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

GB/T 14235.1-2018

Replacing GB/T 14235.1-1993

**Low temperature pattern wax material for investment casting -
Part 1: Testing methods for physical properties**

熔模铸造低温模料 第1部分：物理性能试验方法

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Foreword

GB/T 14235 "Flame Casting Low Temperature Mold" is divided into two parts.

- Part 1. Physical performance test methods;
- Part 2. Use performance test methods. This part is the first part of GB/T 14235. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part replaces GB/T 14235.1-1993 "Method for determination of melting point of investment casting molds (cooling curve)", GB/T 14235.3- 1993 "Method for determination of ash content of investment casting molds", GB/T 14235.4-1993 "Method for determination of shrinkage of investment casting mold line", GB/T 14235.6-1993 "Method for determination of acid value of investment casting mouldings", GB/T 14235.7-1993 "Mouldability of investment casting mouldings" Determination method" and GB/T 14235.8-1993 "Methods for measuring the viscosity of investment casting molds" 6 standards. This part is for GB/T 14235.1-1993, GB/T 14235.3-1993, GB/T 14235.4-1993, GB/T 14235.6- 1993, GB/T 14235.7-1993, GB/T 14235.8-1993 standard integration revision. This section is compared with the six standards, the main The technical content changes are as follows:
 - Using the softening point measurement method instead of GB/T 14235.1-1993;
 - Replace the GB/T 14235.4-1993 with the line shrinkage test method;
 - Modified the solvent used in the acid value determination, and specified the amount of solvent added in the blank test (see 5.4.4, GB/T 14235.6- 1993 edition 5.1);
 - Removed the liquidity determination method of GB/T 14235.7-1993;
 - Revised the test report format (see Chapter 8);
 - Appendix A gives a comparison table of the structural differences between this part and

the replaced standard. This part is proposed and managed by the National Foundry Standardization Technical Committee (SAC/TC54). This section is responsible for drafting unit. Suzhou Taier Aviation Materials Co., Ltd. Participated in the drafting of this section. Dongying Jiayang Precision Metal Co., Ltd., Hefei South Auto Parts Co., Ltd., Nanjing Younaite Mi Machinery Manufacturing Co., Ltd., Qingdao Xinnuoke Casting Material Technology Co., Ltd., Xi'an Hangfa Precision Casting Co., Ltd., Zhejiang Electromechanical Occupation Technical College, Suzhou Collar Testing Technology Co., Ltd. The main drafters of this section. Li Yi, Song Shanshan, Wei Zhiyu, Chen Yahui, Duan Jidong, Wang Guangxiang, Zhang Xiao, Zhu Shunfeng, Shao Bin, Wu Chao, Zhang Lingfeng, Li Hua, Chen Yunxiang, Huang Shengyang. The previous versions of the standards replaced by this section are.

---GB/T 14235.1-1993;

---GB/T 14235.3-1993;

---GB/T 14235.4-1993;

---GB/T 14235.6-1993;

---GB/T 14235.7-1993;

1 Scope

GB/T 14235.1-2018 is the Chinese national standard on low temperature pattern wax material for investment casting - part 1: testing methods for physical properties, in the field of chemical technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 28 December 2018 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2019. Classification: ICS 71.040.50, CCS J31. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This part of GB/T 14235 specifies the softening point, rotational viscosity, acid value, linear shrinkage rate and ash content of low temperature molding materials for investment casting. The basic requirements of the method and test report. This section applies to the determination of the physical properties of low temperature molding materials for investment casting.

2 Normative references

The following documents are indispensable for the application of this document. For dated

references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 514-2005 Technical conditions for glass liquid thermometers for petroleum products
Preparation of

GB/T 601 chemical reagent standard titration solution Preparation of standard solution for

GB/T 602 chemical reagent impurity determination Preparation of preparations and
products used in

GB/T 603 chemical reagent test method

GB/T 1800.1-2009 Geometrical Product Specifications (GPS) Limits and fits. Part 1. Basis
for tolerances, deviations and fits

GB/T 6682-2008 Analytical laboratory water specifications and test methods

3 Softening point determination method

3.1 Overview of the method for determining the softening point of low temperature molding materials Two horizontal sample discs placed in a shoulder or tapered brass ring, heated at a certain speed in distilled water, one on each sample piece Steel ball, when the sample is softened to drop the two steel balls placed on the sample by a distance of 25 mm, the average value of the measured temperature is the softening point.

3.2 Instruments and equipment

3.2.1 Ring. Two brass shoulder rings or cone rings, the dimensions of which are shown in Figure 1a) and Figure 1b).

3.2.2 Support plate. A flat and smooth brass plate with a size of approximately 50 mm x 75 mm.

3.2.3 Steel balls. Two steel balls with a diameter of

9.5 mm, each of which has a mass of (3.50 ± 0.05) g.

3.2.4 Steel ball positioner. Two steel ball positioners are used to position the steel column in the center of the sample. The general shape and dimensions are shown in Figure 1c).

3.2.5 Bath. A glass container that can be heated, its inner diameter is not less than 85mm, and the depth from the heated bottom is not less than 120mm.

3.2.6 Ring support frame and bracket. A copper support frame is used to support the rings in two horizontal positions. The shape and dimensions are shown in Figure 1d). Figure 1e). The bottom of the shoulder ring on the support frame is 25 mm from the upper surface of the lower support plate, and the lower surface of the lower support plate is at the bottom of

the bath The part is (16 ± 3) mm.

3.2.7 Thermometer. It should meet the technical requirements of GB -T 514-2005 GB -42 thermometer, that is, the temperature range is $30\text{ }^{\circ}\text{C} \sim 180\text{ }^{\circ}\text{C}$, the most A fully immersed thermometer with a small index value of $0.5\text{ }^{\circ}\text{C}$. A suitable thermometer is suspended from the bracket according to Figure 1e), so that the bottom of the mercury ball is horizontal with the bottom of the ring, and the distance is within 13 mm, but not Contact rings or support brackets are not permitted to be replaced by other thermometers.