
Označevanje mikrostrukture železove litine – 1. del: Razvrščanje grafita z vizualno analizo (ISO/DIS 945-1:2006)

Designation of microstructure of cast irons - Part 1: Graphite classification by visual analysis (ISO/DIS 945-1:2006)

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English Version

Designation of microstructure of cast irons - Part 1: Graphite classification by visual analysis (ISO/DIS 945-1:2006)

Désignation de la microstructure des fontes - Partie 1:
Classification du graphite par analyse visuelle (ISO/DIS
945-1:2006)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 190.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (prEN ISO 945-1:2006) has been prepared by Technical Committee ISO/TC 25 "Cast iron and pig iron" in collaboration with Technical Committee CEN/TC 190 "Foundry technology", the secretariat of which is held by DIN.

This document is currently submitted to the parallel Enquiry.

This document will supersede EN ISO 945:1994.

Endorsement notice

The text of ISO/DIS 945-1:2006 has been approved by CEN as prEN ISO 945-1:2006 without any modifications.

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Designation of microstructure of cast irons —

Part 1:

Graphite classification by visual analysis

Désignation de la microstructure des fontes —

Partie 1: Classification du graphite par analyse visuelle

(Revision of ISO 945:1975)

ICS 77.080.10

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The CEN Secretary-General has advised the ISO Secretary-General that this ISO/DIS covers a subject of interest to European standardization. **In accordance with the ISO-lead mode of collaboration as defined in the Vienna Agreement, consultation on this ISO/DIS has the same effect for CEN members as would a CEN enquiry on a draft European Standard.** Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month FDIS vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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

ISO 945-1 was prepared by Technical Committee ISO/TC 25, *Cast irons and pig irons*, Working Group 1.

This second edition cancels and replaces the first edition (ISO 945:1975), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

ISO 945 consists of the following parts, under the general title *Designation of microstructure of cast irons*:

- *Part 1: Graphite classification by visual analysis*
- *Part 2: Graphite classification by image analysis [under preparation]*

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Introduction

Microstructure designation is a useful feature that provides a means of classifying the graphite form, distribution and size in cast irons.

Graphite classification by visual analysis is a well established method, well recognized within the foundry industry as a means of quickly determining the overall graphite microstructure of a cast iron casting.

This revision takes into account the expanding range of cast iron alloys available.

Photomicrographs have been included together with schematic images to aid classification.

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Designation of microstructure of cast irons —

Part 1: Graphite classification by visual analysis

1 Scope

This International Standard specifies one method of classifying the microstructure of graphite in cast irons by comparative visual analysis.

The purpose of this standard is to provide information about the method of graphite classification. It is not intended to give information on the suitability of cast iron types and grades for any particular application.

The particular material grade is specified by results from tensile tests or hardness testing, and in the case of austenitic cast irons, by their chemical composition. The interpretation of graphite form and size does not allow a statistically valid statement on the fulfilment of the requirements specified in the relevant material standard. The structure of the ferrous matrix (ferrite, pearlite, free cementite) has a significant effect on the material properties. Such an interpretation is not the purpose of this International Standard.

2 General

2.1 Designation system for classifying graphite in cast irons

When cast iron materials are examined under a microscope, the graphite shall be classified by

- a) its form, designated by Roman numerals I to VI, see Figure 1 and Annex A (informative);
- b) its distribution, designated by capital letters A to E, see Figure 2 and Annex B (informative). Graphite distribution designation is only specified for grey cast iron (Form I);
- c) its size, designated by Arabic numerals 1 to 8, see Figures 3.1, 3.2 and 3.3.

NOTE Figures 1 to 3 show only the outlines and not the structure of the graphite.

FORM

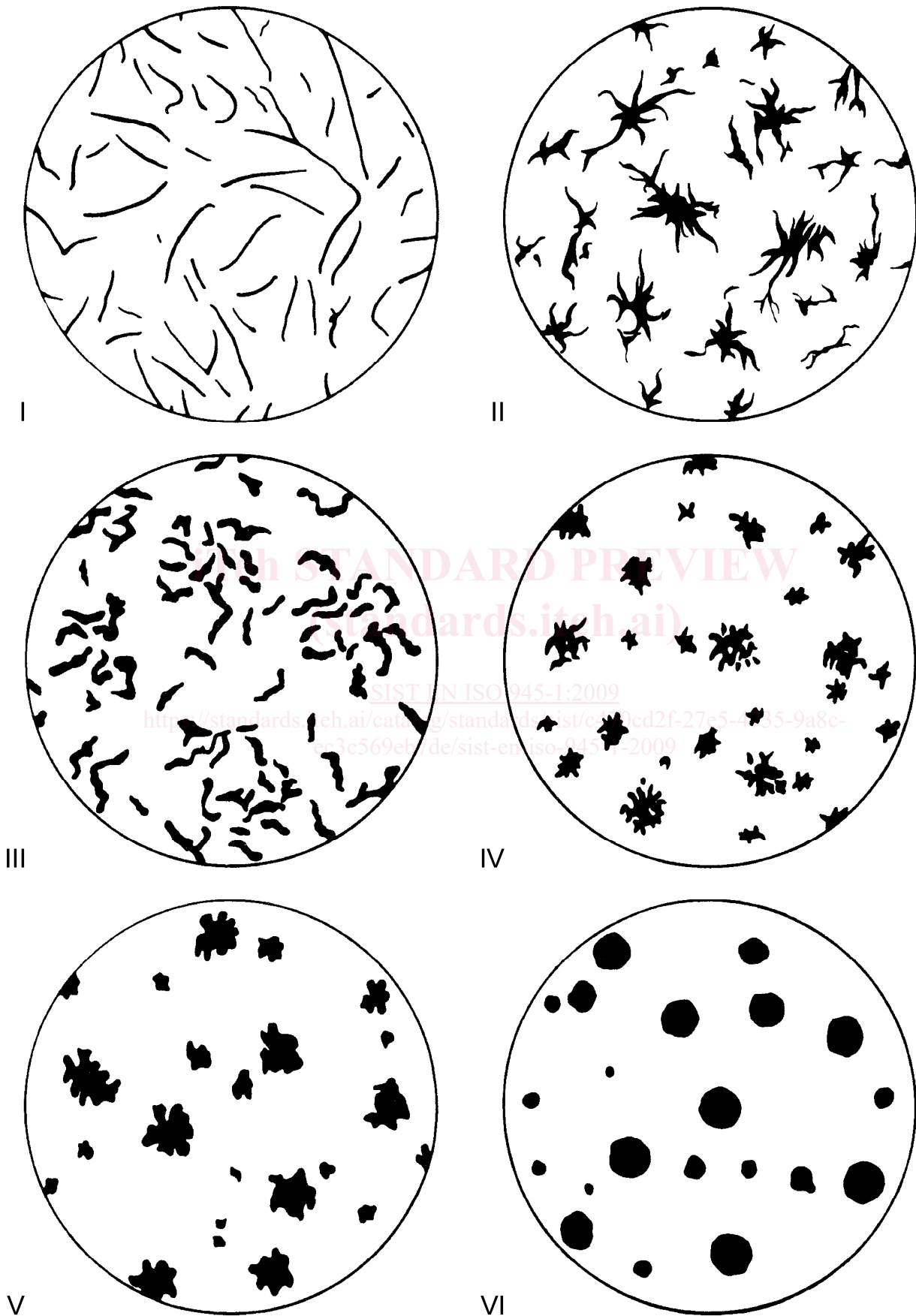


Figure 1 — Principal graphite forms in cast iron materials — reference images