

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

YB/T 6139.2-2023

**Test methods for graphite-type negative electrode materials -
Part 2: Determination of oil absorption value
(English Translation)**

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1 Scope

This document specifies the principle, test preparation, test steps, result calculation and data processing, precision and test report for determination of the oil absorption value of graphite-type negative electrode materials using an oil absorption value tester.

This document is applicable to the determination of oil absorption value of graphite negative electrode materials.

2 Normative references

The following referenced documents are indispensable for the application of this 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 8170, Rules of rounding off for numerical values and expression and judgement of limiting values

GB/T 24533, Graphite negative electrode materials for lithium ion battery

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

oil absorption value

Oil absorption value is also called oil absorption. It is a property that indicates the ability of powder to absorb oil. It usually refers to the minimum volume of oil required when

100 g of powder is completely wetted by linseed oil (also known as linseed oil or linseed oil) (in this document, it is defined as the volume of linseed oil added when the torque generated by the change in the viscosity characteristics of the mixture of powder and oil reaches 70% of the maximum value).

4 Principle

Place a certain mass of the powder sample to be tested into the mixing chamber of the oil absorption value tester. Drop linseed oil on the sample at a constant speed. Use two rotating wings with different speeds to stir the sample simultaneously. As the volume of oil absorbed by the sample powder increases, the mixture of the sample and linseed oil changes from a free-flowing state to a semi-plastic agglomerate state. During this process, the viscosity of the mixture gradually increases and a peak value appears. The oil absorption value is calculated by the volume of linseed oil added when the torque generated by the change in the viscosity characteristics of the mixture reaches 70% of the maximum torque.

5 Reagents and materials

5.1

Linseed oil

Analytically pure.

6 Instruments and equipment

6.1

Electronic balance

The minimum graduation value is 0.1 mg.

6.2

Oil absorption value tester

The rotation speed ratio of the two rotors is 2:1. The oil pump oil drop rate can be adjusted within the range of 1.0 mL/min~8.0 mL/min. The deviation is within $\pm 0.5\%$.

7 Sample

Follow the requirements of GB/T 24533.

8.1 Test conditions

Laboratory environment temperature: $(23\pm 5)^{\circ}\text{C}$; humidity: $\leq 60\%\text{RH}$. The equipment and reagents used should be kept under laboratory environment conditions for 24 h.

8.2 Oil exhaust

Before testing, the bubbles in the oil pipeline of the oil absorption value tester need to be removed.

8.3 Oil drop velocity calibration

The oil drop velocity is calibrated according to formula (1). When the deviation between the measured value of m and the theoretical value is within $\pm 0.5\%$, it is qualified.

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