

Announcement

THE USE OF SI UNITS IN THERMAL ANALYSIS

The International System of Units (abbreviated SI) was adopted by the 11th General Conference of Weights and Measures in 1960. Since that date SI has become almost universal in use. The great advantage of SI is that there is one and only one unit for each physical quantity measure.

Journal of Thermal Analysis will pass to the use of the SI system of units. The Editors ask the authors to give their data in SI units. To facilitate this for authors information is given about those SI units which are most frequently used in thermal analysis.

Physical quantity	Name of unit	Symbol for SI unit
length	meter	m
mass	kilogram	kg
time	second	s
thermodynamic temperature	kelvin	K
force	newton	N
pressure	pascal	Pa
energy	joule	J
power	watt	W
amount of substance	mole	mol

It is acceptable to use the Celsius temperature in degrees Celsius. It is recognized that certain units which are not part of the SI are used so widely that it is impractical to abandon them. The following units are therefore accepted for continued use with the International System.

Unit	Symbol
minute (of time)	min
hour	h
day	d
liter (defined as 10^{-3} m ³)	l

For small and great quantities the fractions and multiples of the SI units should be used modified them by the use of the following prefixes:

Fraction	Prefix	Symbol	Multiple	Prefix	Symbol
10^{-1}	*deci	d	10	*deka	da
10^{-2}	centi	c	10^2	*hecto	h
10^{-3}	milli	m	10^3	kilo	k
10^{-6}	micro	μ	10^6	mega	M
10^{-9}	nano	n	10^9	giga	G
10^{-12}	pico	p	10^{12}	tera	T
10^{-15}	femto	f			
10^{-18}	atto	a			

* seldom used and not recommended

The names of multiples and fractions of the kilogram are named by adding prefixes to the word gram.

The following table gives a survey on the correlations of the units to be abandoned and of the exact ones.

Name of unit	Symbol for unit	Definition of unit (exact)
inch	in.	2.54×10^{-2} m
pound (avoirdupois)	lb	0.453 592 37 kg
kilogram-force	kgf	9.806 65 N
atmosphere	atm	101 325 N.m ⁻² (Pa)
torr	Torr	(101 325/760) N.m ⁻² (Pa)
conventional millimetre of mercury	mmHg	$13.5951 \times 980.665 + 10^{-2}$ N.m ⁻² (Pa)
British Thermal Unit	BTU	1055.056 J
kilowatt-hour	kWh	3.6×10^6 J
calorie	cal	4.184 J

Reference

NBS, J. Chem. Educ. 48(1971) 569.