AS 2900.12—2002
ISO 31-12:1992/Amd.1:1998

Australian Standard™

Quantities and units

Part 12: Characteristic numbers

Standards Australia

This Australian Standard was prepared by Committee ME-071, Quantities, Units and Conversions. It was approved on behalf of the Council of Standards Australia on 21 June 2002 and published on 5 August 2002.

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CSIRO, Telecommunications and Industrial Physics

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PREFACE

This Standard was prepared by the Standards Australia Committee ME-071, *Quantities, Units and Conversions*, to supersede AS 2900.12—1986, *Quantities, units and symbols*, Part 12: *Dimensionless parameters*.

This Standard is identical with, and has been reproduced from, ISO 31-12:1992/Amd.1:1998, *Quantities and units*, Part 12*: Characteristic numbers.*

The amendment to ISO 31-12:1992 is included in this document and is shown by a bar line set against the affected text.

The objective of this Standard is to provide users with names and symbols for characteristic numbers used in the description of transport phenomena.

Users of this Standard are advised by Standards Australia, under arrangements with ISO and IEC, as well as certain other Standards organizations, that the number of this Standard is not reproduced on each page; its identity is shown only on the cover and title pages.

For the purpose of this Standard, the ISO text should be modified as follows:

(a) *Terminology* The words 'this Australian Standard' should replace the words 'this International Standard' wherever they appear.

(b) *Decimal marker* Substitute a full point for a comma when it appears as a decimal marker.

(c) *References* The reference to the International Standards should be replaced by reference to the following Australian Standard:

Reference to International Standard or other Publication		*Australian Standard*	
ISO		AS	
31	Quantities and units	2900	Quantities and units
31-1	Part 1: Space and time	2900.1	Part 1: Space and time
31-2	Part 2: Periodic and related phenomena	2900.2	Part 2: Periodic and related phenomena
31-3	Part 3: Mechanics	2900.3	Part 3: Mechanics
31-4	Part 4: Heat	2900.4	Part 4: Heat
31-7	Part 7: Acoustics	2900.7	Part 7: Acoustics
31-8	Part 8: Physical chemistry and molecular physics	2900.8	Part 8: Physical chemistry and molecular physics

In Amendment 1:1998 '0.3.2' should read '0.2.1', in both instances.

CONTENTS

INTRODUCTION

0.1 Tables of quantities

The most important quantities within the field of this document are given together with their symbols and, in most cases, definitions. These definitions are given merely for identification; they are not intended to be complete.

The vectorial character of some quantities is pointed out, especially when this is needed for the definitions, but no attempt is made to be complete or consistent.

In most cases, only one name and only one symbol for the quantity are given; where two or more names or two or more symbols are given for one quantity and no special distinction is made, they are on an equal footing. When two types of italic (sloping) letter exist (for example as with ϑ, θ; φ, ϕ; g, g) only one of these is given. This does not mean that the other is not equally acceptable. In general it is recommended that such variants should not be given different meanings. A symbol within parentheses implies that it is a "reserve symbol", to be used when, in a particular context, the main symbol is in use with a different meaning.

0.2 Remarks

0.2.1 Remark on units for quantities of dimension one

The coherent unit for any quantity of dimension one is the number one (1). When the value of such a quantity is expressed, the unit 1 is generally not written out explicitly. Prefixes shall not be used to form multiples or submultiples of this unit. Instead of prefixes, powers of 10 may be used.

EXAMPLES

Refractive index $n = 1{,}53 \times 1 = 1{,}53$

Reynolds number $Re = 2{,}32 \times 10^3$

Considering that plane angle is generally expressed as the ratio between two lengths, and solid angle as the ratio between an area and the square of a length, the CIPM specified in 1980 that, in the International System of Units, the radian and steradian are dimensionless derived units. This implies that the quantities plane angle and solid angle are considered as dimensionless derived quantities. The units radian and steradian may be used in expressions for derived units to facilitate distinction between quantities of different nature but having the same dimension.

0.2.2 Special remarks

This part of ISO 31 contains a selection of characteristic numbers used for the description of transport phenomena.

Each recommended symbol for such a characteristic number consists of two letters. When such a symbol appears as a factor in a product, it is recommended that it be separated from the other symbols by a space, by a multiplication sign or by parentheses.

The unit of all of the parameters of dimension one is the number one (1). This unit is not explicitly mentioned in the tables in this part of ISO 31.

NOTES

AUSTRALIAN STANDARD

Quantities and units —

Part 12:
Characteristic numbers

1 Scope

This part of ISO 31 gives names and symbols for characteristic numbers used in the description of transport phenomena.