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**National Standard of the People’s Republic of China**

GB/T 37653-2019

Platinum ingots

**铂锭**

*（English Translation）*

（审定稿）

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SAC/TC 243 is in charge of this English translation.In case of any doubt about the contents of English translation, the Chinese original shall be considered authoritative.

Foreword

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

This standard was proposed by the Nonferrous Industrial Association of China.

This standard was prepared by SAC/TC 243 Chinese Nonferrous Metal Standardization Technical Committee.

Platinum ingots

**1. Scope**

This standard specifies the product classification, technical requirements, test methods, inspection rules, sign, packaging, transport, storage, quality certificate and the order (or contract) information of platinum ingots.

This standard applies to platinum ingots produced by different kinds of platiniferous raw materials.

**2. Normative references**

The following referenced documents are indispensable for the application of the document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 1419-2015 Spongy platinum

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 18035 Precious metals and its alloys designation system

YS/T 361 Determination of trace impurities in purity platinum by atomic emission spectrometric

**3. Product classification**

According to the representing methods regulation of GB / T 18305, platinum ingots are classified into three grades by different chemical components: IC-Pt99.99, IC-Pt99.95 and IC-Pt99.9.

**4. Technical requirements**

4.1 Chemical composition

The chemical composition of platinum ingots shall be conform to the Table 1.

 Table 1 Chemical composition of platinum ingots %

|  |  |  |  |
| --- | --- | --- | --- |
| Grade | IC-Pt99.99 | IC-Pt99.95 | IC-Pt99.9 |
| Platinum content (mass fraction) ≧ | 99.99 | 99.95 | 99.90 |
| Content of impurities(mass fraction)≤ | Pd | 0.003 | 0.010 | 0.030 |
| Rh | 0.003 | 0.020 | 0.030 |
| Ir | 0.003 | 0.020 | 0.030 |
| Ru | 0.003 | 0.020 | 0.040 |
| Au | 0.003 | 0.010 | 0.030 |
| Ag | 0.001 | 0.005 | 0.010 |
| Cu | 0.001 | 0.005 | 0.010 |
| Fe | 0.001 | 0.005 | 0.010 |
| NiContent of impurities(mass fraction)≤ | 0.001 | 0.005 | 0.010 |
| Al | 0.003 | 0.005 | 0.010 |
| Pb | 0.002 | 0.003 | 0.010 |
| Mn | 0.002 | 0.005 | 0.010 |
| Cr | 0.002 | 0.005 | 0.010 |
| Mg | 0.002 | 0.005 | 0.010 |
| Sn | 0.002 | 0.005 | 0.010 |
| Si | 0.003 | 0.005 | 0.010 |
| Zn | 0.002 | 0.005 | 0.010 |
| Bi | 0.002 | 0.005 | 0.010 |
| Total content of impurity elementsa,b ≤ | 0.010 | 0.050 | 0.100 |
| a The content of platinum (mass fraction) is obtained by subtraction of the total content of impurities in the sample from 100%. The impurities shall include all but not limited to those in the table 1.b Element control limits and analysis methods are not specified in this standard and shall be determined by the interested parties.through consultation. |

4.2 Physical specification

4.2.1 Platinum ingots shall be in rectangle shapes and the dimensions and weight shall be as shown in the Table 2.

 Table 2 Dimensions and weight of Platinum Ingots

|  |  |  |  |
| --- | --- | --- | --- |
| Weight/kg | Length/mm | Width/mm | Tolerance on Weight/g |
| 0.5 | 80±3 | 50±3 | ±20 |
| 1 | 100±3 | 60±3 | ±50 |
| 3 | 180±5 | 80±5 | ±100 |
| 5 | 200±5 | 100±5 | ±200 |

4.2.2 The weight of platinum ingot uses a single ingot as a unit, and is recorded as the actual weight, accurate to 0.01g.

4.2.3 Platinum ingot of other specifications shall be manufactured by consensus among [supply and demand](http://www.youdao.com/w/supply%20and%20requisitioning%20parties/%22%20%5Cl%20%22keyfrom%3DE2Ctranslation).

4.3 Surface quality

4.3.1 The platinum ingots surface shall be smooth, clean, free from burrs and flashings with integrity edges and corners.

