force is the volt.

(2) The legal units of measurement of potential difference or electromotive force are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Potential difference or electromotive force in volts**	**Fourth Column Prohibitions, Restrictions or Provisions**
megavolt	MV	1000000	
kilovolt	kV	1000	
volt	V	1	
millivolt	mV	0,001	
microvolt	uV	0,000001	

19. (1) The SI unit of electrical resistance is the ohm.

(2) The legal units of measurement of electrical resistance are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Electrical resistance in ohms**	**Fourth Column Prohibitions, Restrictions or Provisions**
gigohm	GΩ	1000000000	
megohm	MΩ	1000 000	
kilohm	kΩ	1000	
ohm	Ω	1	
milliohm	mΩ	0,001	
microhm	uΩ	0,000001	

20. (1) The SI unit of conductance is the siemens.

(2) Its symbol is S.

21. (1) The SI unit of magnetic flux is the weber.

(2) Its symbol is Wb.

22 .(1) The SI unit of inductance is the henry.

(2) Its symbol is H.

23. (1) The SI unit of electric charge is the coulomb.

(2) Its symbol is C.

24. (1) The SI unit of capacitance is the farad.

(2) Its symbol is F.

25. (1) The SI unit of magnetic flux density is the tesla.

(2) Its symbol is T.

26. (1) The SI unit of temperature interval is the kelvin.

(2) The legal units of measurement of temperature interval are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Temperature in kelvins**	**Fourth Column Prohibitions, Restrictions or Provisions**
kelvin	K	1	The degree Centigrade was an earlier name for the degree Celsius. It is no longer a legal unit
degree Celsius	°C	1	

27. (1) The SI unit of thermodynamic temperature is the kelvin.

(2) The legal units of measurement of temperature are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Temperature in kelvins**	**Fourth Column Prohibitions, Restrictions or Provisions**
kelvin	K	1	The Centigrade temperature was an earlier name for the Celsius temperature. The degree Centigrade is no longer a legal unit
degree Celsius	°C	The Celsius temperature, C is given the relationship °C = K-273,15 where K is thermodynamic temperature expressed in kelvins.	

28. (1) The SI supplementary unit of plane angle is the radian.

(2) The legal units of measurement of plane angle are as follows

First Column Name of Unit	**Second Column Symbol**	**Third Column Plane angle in radians**	**Fourth Column Prohibitions, Restrictions or Provisions**
radian	1	rad	
degree	Π/180	°	
minute	Π/10800	'	
second	Π/648000	‘‘	

where Π is the ratio of the circumference of a circle to its diameter and is approximately equal to 3,14159, which value shall satisfy any legal requirements.

29. (1) The SI supplementary unit of solid angle is the steradian.

(2) Its symbol is sr.

30. (1) The SI unit of luminous intensity is the candela.

(2) Its symbol is cd.

31.(1) The SI unit of luminous flux is the lumen.

(2) Its symbol is lm.

32. (1) The SI unit of illuminance is the lux.

(2) Its symbol is lx.

33. (1) The SI unit of amount of substance is the mole.

(2) Its symbol is mol.

34. (1) The SI unit for activity (of a nuclide) is the becquerel.

(2) Its symbol is Bq.

35. (1) The SI unit for absorbed dose (of radiation) is the gray.

(2) its symbol is Gy.

36. (1) The SI unit for mass per unit area or area density is the kilogram per square metre.

(2) The legal units of measurement of mass per unit area or area density are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Mass per unit area or area density in kilograms per square metre**	**Fourth Column Prohibitions, Restrictions or Provisions**
kilogram per square metre	kg/m^2	1	
gram per square metre	g/m^2	0,001	

37. (1) The SI unit of mass per unit length or linear density is the 2p10 and 5d5 of the kryton--86 atom.

(2) The legal units of measurement of mass or linear density are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Mass per unit area or area density in kilograms per square metre**	**Fourth Column Prohibitions, Restrictions or Provisions**
kilogram per metre	kg/m	1	Limited to the measurement of filaments, fibres yarns, cords and cordages
kilotex	ktex	0,001	
tex	tex	0,000001	
decitex	dtex	0,0000001	

