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Ferrous materials - Heat treatments - Vocabulary (ISO 4885:2017)

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ICS 01.040.25, 01.040.77, 25.200, 77.140.01

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EUROPEAN STANDARD

EN ISO 4885

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Supersedes EN 10052:1993

English Version

## Ferrous materials - Heat treatments - Vocabulary (ISO 4885:2017)

Matériaux ferreux - Traitements thermiques -  
Vocabulaire (ISO 4885:2017)

Eisenwerkstoffe - Wärmebehandlung - Begriffe (ISO  
4885:2017)

This European Standard was approved by CEN on 14 February 2017.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

## European foreword

This document (EN ISO 4885:2017) has been prepared by Technical Committee ISO/TC 17 “Steel” in collaboration with Technical Committee ECISS/TC 100 “General issues” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2017, and conflicting national standards shall be withdrawn at the latest by August 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 10052:1993.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 4885:2017 has been approved by CEN as EN ISO 4885:2017 without any modification.

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation on 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](http://www.iso.org/iso/foreword.html).

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

This second edition cancels and replaces the first edition (ISO 4885:1996), which has been technically revised.

# 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 <http://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 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) to create the ageing effects.

### 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