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

GB/T 47925-2026

**Hydraulic fluid power - Contamination control - Method for
determining the required cleanliness level of a system**

液压传动 污染控制 系统目标清洁度的确定方法

(English Translation)

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Foreword

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This document conforms to GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting is scheduled.

This document adopts ISO 12669:2017 "Determination of target cleanliness (RCL) of hydraulic transmission systems".

The following minimal editorial changes have been made to this document.

--To align with existing standards, the standard name has been changed to "Method for Determining the Target Cleanliness of Hydraulic Transmission Contamination Control Systems";

--The pressure unit bar and its corresponding pressure value have been removed;

--Added a note for the term "qualitative data" (see 3.8).

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 Hydraulics and Pneumatics (SAC/TC 3).

Introduction

In hydraulic systems, power is transmitted and controlled via pressurized fluid within a closed circuit. This fluid serves as both a lubricant and a...

Power transmission medium. The presence of solid particulate contaminants can affect the lubricity of hydraulic fluid, causing component damage. Degree of solid particulate contamination.

The target cleanliness of a hydraulic system depends on the system's contamination sensitivity and the reliability required by the user. Therefore, it varies depending on the application.

They are the same yet different.

Historically, the determination of RCL (Resistant Liquid Chance) has primarily relied on the experience of hydraulic system designers or third parties. This method is not standardized and is difficult to truly adapt to different situations.

Due to system cleanliness requirements, and because the methodology was subjective, the recommended RCLs from the participating parties lacked consistency. Ultimately...

This caused confusion among users and prevented the determination of a suitable RCL. Based on this situation, the British Fluid Dynamics Association (BFPA) in 1999...

A method for determining the RCL was developed. This method is based on the specific system and user requirements, and its basic principles are detailed in Appendix A.

It has been adopted as Norwegian National Standard NS 2085.

The emphasis on system cleanliness makes Resistant Cleanliness Level (RCL) a crucial parameter in hydraulic system cleanliness management. RCL not only provides a comprehensive overview of the entire system...

Cleanliness standards are set for the system's manufacturing, assembly, commissioning, and use processes, which also helps ensure that the system remains appropriately clean during operation.

Degree level. The RCL calculated according to this method is used in ISO/TR 15640 to aid in filter selection.

The purpose of this document is to provide a standardized RCL determination procedure for a specific system. This method involves selecting a series of conditions.

The item is best matched with the actual system operating conditions of the RCL to be determined, and the RCL is evaluated based on this.

Hydraulic transmission contamination control system target cleanliness Determining the method

1 Scope

This document provides a method for determining the target cleanliness of a hydraulic system, namely, determining the hydraulic cleanliness based on the specific requirements of various aspects of the hydraulic system.

The optimal level of system cleanliness.

This document applies to systems whose cleanliness is expressed in ISO 4406 codes, but can also be converted to other codes to express system cleanliness.

This document applies to both hydraulic and lubrication systems.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are listed below.

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.

ISO 4406 Code method for solid particulate contamination levels of hydraulic power fluids for coding the level of contamination by solid particles) Note. GB/T 14039-2026 Code method for solid particulate pollution level analysis of hydraulic transmission (ISO 4406:2021, IDT) ISO 5598 Fluid power systems and components - Vocabulary Note. GB/T 17446-2024 Vocabulary of Fluid Transmission Systems and Components (ISO 5598:2020, MOD)

3 Terms and Definitions

The terms and definitions defined in ISO 5598 and the following terms and definitions apply to this document.

Contamination code

A set of numbers used to briefly describe the size distribution of contaminant particles in hydraulic fluids.

[Source. ISO 5598:2008, 3.2.129] Note. This document uses the ISO 4406 pollution code.

Contaminant sensitivity the degree of performance degradation of components caused by contaminants.

work cycle

The characteristics of a hydraulic system are determined by its working pressure and the rate of change of pressure.

field contamination monitor an instrument that automatically measures the level of solid particulate contamination in oil by using techniques such as filter membrane clogging or light blocking.