
INTERNATIONAL STANDARD



1634

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Wrought copper and copper alloys — Rolled flat products (plate, sheet, strip) — Mechanical properties

Cuivre et alliages de cuivre corroyés — Produits laminés plats (plaques, tôles, bandes) — Caractéristiques mécaniques

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 1634 was drawn up by Technical Committee ISO/TC 26, *Copper and copper alloys*, and circulated to the Member Bodies in December 1971.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	South Africa, Rep. of
Austria	India	Spain
Belgium	Italy	Sweden
Canada	Japan	Switzerland
Chile	Korea, Rep. of	Thailand
Czechoslovakia	Netherlands	Turkey
Denmark	New Zealand	U.S.A.
Egypt, Arab Rep. of	Norway	U.S.S.R.
Finland	Portugal	
France	Romania	

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Germany
United Kingdom

Wrought copper and copper alloys — Rolled flat products (plate, sheet, strip) — Mechanical properties

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the mechanical properties of rolled flat products (plate, sheet, strip), in wrought copper and copper alloys the chemical compositions of which are listed in the appropriate International Standards (see 2.1).

NOTE — In order to overcome various national interpretations of the terms "plate", "sheet" and "strip", these manufactured forms are grouped under the general heading : "rolled flat products".

2 REFERENCES

2.1 Chemical composition and forms of semi-manufactured products

ISO 426, *Wrought copper-zinc alloys — Chemical composition and forms of wrought products —*

Part I : Non- leaded, special and high tensile alloys.

Part II : Leaded alloys.

ISO 427, *Wrought copper-tin alloys — Chemical composition and forms of wrought products.*

ISO 428, *Wrought copper-aluminium alloys — Chemical composition and forms of wrought products.*

ISO 429, *Wrought copper-nickel alloys — Chemical composition and forms of wrought products.*

ISO 430, *Wrought copper-nickel-zinc alloys — Chemical composition and forms of wrought products.*

ISO/R 1187, *Special wrought copper alloys.*

ISO/R 1336, *Wrought alloyed coppers.*

ISO/R 1337, *Wrought coppers.*

2.2 Designations

ISO/R 1190, *Copper and copper alloys — Code of designation —*

Part I : Designation of materials.

Part II : Designation of tempers.

2.3 Test methods

ISO/R 399, *Vickers hardness test for copper and copper alloys (Test loads from 2.5 to 50 kgf).*

ISO/R 400, *Tensile testing of copper and copper alloys.*

ISO/R 1555, *Copper and copper alloy rolled flat products (Thickness less than 2,5 mm (0.1 in)) — Tensile test.*

ISO 2624, *Copper and copper alloys — Estimation of average grain size.*

ISO . . . , *Copper, copper alloys and alloyed copper — Selection of specimens and test pieces.*¹⁾

1) In preparation.

3 ESSENTIAL PROPERTIES REQUIREMENTS

Table 1 embodies the principle that two properties are generally sufficient to define the condition of the material. The properties to be specified vary according to the temper and application of the material as set out in the table.

4 DIMENSIONAL LIMITS

Dimensional limitations which can have an effect on the properties obtained are given in table 2; products having dimensions outside these ranges may not comply with these properties.

Where the properties are not affected by dimensions or where the latter are unimportant, a dash (—) is inserted.

5 MECHANICAL PROPERTIES

Mechanical properties are given in table 2.

6 TEST METHODS

6.1 Tensile test

6.1.1 For thicknesses greater than or equal to 2,5 mm (0.1 in), according to ISO/R 400.

6.1.2 For thicknesses less than 2,5 mm (0.1 in), according to ISO/R 1555.

6.2 Vickers hardness test

According to ISO/R 399, for test loads within the range from 2,5 up to 50 kgf.

6.3 Estimation of average grain size

According to ISO 2624.

6.4 Selection of test pieces

According to ISO . . .

TABLE 1

Use	Temper designation	0,2 % proof stress $R_{p0,2}$	Tensile strength R_m	Elongation A	Vickers hardness HV	Average grain size
		N/mm ²	N/mm ²	%		mm
General purposes	M	—	approx.	approx.	max.	—
	O	—	—	min.	max.	—
	OS					min. — max.
	H	—	min. — max.	approx.	approx.	—
Structural purposes ¹⁾	M	min.	approx.	min.	—	—
	H					
	T	min.	approx.	min.	min.	—

1) Structural purposes are defined as those purposes where the load-bearing properties of the material are the most important.