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

GB/T 24177-2009

Standard test methods for characterizing duplex grain sizes

双重晶粒度表征与测定方法

(English Translation)

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Foreword

This standard is equivalent to the use of ASTM E1181-02 "standard method of characterization of double grain size" (English version).

For ease of use, this standard makes the following editorial modifications to ASTM E1181-02.

- a) deleted the preamble of ASTM E1181-02;
- b) replace the ASTM standards with corresponding or similar national standards;
- c) the specific data in the double grain size report format using the data in Appendix A;
- d) According to GB/T 1.1-2000 requirements, adjust the original standard part of the chapter, the entry settings.

The main changes compared to ASTM E1181-02 are as follows.

- a) Deleted 1.2 of ASTM E1181-02;
- b) the addition of 1.2 "This test method only as a recommended test method, the material acceptance test does not specify the scope of qualified";
- c) the deletion of a reference to the ASTM Annex "Comparison map of the measured area fraction" (ASTM Annex No. ADJE1181)
- d) deleted the "keyword" section of ASTM E1181-02;
- e) Added Appendix NA "Differences between this standard and ASTM E1181-02 and its causes".

Appendix A to this standard is a normative appendix, Appendix B and Appendix NA are informative appendices.

This standard is proposed by China Iron and Steel Industry Association.

This standard by the National Steel Standardization Technical Committee.

The drafting of this standard. Baoshan Iron and Steel Co., Ltd., Metallurgical Industry Information Standards Institute, Northeast Special Steel Group limited liability the company.

Introduction

For products with grain size conforming to a single logarithmic normal distribution, the average grain size (using GB/T 6394) and the maximum grain size [using ASTM E930-99 (2007)] test method, and this standard applies to the product grain size was other forms the evaluation of the grain size of the cloth.

Due to idiomatic usage and well known, the term " duplex grain size " is used to express any other Grain size, however, the use of this term does not mean that there are only two grain size distribution.

This standard is used to describe the characteristics of grain size different from a single logarithmic normal distribution and to describe the actual grain size with reasonable accuracy Degree distribution.

Characterization and Determination of Double Grain Size

1 Scope

1.1

This standard specifies the method of determining the double grain size. This standard divides the double grain size into two categories of six categories and describes them separately the various types of features, to provide a corresponding representation of the method and report format.

1.2

This standard only as a recommended test method, the material acceptance test is not qualified to determine the scope of the provisions.

2 Normative reference documents

The terms of the following documents are hereby incorporated by reference into this standard. Whichever is the date of the reference file, which is followed by all (Excluding corrigenda) or revisions do not apply to this standard, however, encourage the parties to reach an agreement under this standard Whether you can use the latest version of these files. For undated references, the latest edition applies to this standard.

GB/T 6394 Determination of average grain size of metals (GB/T 6394-2002, ASTM E112.:1996, MOD) Test method for metallic microstructures GB/T Quantitative metallographic method for the determination of GB/T 15749 ASTM E7 Metallography related terms ASTM E930-99 (2007) Determination of maximum grain size level (ALA grain size) on

metallographic detection surface

3 Terms and definitions

ASTME7 and the following terms and definitions apply to this standard.

Alternating areas with large grain size differences, which extend along the processing direction.

Equivalent to the average of the grain size distribution.

Some of the isolated coarse grains are organized by the finer grains of the grain.

A non-random change that occurs in a certain determinable pattern that may be related to the shape of the test sample or product.

Classification and Characteristics of Double Grain Size the double grain size is divided into two categories. random double grain size and topological double grain size. Each category is divided into three types.

Contains two or more grain sizes that are significantly different in size and are distributed in random variations. Its distribution status. ALA state, wide level difference State and bimodal state.

The average grain size difference between the isolated coarse grains and the matrix grains is not less than 3, and the isolated grains the percentage of the area is no more than 5%. If the percentage of its area is greater than 5%, then the bimodal state.