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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 14979-1994

**Steel - Micrographic method for assessing the inhomogeneity
of eutectic carbides using standard diagrams**

钢的共晶碳化物不均匀度评定法

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1 Scope

This standard specifies the micrographic method for assessing the inhomogeneity of eutectic carbides in steel using standard diagrams, with the specimen preparation, the examination and the rating series.

The carbides are what make the tool cut

In a high speed steel or a high-carbon high-chromium tool steel they are hard, formed during solidification, and far harder than any matrix.

But they form in the wrong place

They come out of the last liquid to freeze, which is between the dendrites, so they arrive segregated into a network.

Hot working then stretches that network into stringers along the rolling direction rather than dispersing it.

And the tool pays for it

A steel with a coarse, banded carbide distribution behaves differently in every direction, distorts unpredictably in heat treatment because the bands transform at different rates, and chips where a stringer meets the cutting edge.

Two bars of identical composition and hardness can differ by a large factor in tool life for this reason alone.

So it is rated by comparison

A polished and etched longitudinal section is examined at fixed magnification and matched against a series of standard diagrams, graded from fine and dispersed to coarse and banded.

Which means the section, the preparation, the etchant, the magnification, the field selection and the reporting all have to be fixed - otherwise two ratings are not comparable at all.

About this edition

GB/T 14979-1994 is the current edition. It was issued on 13 June 1994 and has been in force since 1 January 1995.

The interval between issue and effect is the transition period. It exists so that producers, laboratories and buyers can requalify products, revise procedures and use up documentation before the new text becomes the one that applies. The date on this page is the official one from the record of the Standardization Administration.

Classification and status

GB/T 14979-1994 is classified under ICS 77.040.30. ICS is the International Classification for Standards, the same scheme used by ISO and by the national bodies of most countries, which is what allows a Chinese standard to be placed beside its foreign counterparts on subject rather than on number.

Its Chinese Standard Classification code is CCS H 24. CCS is the domestic scheme, a letter for the sector and two digits for the subject within it, and it is the code by which the standard is filed and searched in China.

The GB/T prefix marks a recommended national standard. It is not, in itself, law: it becomes binding when a contract names it, when a regulation or a mandatory standard refers to it, or when a producer declares conformity with it. In practice that covers most of the cases in which it will be read - a purchase specification, an inspection agreement or a certification scheme.

How a Chinese national standard is set out

Chinese national standards are drafted to the rules of GB/T 1.1, which fixes the order in which a standard is set out. The document opens with a foreword recording the issuing bodies, the relationship to any previous edition and the technical committee responsible for it. Clause 1 is the scope. Clause 2 lists the normative references - the other standards that

have to be applied together with this one, and without which its requirements cannot be met. Clause 3 gives the terms and definitions. The technical clauses follow: the requirements themselves, the test or measurement methods by which conformity is established, the inspection rules that say how a lot is sampled and judged, and, for a product standard, the provisions on marking, packaging, transport and storage. Annexes, normative or informative, come last.

GB/T 14979-1994 runs to 21 pages in the English translation. What is delivered is the complete document in that order: every clause, every table, every figure and every annex of the Chinese original, with the same numbering, so that a reference to a clause number in a contract or a test report points to the same place in both languages.

About this English translation

The English edition of GB/T 14979-1994 is a full translation of the official Chinese text, not a summary, an abstract or a machine rendering left unchecked. Clause and subclause numbers, table and figure numbers and annex letters are those of the original, because they are what a specification, a purchase order or a test report cites.

Technical terms are translated against the vocabulary standards of the same field, so that a term used in GB/T 14979-1994 reads the same way as in the other Chinese standards it is used beside. Where a term has an established English form in an ISO or IEC document on the same subject, that form is used; where China's term has no foreign counterpart, it is translated literally and the Chinese is kept alongside it rather than replaced by an approximation.

Quantities, units and symbols are carried over unchanged. Chinese standards use SI, so a value in the translation is the value in the original document, not a conversion, and a limit read from the English text is the limit that will be applied by a Chinese inspection body reading the Chinese one.

This page is compiled from the official publication record: the standard number and both titles, the issuing bodies, the dates of issue and effect, the ICS and CCS classification. The requirements, limits, tables and test conditions are in the document itself.