
**Ferrous materials — Heat treatments
— Vocabulary**

Matériaux ferreux — Traitements thermiques — Vocabulaire



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Foreword

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 17, *Steel*.

This third edition cancels and replaces the second edition (ISO 4885:2017), of which it constitutes a minor revision with a corrected [Figure 1 d](#).

Ferrous materials — Heat treatments — Vocabulary

1 Scope

This document defines important terms used in the heat treatment of ferrous materials.

NOTE The term ferrous materials include products and workpieces of steel and cast iron.

[Annex A](#) provides an alphabetical list of terms defined in this document, as well as their equivalents in French, German, Chinese and Japanese.

[Table 1](#) shows the various iron-carbon (Fe-C) phases.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

acicular structure

structure which appears in the form of needles in a micrograph

3.2

activity

effective concentration of species under non-ideal (e.g. concentrated) conditions; for *heat treatment* ([3.108](#)), this means the effective concentration of carbon or nitrogen (or both) in heat treatment media and in ferrous materials

Note 1 to entry: Ratio of the vapour pressure of a gas (usually carbon or nitrogen) in a given state (e.g. in *austenite* ([3.12](#)) of specific carbon/nitrogen concentration) to the vapour pressure of the pure gas, as a reference state, at the same temperature.

3.3

ageing

change in the properties of steels depending on time and temperature after hot working or *heat treatment* ([3.108](#)) or after cold-working operation, due to the migration of interstitial elements

Note 1 to entry: The ageing phenomenon can lead to higher strength and lower ductility.

Note 2 to entry: The ageing effect can be accelerated either by cold forming and/or subsequent *heating* ([3.109](#)) to moderate temperatures (e.g. 250 °C) and soaking (e.g. for 1 h).

3.4

air-hardening steel

DEPRECATED: self-hardening steel

steel, the *hardenability* ([3.103](#)) of which is such that *cooling* ([3.45](#)) in air produces a martensitic structure in objects of considerable size