INTERNATIONAL SYSTEM OF UNITS (SI) ACT

Act 6 of 1984 – 1 July 1984

ARRANGEMENT OF SECTIONS

INTERNATIONAL SYSTEM OF UNITS (SI) ACT

1. Short title

This Act may be cited as the International System of Units (SI) Act.

2. Interpretation

In this Act—

"Minister" means the Minister to whom responsibility for the subject of industry is assigned;

"quantity" means any physical characteristic which may be measured;

"SI unit" means a unit of the International System of Units approved by the General Conference on Weights and Measures (CGPM) established under the Metre Convention of 1875;

"vessel" has the same meaning as in the Ports Act.

3. Units to be used

(1) Subject to subsection (4), the measurement of any quantity shall be expressed in terms of SI units.

(2) The SI units shall consist of—

(a) base units;

(b) supplementary units; and

(c) derived units.

(3) For the purposes of subsection (2)—

(a) base units—

(i) are units specified in the second column;

(ii) shall be used in respect of the corresponding quantity specified in the first column,

of the First Schedule;

(b) supplementary units—

(i) are units specified in the second column;

(ii) shall be used in respect of the corresponding quantity specified in the first column,

of the Second Schedule;

(c) derived units—

(i) are units which are derived from base units or supplementary units or both;

(ii) (A) include the units specified in the second column;

(B) shall be used in respect of the corresponding quantity specified in the first column,

of the Third Schedule.

(4) The units specified in the second column of the Fourth Schedule may be used for the measurement of the corresponding quantity specified in the first column of that Schedule.

4. Multiples and sub-multiples

(1) Subject to subsections (2) and (3), the multiples and sub-multiples of the units mentioned in section 3 shall be those specified in the first column of the Fifth Schedule.

(2) The multiples and sub-multiples of the units of mass shall be expressed by using the prefixes and symbols specified in the Fifth Schedule in relation to the word "gram", which is represented by the symbol "g".

(3) (a) Any multiple or sub-multiple of a unit mentioned in section 3, other than that specified in the Fifth Schedule, shall be expressed in powers of 10 or in terms of a decimal function.

(b) For the purposes of paragraph (a), the decimal sign shall be indicated by a point.

5. Symbols and prefixes

No person shall, in relation to any unit mentioned in section 3, its multiple or sub-multiple, use a symbol or prefix, other than the symbol or prefix specified in the appropriate Schedule.

6. Regulations

The Minister may—

(a) make such regulations as he thinks fit for the purposes of this Act;

(b) by regulations, amend the Schedules.

7. Offences

Any person who fails to comply with this Act or any regulations made under it shall commit an offence and shall, on conviction, be liable to a fine not exceeding 2,000 rupees and to imprisonment for a term not exceeding one year.

8. —

9. Application of Act

This Act shall not apply to any measurement of quantity—

(a) in respect of a vessel for the purposes of any tax, licence, fee or dues;

(b) in sea or air navigation or meteorology.

10. The State

This Act shall bind the State.

[S. 10 amended by Act 48 of 1991.]

11. —

FIRST SCHEDULE

[Section 3 (3) (a)]

Quantity	Base unit	Symbol	Definition
length	metre	m	The metre is the distance travelled by light in a vacuum during 1 299 792 458 of a second.
mass	kilogram	kg	The kilogram is the unit of mass; it is equal to the mass of the international prototype of the kilogram.
time	second	s	The second is the duration of 9 192 631 770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium-133 atom.

FIRST SCHEDULE—*continued*

Quantity	Base unit	Symbol	Definition
electric current	ampere	A	The ampere is that constant current which, if maintained in 2 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 2×10^{-7} newton per metre length of conductor.
thermodynamic temperature	kelvin	K	The kelvin, unit of thermodynamic temperature, is the fraction 1/273.16 of the thermodynamic temperature of the triple point of water.
luminous intensity	candela	cd	The candela is the luminous intensity in a given direction of a source which emits monochromatic radiation of frequency 540×10^{12} hertz and of which the radiant intensity in that direction is 1/683 watt per steradian.
amount of substance	mole	mol	The mole is the amount of substance of a system which contains as many elementary entities as there are atoms on 0.012 kilogram of carbon-12. When the mole is used, the elementary entities must be specified and may be atoms, molecules, ions, electrons, other particles or specified groups of such particles.

SECOND SCHEDULE

[Section 3 (3) (b)]

Quantity	Supplementary unit	Symbol	Definition
plane angle	radian	rad	The radian is the plane angle between two radii of a circle which cut off on the circumference an arc equal in length to the radius.
solid angle	steradian	sr	The steradian is the solid angle which, having its vertex in the centre of a sphere, 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.

THIRD SCHEDULE

[Section 3 (3) (c)]

Quantity	Derived unit	Symbol	Definition in terms of other SI units
frequency	hertz	Hz	1/s
force	newton	N	mkg/s^2
pressure	pascal	Pa	N/m^2
energy, work, quantity of heat	joule	J	Nm
power, energy flux	watt	W	J/s
quantity of electricity, electric charge	coulomb	C	As
electric tension, electric potential	volt	V	W/A
electric capacitance	farad	F	C/V
electric resistance	ohm	W	V/A
conductance	siemens	S	A/V
magnetic flux	weber	Wb	Vs
magnetic flux density	tesla	T	Wb/m^2
inductance	henry	H	Wb/A
luminous flux	lumen	lm	cdsr
illuminance	lux	lx	$cd\ sr/m^2$
activity (radioactive)	becquerel	Bq	1/s
absorbed dose (of ionising radiation)	gray	Gy	J/kg
dose equivalent (of ionising radiation)	sievert	Sv	J/kg