4.3.2 Voids, interlayers, cracks and foreign inclusions shall be inpermissible in platinum ingots.

**5. Test methods**

5.1 The chemical [composition analysis](http://www.youdao.com/w/chemical%20component%20analysis/%22%20%5Cl%20%22keyfrom%3DE2Ctranslation) of IC-Pt99.9 shall be carried out in accordance with the provisions of GB/T 1419-2015 Annex A. For IC-Pt99.99 and IC-Pt99.95, the chemical [composition analysis](http://www.youdao.com/w/chemical%20component%20analysis/%22%20%5Cl%20%22keyfrom%3DE2Ctranslation) shall be carried out in accordance with the provisions of YS/T 361 or GB/T 1419-2015 Annex A. Arbitration shall be carried out in accordance with YS/T 361. In case of any requirements are put forward by the demand, The test method shall be determined by interested parties through consultation.

5.2 The appearance of size and weight of platinum ingots shall be inspected by instruments with appropriate accuracy. The weight shall be accurate to 0.01g, and the size shall be accurate to 1mm.

5.3 Examination of appearance shall be carried out by visual inspection.

**6. Inspection rules**

6.1 Inspection and acceptances

6.1.1 The platinum ingots shall be inspected by the quality control department of the supplier to ensure the products are in conformity with this standard or the purchase order (or contract) and a quality certificate shall be presented.

6.1.2 Inspection of the products received shall be carried out by the purchaser in accordance with the requirements of this standard. In case of non-conformity with the requirements of this standard or with the stipulations of the purchase order (or contract), complaints of non-conformity shall be made within 15 days after the date of receiving the products. The solution shall be discussed and agreed between the two parties. In case of arbitration, sampling shall be carried out by both parties at the demand side.

6.2 Lots

Inspection and acceptance shall be carried out in lots. Each lot shall consist of platinum ingots which are produced from the same melt.

6.3 Inspection items

Each lot of products shall be inspected in chemical composition, surface quality and physical specifications before leaving the factory. The chemical composition shall be inspected in lots. The appearance quality and physical specifications shall be inspected for each bar.

6.4 Arbitration sampling

6.4.1 The platinum ingot is samped block by block.

6.4.2 Sampling method: Draw diagonal lines across the two big sides, sampling holes shall be drilled at 1/2 from the center point to the apex angle, 4 sampling holes shall be drilled in total. As shown in Figure 1.

Explanation:

1. Hole position in top of bar
2. Hole position in bottom of bar

Figure 1 Sample drilling template of single bar

6.4.3 The bar shall be drilled with a diameter of 5 mm-8 mm drill. The holes shall be drilled no less than 2/3 thickness of the platinum ingots. After magnet treatment, the sample shall be mixed thoroughly and quartered to 6 parts, each of which shall not be less than 2g.

6.4.4 In order to avoid surface contamination, the sample may be immersed in 45℃~55℃ hot hydrochloric acid (1+1) for 5~10 min, and then after be washed in water, the sample shall be rinsed twice in alcohol or acetone, and last be dried in a oven at 105℃ ~ 110℃ for analysis.

6.5 Determination of results

6.5.1 The measured value of the impurity element is rounded to 3 decimal places according to GB / T 8170, which shall be expressed by the maximum limit value.

6.5.2 If the chemical composition does not meet the requirements, the inspection lot which they represent shall be deemed not to comply with the requirements of this standard.

6.5.3 If the appearance quality does not meet the requirements, the bar shall be deemed not to comply with the requirements of this standard.

6.5.4 The weight, size variation deviation shall not be taken as the basis for judging whether it is qualified or not.

**7. Marking, Packaging, Transportation, Storage and Quality Certificate**

7.1 Marking

The bar number, brand, grade etc shall be cast or marked upon each bar.

7.2 Packing

Each platinum ingot shall be wrapped by clean paper or plastic film and packed in wooden or plastic carton.

7.3 Transport and storage

During the process of transport and storage, the product shall not be damaged or contaminated.

7.4 Quality certificate

Each lot shall be provided with a product quality certificate with the following information stated:

1. name, address, telephone number;
2. product name and grade;
3. lot number;
4. net weight and the number of packaging;
5. inspection results of analysis items and inspection stamp of the quality control department;
6. number of this standard;
7. date of manufacture (or date of packaging).

**8. Order or contract information**

The order (or contract) for the products listed in this standard shall contain the following information:

a) product name;

b) grade;

c) quantity;

d) special requirements on impurity content;

e) requirements on shape and dimension;

f) requirements on packaging;

g) number of this l standard;

h) others.