

ICS 73.120
CCS J 77



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

GB/T 46629-2025

Liquid-liquid separators - Test method for energy efficiency

液液分离设备 能效检测方法

Issued on: October 31, 2025

Implemented on: May 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Separation Machinery (SAC/TC92). This document was drafted by: Hefei General Machinery Research Institute Co., Ltd., Zhejiang Light Machinery Centrifuge Manufacturing Co., Ltd., and Jiangsu Saideli Pharmaceutical Co., Ltd. Machinery Manufacturing Co., Ltd., Nantong Haifa Intelligent Technology Co., Ltd., Jiangsu Juneng Machinery Co., Ltd., Nanjing Xinshaifen Technology Industry Co., Ltd. Company, Yixing Huading Machinery Co., Ltd., Zhangjiagang Haili Machinery Co., Ltd., Chongqing Jiangbei Machinery Co., Ltd., Nanjing Zhongchuan Lvzhou Machinery Equipment Co., Ltd., and China National Machinery General Machinery Technology Co., Ltd. The main drafters of this document are. Chen Cuilong, Zhang Weida, Zhou Jin, Gu Gensheng, Ni Yanbin, Mou Fujun, Cheng Xuefei, Jiang Chengmin, and Liu Minjie. Zhang Jianming, Zhu Bixiao, Zhang Deyou, and Li Bang.

Liquid-liquid separation equipment is an important component of separation machinery

products, mainly including disc separators, tubular separators, and centrifugal extractors. Sedimentation centrifuges. These types of equipment are characterized by their small footprint, high rotation speed, excellent separation effect, and wide range of applications. Most of them... These are all continuously operating devices, especially those with large drum diameters, which typically use high-power motors, thus consuming a significant amount of electricity. Relatively high. Furthermore, separation equipment with different transmission and drum structures has different energy efficiencies; high-efficiency, low-energy-consumption equipment has already been developed. This becomes an important factor for users when making their selection. Liquid-liquid separation equipment has developed to a considerable market size. In light of the "dual carbon" goals and the Chinese government's promotion of energy conservation and carbon reduction, and advocacy of green practices... With the development of green technology, companies are actively launching products with low power consumption. However, regarding the energy efficiency testing of liquid-liquid separation equipment, companies... Users and third-party testing agencies lack unified, scientific, and reliable testing methods and technologies, making it impossible to determine the energy efficiency of liquid-liquid separation equipment. A consensus was reached. Because energy efficiency (EER) testing and grading standards lack effective constraints on the energy efficiency level of separation machinery,... Some energy-inefficient products still dominate the market, and manufacturers' individual actions mislead users in their selection, disrupt the market, and hinder the healthy and orderly development of the industry. This development is also incompatible with high-quality development. The current situation presents significant challenges to regulating the market, promoting energy conservation and emission reduction, and achieving the "dual carbon" target as soon as possible. Due to the significant resistance, there is an urgent need to develop energy efficiency testing methods for liquid-liquid separation equipment. This document presents an effective method for measuring and calculating the energy efficiency of liquid-liquid separation equipment. This document references several current power consumption methods used in my country. The determination method, through research and experimental verification, was selected to conform to the technical characteristics of liquid-liquid separation equipment, meet the needs of production enterprises and users, and has the following characteristics. The document outlines testing methods for operability and economic efficiency. Its formulation will promote research into energy-saving and emission-reduction technologies in the separation machinery industry and facilitate enterprise development. Industries are increasing R&D investment to develop new equipment and technologies, eliminate outdated products, and at the same time serve my country's "dual-carbon" strategy, protect the environment, and promote sustainable development. Continued development. Energy efficiency testing methods for liquid-liquid separation equipment

1 Scope

GB/T 46629-2025 is the Chinese national standard covering how much energy a liquid-liquid separator uses for the separation it achieves - the throughput and the separation efficiency measured together, the power drawn, and the efficiency figure that lets a centrifuge and a coalescer be compared on the same basis. First edition, in force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026.

This document specifies the general requirements for energy efficiency testing of liquid-liquid separation equipment and describes the corresponding testing and calculation methods. This document applies to the energy efficiency testing of liquid-liquid separation equipment (including centrifugal extractors, disc separators, and tubular separators). It also applies to... Other sedimentation centrifugal separation equipment.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 4774 Filtering and Separation Terminology

GB 19814 Safety requirements for separators

GB 19815 Safety requirements for centrifuges

3 Terms and Definitions

The terms and definitions defined in GB/T 4774 and the following terms and definitions apply to this document.

3.1 Supply energy The energy input to the equipment to achieve maximum throughput or capacity within a specified test cycle.

Note. Centrifugal extractors are rated by maximum throughput, while disc separators and tubular separators are rated by throughput capacity.

3.2 efficient energy The energy consumed by the equipment to achieve maximum throughput or capacity within a test cycle.

3.3 Energy Efficiency The ratio of effective energy to supplied energy of the equipment during the testing period.

3.4 The energy consumed by equipment in processing (producing) a unit mass or volume of material (product).

4.1 Equipment Requirements

4.1.1 The device under test shall comply with the relevant product standards and the provisions of GB 19814 and GB 19815.

4.1.2 The operation of the equipment shall be performed by trained professionals.

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