

SYSTEME INTERNATIONAL

The following information on SI units and factors for conversion between S.I. and older conventional units is provided for the convenience of readers and authors. Reprints of these tables are available on request from The Canadian Anaesthetists' Society Journal, 178 St. George Street, Toronto, Canada, M5R 2M7.

BASIC SI UNITS

Physical quantity	Name	Symbol
Length	Metre	m
Mass	Kilogram	kg
Time	Second*	s
Electric current	Ampere	A
Thermodynamic temperature	Kelvin	K
Luminous intensity	Candela	cd
Amount of substance	Mole	mol

*Minute (min), hour (h) and day (d) will remain in use although they are not official SI units.

PREFIXES FOR SI UNITS

Factor	Name	Symbol	Factor	Name	Symbol
10^{18}	Exa	E	10^{-18}	Atto-	a
10^{15}	Peta	P	10^{-15}	Femto	f
10^{12}	Tera-	T	10^{-12}	Pico-	p
10^9	Giga-	G	10^{-9}	Nano-	n
10^6	Mega-	M	10^{-6}	Micro-	μ
10^3	Kilo-	k	10^{-3}	Milli-	m
10^2	Hecto-	h	10^{-2}	Centi-	c
10^1	Deca-	da	10^{-1}	Deci-	d

DERIVED SI UNITS

Quantity	SI unit	Symbol	Expression in terms of SI base units or derived units
Frequency	Hertz	Hz	1 Hz = 1 cycle/s (1 s^{-1})
Force	Newton	N	1 N = $1 \text{ kg} \cdot \text{m}/\text{s}^2$ ($1 \text{ kg} \cdot \text{m} \cdot \text{s}^{-2}$)
Work, energy, quantity of heat	Joule	J	1 J = $1 \text{ N} \cdot \text{m}$
Power	Watt	W	1 W = $1 \text{ J}/\text{s}$ ($1 \text{ J} \cdot \text{s}^{-1}$)
Quantity of electricity	Coulomb	C	1 C = $1 \text{ A} \cdot \text{s}$
Electric potential, potential difference, tension, electromotive force	Volt	V	1 V = $1 \text{ W}/\text{A}$ ($1 \text{ W} \cdot \text{A}^{-1}$)
Electric capacitance	Farad	F	1 F = $1 \text{ A} \cdot \text{s}/\text{V}$ ($1 \text{ A} \cdot \text{s} \cdot \text{V}^{-1}$)
Electric resistance	Ohm	Ω	1 Ω = $1 \text{ V}/\text{A}$ ($1 \text{ V} \cdot \text{A}^{-1}$)
Flux of magnetic induction, magnetic flux	Weber	Wb	1 Wb = $1 \text{ V} \cdot \text{s}$
Magnetic flux density, magnetic induction	Tesla	T	1 T = $1 \text{ Wb}/\text{m}^2$ ($1 \text{ Wb} \cdot \text{m}^{-2}$)
Inductance	Henry	H	1 H = $1 \text{ V} \cdot \text{s}/\text{A}$ ($1 \text{ V} \cdot \text{s} \cdot \text{A}^{-1}$)
Pressure	Pascal	Pa	1 Pa = $1 \text{ N}/\text{m}^2$ ($1 \text{ N} \cdot \text{m}^{-2}$) = $1 \text{ kg}/\text{m} \cdot \text{s}^2$ ($1 \text{ kg} \cdot \text{m}^{-1} \cdot \text{s}^{-2}$)

The litre ($10^{-3} \text{ m}^3 = \text{dm}^3$), though not official, will remain in use as a unit of volume as also will the dyne (dyn) as a unit of force ($1 \text{ dyn} = 10^{-5} \text{ N}$).

SI unit	Old Unit	Conversion factors	
		Old to SI (exact)	SI to old (approx.)
kPa	mm Hg*	0.133	7.5
kPa	1 standard atmosphere† (approx: 1 Bar)	101.3	0.01
kPa	cmH ₂ O	0.0981	10
kPa	lbs/sq in	6.89	0.145

*e.g. systolic BP of 120 mm Hg = 16 kPa and diastolic BP of 80 mm Hg = 11 kPa.

† = 760 mm Hg.

BLOOD CHEMISTRY. UNITS AND CONVERSION FACTORS

Measurement	SI unit	Old unit	Conversion factors	
			Old to SI (exact)	SI to old (approx.)
<i>Blood</i>				
<i>Acid-Base</i>				
Pco ₂	kPa	mm Hg	0.133	7.5
PO ₂	kPa	mm Hg	0.133	7.5
<i>Standard</i>				
bicarbonate	mmol/litre	mEq/litre	Numerically equivalent	
Base excess	mmol/litre	mEq/litre	Numerically equivalent	
Glucose	mmol/litre	mg/100 ml	0.0555	18
<i>Plasma</i>				
Sodium	mmol/litre	mEq/litre	Numerically equivalent	
Potassium	mmol/litre	mEq/litre	Numerically equivalent	
Magnesium	mmol/litre	mEq/litre	0.5	2
Chloride	mmol/litre	mEq/litre	Numerically equivalent	
Phosphate (inorganic)	mmol/litre	mEq/litre	0.323	3.0
Creatinine	μmol/litre	mg/100 ml	88.4	0.01
Urea	mmol/litre	mg/100 ml	0.166	6.0
<i>Serum</i>				
Calcium	mmol/litre	mg/100 ml	0.25	4.0
Iron	μmol/litre	μg/100 mol	0.179	5.6
Bilirubin	μmol/litre	mg/100 ml	17.1	0.06
Cholesterol	mmol/litre	mg/100 ml	0.0259	39
Total proteins	g/litre	g/100 ml	10.0	0.1
Albumin	g/litre	g/100 ml	10.0	0.1
Globulin	g/litre	g/100 ml	10.0	0.1

BIOCHEMICAL CONTENT OF OTHER BODY FLUIDS

Measurement	SI unit	Old unit	Conversion factors	
			Old to SI (exact)	SI to old (approx.)
<i>Urine</i>				
Calcium	mmol/24 h	mg/24 h	0.025	40
Creatinine	mmol/24 h	mg/24 h	0.00884	113
Potassium	mmol/litre	mEq/litre	Numerically equivalent	
Sodium	mmol/litre	mEq/litre	Numerically equivalent	
<i>Cerebro-spinal fluid</i>				
Protein	g/litre	mg/100 ml	0.01	100
Glucose	mmol/litre	mg/100 ml	0.0555	18

HAEMATOLOGY

Measurement	SI units	Old unit	Conversion factors	
			Old to SI	SI to old
Haemoglobin (Hb)	g/dl	g/100 ml	Numerically equivalent	
Packed cell volume	No unit*	Per cent	0.01	100
Mean cell Hb conc.	g/dl	Per cent	Numerically equivalent	
Mean cell Hb	pg	µg	Numerically equivalent	
Red cell count	Cells/litre	Cells/mm ³	10 ⁶	10 ⁻⁶
White cell count	Cells/litre	Cells/mm ³	10 ⁶	10 ⁻⁶
Reticulocytes	Per cent	Per cent	Numerically equivalent	
Platelets	Cells/litre	Cells/mm ³	10 ⁶	10 ⁻⁶

* Expressed as decimal fraction, e.g. normal adult male value 0.40 to 0.54.

pH AND NMOL/LITRE OF
H⁺ ACTIVITY

pH	nmol/litre
6.80	158
6.90	126
7.00	100
7.10	79
7.20	63
7.25	56
7.30	50
7.35	45
7.40	40
7.45	36
7.50	32
7.55	28
7.60	25
7.70	20