Appendix A to Schedule E

Definitions of SI units referred to in Schedule E

1. The metre is the length equal to 1650763,73 wavelengths in vacuum of the radiation corresponding to the transition between the 2p and 5d of the krypton-86 atom.
2. The square metre is the area of a square each side of which is one metre in length.
3. The kilogram is the mass equal to the mass of the international prototype of the kilogram.
4. The cubic metre is the volume of a cube each side of which is one metre in length.
5. The kilogram per cubic metre is the density of a uniform substance a mass of one kilogram of which occupies a volume of one cubic metre.
6. The second is the duration of 9192631770 periods of the radiation corresponding to the transition between two hyperfine levels of the ground state of the caesium-133 atom.
7. The hertz is the frequency of a regularly recurrent phenomenon that repeats itself once every second.
8. The metre per second is the mean velocity or the mean speed of a point that moves its position rectilinearly a distance of one metre in one second.
9. The metre per second squared is the mean acceleration of a point that changes its velocity by one metre per second in one second.
10. The newton is the force which when applied to a body having a mass of one kilogram, causes an acceleration of one metre per second squared in the direction of application of the force.
11. The joule is the work done or the energy expended when a force of one newton moves the point of application a distance of one metre in the direction of that force.
12. The watt is the power used when work is done or energy is expended at the rate of one joule per second.
13. The pascal is the pressure or stress resulting from a force of one newton applied uniformly over an area of one square metre.
14. The pascal second is the dynamic viscosity of a fluid for which there is a tangential force of one newton on one square metre of either of two infinite parallel planes one metre apart when —
    (a) the space between those planes is filled with the fluid;
    (b) one of the planes moves with a velocity of one metre per second in its own plane relative to the other; and

(c) the movement of the fluid is laminar.

15. The square metre per second is the kinematic viscosity of a fluid having a dynamic viscosity of one pascal second and a density of one kilogram per cubic metre.

16. The ampere is the constant electric current which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section, and placed one metre apart in vacuum, would produce between these conductors a force equal to 0,0000002 newton per metre of length.

17. The volt is the potential difference between two points of a conducting wire carrying a constant current of one ampere, when the power dissipated between these points is equal to one watt.

18. The ohm is the electrical resistance between two points of a conductor when a constant potential difference of one volt, applied to these points, produces in the conductor a current of one ampere, the conductor not being the seat of any electromotive force.

19. The siemens is the electrical conductance of a conductor that has an electrical resistance of one ohm.

20. The weber is the magnetic flux which linking a circuit of one turn, would produce in it an electromotive force of one volt if it were reduced to zero at a uniform rate in one second.

21. The henry is the inductance of a closed circuit in which electromotive force of one volt is produced when the electric current in the circuit varies uniformly at the rate of one ampere per second.

22. The coulomb is the quantity of electricity carried in one second by a current of one ampere.

23. The farad is the capacitance of a capacitor between the plates of which there appears a potential difference of one volt when it is charged by a quantity of electricity of one coulomb.

24. The tesla is the magnetic flux density which arises when a magnetic flux of one weber is distributed uniformly over an area of one square metre where the area is perpendicular to the direction of the magnetic flux.

25. The kelvin, unit Of thermodynamic temperature is the fraction 1/273,16 of the thermodynamic temperature of the triple point of water.

26. The radian is the plane angle between two radii of a circle which cut off on the circumference and are equal in length to the radius.

27. The steradian is the solid angle that has its vertex in the centre of a sphere and cuts off an area of the surface of the sphere equal to that of a square with sides of length equal to the radius of the sphere.

28. The candela is the luminous intensity, in the perpendicular direction of a surface of 1/600000 square metre of a black body at the temperature of freezing platinum under a pressure of 101325 pascals.

29. The lumen is the luminous flux emitted into one steradian by an isotropic point source having a luminous intensity of one candela.

30. The lux is the illuminance which arises when a luminous flux of one lumen is emitted uniformly from an area of one square metre.

31. The mole is the amount of substance of a system which contains as many elementary entities as there are atoms in 0,012 kilogram of carbon l2.

32. The becquerel is the activity of a radio nuclide that is undergoing one disintegration per second.

33. The gray is the absorbed dose of ionising radiation when one joule is imparted to one kilogram of irradiated matter.

34. The kilogram per square metre is the mass per unit area or area density of a lamina of a uniform substance of constant thickness, one square metre of which has a mass of one kilogram.

35. The kilogram per metre is the mass per unit length or linear density of a uniform substance of constant cross-sectional area one metre length of which has a mass of one kilogram.

SCHEDULE F

(Section 5)

PRESCRIBED LEGAL UNITS OF MEASUREMENT OF NON-METRIC SYSTEMS OF MEASUREMENT

1. (1) Legal units of measurement of non-metric systems of measurement are hereby prescribed for the physical quantities referred to in Section 2 *et seq* hereunder listed.

(2) For each physical quantity the conversion factor which relates a non-metric unit of measurement to the SI unit of measurement of that physical quantity and which is stated in any of the succeeding sections is hereby prescribed.

(3) For each physical quantity a unit of measurement specified in the first column may be referred to by the symbol, if any, specified in the second column.

(4) For each physical quantity the units of measurement specified in the first column are related to the non-metric unit of measurement for which a conversion factor is prescribed as respectively specified in the third column.

(5) An entry in the fourth column opposite a unit in the first column implies that a prohibition, restriction or provision as the case may be shall apply in respect of that unit.

2. (1) The yard is 0.9144 metre.

