

ICS 29.050
CCS Q 51

YB

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

YB/T 081-2013

**Rule for rounding off of numerical values and judgement of
testing values for technical standards of metallurgy
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces YB/T 4090-2000 "Ultra high power graphite electrode".

As compared with YB/T 4090-2000, the main technical content changes of this standard are as follows.

- REVISE the normative references;
- ADD the specifications and length grades;
- MODIFY the dimensions and tolerances;
- MODIFY the supply requirements;
- MODIFY the electrode connection requirements;
- MODIFY the physical and chemical indicators;
- MODIFY the surface quality;
- MODIFY the inspection rules;
- MODIFY the current load.

This standard was proposed by the China Iron and Steel Association.

This standard shall be under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC 183).

Drafting organizations of this standard. Jilin Carbon Co., Ltd., China Pingmei Shenma Group Kaifeng Carbon Co., Ltd., Henan Kefeng Carbon Materials Co., Ltd., Shanxi Sim East Sea Carbon Materials Co., Ltd., Metallurgical Industry Information Standards Institute.

1 Scope

This standard specifies the shape, dimensions and tolerances, technical requirements, test methods, inspection rules, packaging, marking, storage, transportation and quality certificates of ultra high-power graphite electrodes.

This standard is applicable to ultra high-power graphite electrodes made of needle coke and coal tar pitch as main raw materials, formed by molding, burning, impregnation, graphitization and mechanical processing, and used as the conductive materials for electric furnace.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 1427 Sampling method for carbon material

GB/T 1429 Carbon materials - Determination of the ash content

GB/T 3074.1 Method for the determination of the flexure strength of graphite electrodes

GB/T 3074.2 Method for the determination of the elastic modulus of graphite electrodes

GB/T 3074.4 Method for the determination of the coefficient of thermal expansion of graphite electrodes

3.1 The diameter and length of the electrode shall comply with the requirements of Table 1.

3.2 The allowable deviation of the electrode length shall meet the requirements of Table 2.

3.4 The electrode joint is conical; the shape and size of the joint are as specified in Figure 1 and Table 3.

4.1 Electrochemical indicators of electrodes and joints shall meet the requirements of Table 4.

4.2 Surface quality

Normal diameter

Joint Joint hole Thread pitch

4.2.1 There shall be no more than two peeling off or holes in the surface of the electrode. The diameter of the defect is 10 mm ~ 20 mm, it is not counted if it is less than 10 mm, or less than 5 mm when the depth is 5 mm ~ 10 mm.

Table 4

4.2.5 The area of the black skin on the surface of the electrode. the width is less than one tenth of the circumference of the electrode; the length is less than one third of the length of the electrode.

5.2 The determination of the rupture strength is carried out in accordance with the provisions of GB/T 3074.1.

5.3 The modulus of elasticity is determined in accordance with the provisions of GB/T 3074.2.

5.5 The thermal expansion factor is determined in accordance with the provisions of GB/T 3074.4.

5.6 Determination of ash content is carried out in accordance with the provisions of GB/T 1429.

5.7 The end surface clearance at the electrode joint is measured using a feeler gauge.

6.1 The quality inspection of the electrode shall be carried out by the supplier's quality supervision and inspection department; the buyer may make acceptance in accordance with the provisions of this standard.

6.3 Batch of thermal expansion coefficient (CTE) and quantity to be sampled per batch.

6.4 The numerical rounding off is carried out in accordance with the provisions of GB/T 8170.

7.1 The finished electrode is marked with a safety line on the surface of the electrode corresponding to the bottom of the joint.

Appendix A

(Informative)

Current load of ultra high power graphite electrode

A.1 The current load of high power graphite electrodes is recommended to be in accordance with Table A.1.

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FERROUS METALLURGY INDUSTRY STANDARD

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Replacing YB/T 4090-2000

Ultra high power graphite electrode

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