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AMENDMENT 1
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Quantities and units —

Part 0:
General principles

AMENDMENT 1

Grandeurs et unités —

Partie 0: Principes généraux

AMENDEMENT 1

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Amendment 1 to International Standard ISO 31-0:1992 was prepared by Technical Committee ISO/TC 12, *Quantities, units, symbols, conversion factors.*

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Pages 4 and 5

Replace subclauses 2.3.2 to 2.3.2.2 with the following text. Table 1 is unchanged.

2.3.2 SI units and their decimal multiples and sub-multiples

The name *International System of Units (Système International d'Unités)*, with the international abbreviation *SI*, was adopted by the 11th *General Conference on Weights and Measures* (Conférence Générale des Poids et Mesures, CGPM) in 1960.

This system includes

— base units

— derived units

which together form the coherent system of *SI units*.

2.3.2.1 Base units

The seven base units are listed in table 1.

2.3.2.2 Derived units

The expressions for the coherent derived units in terms of the base units can be obtained from the dimensional products by using the following formal substitutions:

L	→	m	Θ	→	K
M	→	kg	N	→	mol
T	→	s	J	→	cd
I	→	A			

In particular, the dimension one corresponds to the unit one, symbol 1 (see 2.3.1).

EXAMPLES

Quantity	Symbol for SI unit expressed in terms of the seven base units
velocity	m/s
force	$kg \cdot m/s^2$
energy	$kg \cdot m^2/s^2$
entropy	$kg \cdot m^2/(s^2 \cdot K)$
electric potential	$kg \cdot m^2/(s^3 \cdot A)$
permittivity	$A^2 \cdot s^4/(kg \cdot m^3)$
magnetic flux	$kg \cdot m^2/(s^2 \cdot A)$
molar entropy	$kg \cdot m^2/(s^2 \cdot K \cdot mol)$
Faraday constant	$A \cdot s/mol$
relative density	1

For some of the SI derived units, special names and symbols exist; those approved by the CGPM are listed in tables 2 and 3. It is often of advantage to use special names and symbols in compound expressions for units.

NOTE In 1960, the CGPM classified the SI units radian, rad, and steradian, sr, for plane angle and solid angle, respectively, as “supplementary units”.

In 1980, the *International Committee for Weights and Measures* (Comité International des Poids et Mesures, CIPM) decided to interpret the class of supplementary units in the SI as a class of “dimensionless” derived units for which the CGPM allows the freedom of using them or not using them in expressions for SI derived units.

In 1995, the CGPM approved the CIPM interpretation from 1980 and decided to eliminate the supplementary units as a separate class in the SI.

Although, as a consequence of this interpretation, the coherent unit for plane angle and for solid angle is the number one, it is convenient to use the special names radian, rad, and steradian, sr, instead of the number one in many practical cases.

EXAMPLES

Quantity	Symbol for SI unit
angular velocity	rad/s where 1 rad = 1 or thus simply s^{-1}
illuminance	$cd \cdot sr/m^2$ where 1 sr = 1 or thus simply cd/m^2
molar entropy	$J/(K \cdot mol)$ where 1 J = 1 $m^2 \cdot kg/s^2$
permittivity	$s \cdot A/(m \cdot V)$ where 1 V = 1 $m^2 \cdot kg/(s^3 \cdot A)$

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In the title of table 2, delete the phrase “including SI supplementary units”.