(2) The legal non-metric units of measurement of length are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Length in yards**	**Fourth Column Prohibitions, Restrictions or Provisions**
mile		1760	
chain	ch	22	
fathom	fm	2	
yard	yd	1	
foot	ft	1/3	
link	Ik	22/100	
inch	in	1/36	

3. (1) The square yard is the area of a square each side of which is one yard in length.

(2) For all legal purposes one square yard shall be deemed to be equal to 0.83613 square metre.

(3) The legal non-metric units of measurement of area are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Area in square yards**	**Fourth Column Prohibitions, Restrictions or Provisions**
square mile	sq mile	3097600	
acre	ac	4840	
rood	rd	1210	
perch	p	30¼	
square chain	ch^2	484	
square yard	yd^2	1	
square foot	ft^2	1/9	
square inch	in^2	1/1296	

4. (1) The pound avoirdupois is 0,45359237 kilogram.

(2) The legal non-metric units of measurement of mass are as follows:

(a) First Column Name of Unit	**Second Column Symbol**	**Third Column Mass in pound avoirdupois**	**Fourth Column Prohibitions, Restrictions or Provisions**
ton		2240	Limited to the measurement and sale of flour and oatmeal
short ton	sh tn	2000	
hundredweight	cwt	112	
pound	lb	1	
ounce	oz	1/16	
dram	dr	1/256	
grain	gr	1/7000	
(b) First Column Name of Unit	**Second Column Symbol**	**Third Column Mass in pound avoirdupois**	**Fourth Column Prohibitions, Restrictions or Provisions**
troy ounce	oz tr	480	Limited to use for the sale and description of gold, silver, platinum, diamonds and other precious metals and stones
pennyweight	dwt	24	
grain	gr	1	

5. (1) The cubic yard is the volume of a cube each side of which is one yard in length.

(2) The gallon is 0,00454609 cubic metre.

(3) For all legal purposes one cubic yard shall be deemed equal to 0,764555 cubic metre.

(4) The legal non-metric units of measurement of volume are as follows:

(a) First Column Name of Unit	**Second Column Symbol**	**Third Column Volume in cubic yards**	**Fourth Column Prohibitions, Restrictions or Provisions**
cubic yard	yd3	1	
cubic foot	ft3	1/27	
cubic inch	in3	1/46656	
(b) First Column Name of Unit	**Second Column Symbol**	**Third Column Volume in gallons**	**Fourth Column Prohibitions, Restrictions or Provisions**
bushel	bus	8	Limited to use for dry measurement only
peck		2	
gallon	gal	1	
quart	qt	1/4	
pint	pt	1/8	
fluid ounce	fl oz	1/160	

6. (1) The foot per second is the mean velocity or the mean speed of a point that moves its position rectilinearly a distance of one foot in one second.

(2) One foot per second is equal to 0,3048 metres per second.

(3) The legal non-metric units of velocity or speed are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Velocity or speed in feet per second**	**Fourth Column Prohibitions, Restrictions or Provisions**
mile per hour	mph	$1\ ^{7}/_{15}$	
foot per second	ft/s	1	
foot per minute	ft/min	1/60	

7. The legal non-metric units of work and energy and their legal conversion factors are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Work or Energy in joules**	**Fourth Column Prohibitions, Restrictions or Provisions**
kilowatt hour	kW.h	3600000	Limited to use for measurement of electrical energy only
kilocalorie	kcal	4186,8	
International table calorie	calit	4186,8	Limited to use for measurement of energy of foodstuff (commonly known as "the calorie")
British thermal unit	Btu	1055,06	

8. (1) The legal non-metric unit of power is the horsepower.

(2) Its symbol is hp.

(3) For all legal purposes, one horsepower is deemed to be equal to 745,7 watts.

9. The legal non-metric units of pressure and stress and their legal conversion factors are as follows:

First Column Name of Unit	**Second Column Symbol**	**Third Column Pressure or stress in pascals**	**Fourth Column Prohibitions, Restrictions or Provisions**
poundforce per square inch	lbf/in2 or psi	6894,76	Limited to use for measurement and description of pressure
inch of mercury	in Hg	3386,4	
foot of water	ftH20	2983,7	
centimetre of mercury	cmHg	1333,22	
inch of water	inH20	248,64	Limited to use for measurement and description of atmospheric pressure
millibar	mb	100	

ENDNOTES

[1] Act 17 of 1978
Amended by Act 13 of 1997, commencement 29 October 1997
Amended by Act 4 of 1998, commencement 2 September 1998
Amended by Act 5 of 2012, commencement 30 July 2012
[2] Amended by Acts 42 of 2010 and 5 of 2012
[3] Cap. 22.16
[4] Amended by Act 42 of 2010
[5] Amended by Act 4 of 1998
[6] Amended by Act 4 of 1998
[7] Amended by Act 4 of 1998
[8] Amended by Act 13 of 1997
[9] Amended by Act 4 of 1998
[10] Amended by Act 42 of 2010
[11] Amended by Act 4 of 1998