FOURTH SCHEDULE

[Section 3 (4)]

Quantity	Name of unit	Symbol	Equivalent
plane angle	degree	–°	1° = (p/180) rad
	arcminute	–'	1' = (1/60)°
	arcsecond	–"	1″ = (1/60)'
area	hectare	ha	1 ha = $10^4 m^2$
volume	litre	L*	1 L = 1 dm^3
			*The symbol ℓ is also permitted for litre.
time	day	d	1 d = 24 h
	hour	h	1 h = 60 min
	minute	min	1 min = 60 s
velocity	kilometre per hour	km/h	–
flow rate ..... (volume basis)	litre per second	L/s	–
rotational frequency	revolution per second	r/s	–
	revolution per minute	r/min	1 r/min = 1/60 r/s
mass	tonne	t	1 t = 10^3kg
	metric carat	CM	1 CM = 0.2 g
linear density ..... (mass per unit length)	tex	tex	1 tex = 1 g/km
flow rate	tonne per second	t/s	–
(mass basis)	tonne per hour	t/h	–
dynamic viscosity	poise	P	1 P = 0.1 Pa. s
kinematic viscosity	stoke	St	1 St = 100 mm^2/S
energy, work	watt hour	Wh	1Wh = 3.6 kJ
temperature	degree Celsius	°C	The Celsius temperature (t) is equal to the difference between the thermodynamic temperature T and 273.15 K
electric charge, quantity of electricity	ampere hour	Ah	1 Ah = 3.6 kC
apparent power	volt ampere	VA	–
reactive power	var	var	var 1 var - 1 VA reactive power
molar volume	litre per mole	L/mol	

FOURTH SCHEDULE—*continued*

Quantity	Name of unit	Symbol	Equivalent
sound power level	decibel	dB	The sound power level in decibels is equal to 10 times the logarithm to the base 10 of the ratio of the measured power to a reference sound power (1 pW).
concentration	mole per litre	mol/L	
pressure	bar	bar	1 bar = 100 kPa
	millimetre of mercury	mm Hg	1 millimetre of Mercury = 133.322 Pa

[Fourth Sch. amended by GN 80 of 1989.]

FIFTH SCHEDULE

[Section 4]

Multiples and sub-multiples	Prefix	Symbol
10^{18}	exa	E
10^{15}	peta	P
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{2}	hecto	h
10^{1}	deca	da
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	m
10^{-9}	nano	n
10^{-12}	pico	p
10^{-15}	femto	f
10^{-18}	atto	a

SIXTH SCHEDULE

[Section 8]

Unit	Equivalent	Size in appropriate SI unit		Expiry period
inch (in)	–	0.025 4	m	
foot (ft)	12 inches	0.304 8	m	
yard (yd)	3 feet	0.914 4	m	
mile	1760 yards	1609.344	m	
pouce (French)	–	0.027 070 1	m^2	2 years
pied (French)	12 pouces (French)	0.324 841	m	
toise	6 pieds (French)	1.949 05	m	
gaulette (length)	10 pieds (French)	3.248 41	m	
perche	2 gaulettes	6.496 82	m	
Unit of area				
square inch (in^2)	–	0.000 645 16	m^2	
square foot (ft^2)	144 square inches	0.092 903 0	m^2	
square yard (yd^2)	9 square feet	0.836 127	m^2	
square mile ($mile^2$)	–	2.589 99	km^2	
pied carré (French)	–	0.105 522	m^2	
toise carrée	36 pieds carrés (French)	3.798 78	m^2	2 years
perche carrée	400 pieds carrés (French)	42.208 7	m^2	
arpent	100 perches carrées (French)	4 220.87	m^2	
gaulette (area)	10x5 pieds carrés (French)	5.276 09	m^2	
Unit of volume				
cubic inch (in^3)	–	16.387 1	cm^3	
cubic foot (ft^3)1	1 728 cubic inches	0.028 316 8	m^3	
cubic yard (yd^3)	27 cubic feet	0.764 555	m^3	
UK fluid ounce	–	28.413 1	cm^3	
UK pint	20 UK fluid ounces	0.568 261	dm^3	1 year
UK quart	2 UK pints	1.136 52	dm^3	
UK gallon	4 UK quarts	4.546 09	dm^3	
peg	–	46	cm^3	
topette	–	50	cm^3	
Unit of volumetric flow rate				
pouce fontainier	0.007 833 cubic foot/second	21.805	cm^3/s	1 year
Unit of mass				
ounce (oz)	–	28.349 5	g	

SIXTH SCHEDULE—*continued*

Unit	Equivalent	Size in appropriate SI unit		Expiry period
UK (and US) ..... pound (lb)	16 ounces.....	0.453 592 37	kg	
UK (long) ton	2 240 pounds	1 016.05	kg	
UK (short) ton	2 000 pounds	907.185	kg	1 year
UK (and US) ..... ounce troy	–	31.103 5	g	
tola	–	10	g	
Unit of force				
pound force (lbf)*.....	–	4.448.22	N	5 years
kilogram force (kgf)*..	–	9.806.65	N	
Unit of pressure				
pound force per square inch (lbf/in^2 or psi)* ...	–	6 894.76	Pa	
kilogram force per square cm (kgf/cm^2)*	technical atmosphere	98 066.5	Pa	5 years
Unit of power				
metric horse power	–	735.499	W	5 years
UK horse power	–	745.700	W	

[Sixth Sch. amended by GN 80 of 1989.]

* Sizes in appropriate SI units for these units have been calculated assuming a value of 9.806 65m/s^2 for the acceleration due to gravity.