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

GB/T 17489-2022

Replacing GB/T 17489-1998

**Hydraulic fluid power - Particulate contamination analysis -
Extraction of fluid samples from lines of an operating system**

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foreword

4.2 of the year edition);

4.2 of ISO 4021.1992);

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document replaces GB/T 17489-1998 "Hydraulic Particle Contamination Analysis Extracting Liquid Samples from Working System Pipelines", and

Compared with GB/T 17489-1998, the main technical changes except for structural adjustment and editorial changes are as follows.

- a) The terms and definitions of turbulent flow are deleted (see 3.5 of the.1998 edition);
- b) Added the setting of sampling points (see Chapter 4);
- c) Added the selection of sampling bottle (see Chapter 5);
- d) The principle of sampling from the oil tank has been changed, and the method of extracting liquid samples through the shut-off valve installed on the oil tank has been added (see 6.2,.1998).

4.2 of the year edition);

- e) The online analysis sampling procedure is added (see 7.2);
- f) The calculation of Reynolds number is deleted (see Appendix A of the.1998 edition);
- g) GB/T 17484 is changed to an informative reference document (see reference [1]).

This document is modified to adopt ISO 4021.1992 "Particle contamination analysis of hydraulic transmissions Extracting fluid samples from working system piping".

The technical differences between this document and ISO 4021.1992 and their reasons are as follows.

- Replaced ISO 5598 (see Chapter 3) with the normatively cited GB/T 17446 for the convenience of practical application in my country;
- Replace ISO 3722 (see 3.1) with GB/T 17484 cited for information to adapt to the technical conditions of our country;
- Delete the terms and definitions of turbulent flow (see 3.5 of ISO 4021.1992);
- Increased sampling point settings (see Chapter 4);
- Increased the selection of sampling bottles (see Chapter 5);
- Added reference to GB/T 14039 (see 5.5, 6.2.8) to adapt to my country's technical conditions and increase operability;
- Changed the principle of sampling from the fuel tank, and added the method of extracting liquid samples through the shut-off valve installed on the fuel tank (see 6.2,

4.2 of ISO 4021.1992);

- Added online analysis sampling procedure (see 7.2);
 - Added references to GB/T 18854, GB/T 21540, GB/T 37162.1 (see 7.2.1, 7.2.2) to adapt to my country's technical regulations
- parts to increase operability;
- Deleted the calculation of Reynolds number (see Annex A of ISO 4021.1992).

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

In a hydraulic system, power is transmitted and controlled by means of pressurized fluid in a closed circuit. The liquid is both a lubricant and a dynamic

force transmission medium. The presence of solid particulate contamination in liquids not only hinders the lubricating properties of the liquid, but also causes wear of components.

The degree of particle contamination in the liquid is directly related to the performance and reliability of the system, so it needs to be controlled within the allowable range of the system. liquid

A pressure filter can be used to control the amount of particulate contamination to suit both the contamination sensitivity of the system and the reliability requirements of the user.

Users of hydraulic equipment typically specify maximum particle contamination levels for components, systems, and production processes in sequence.

Dyeing is often referred to as Target Cleanliness (RCL for short). Cleanliness is determined by sampling the fluid in the hydraulic system and measuring particle contamination

arrive. If the measured particle contamination level is higher than the target cleanliness level, action needs to be taken to re-control it within a reasonable range so that the system cleans

Cleanliness returned to normal. To avoid costly unnecessary measures, accurate sampling and measurement of particle contamination is required.

The best method for sampling is to take a liquid sample from the main flow line of the working hydraulic system, which is the most representative, that is, the liquid sample.

Particulate contamination in is representative of the fluid flowing at this sampling point; an alternate method is to extract the

To take liquid samples, this method can only be used when a suitable sampler is not installed on the system pipeline. The extracted liquid samples can be analyzed offline or for online analysis.

This document is intended to provide a uniform, consistent procedure for extracting fluid samples from hydraulic systems.

Analysis of Particle Contamination in Hydraulic Transmission

Take liquid samples from working system tubing

1 Scope

This document specifies a method and procedure for taking fluid samples from a working hydraulic system.

This document applies to the extraction of liquid samples for particle contamination analysis in hydraulic systems.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document.

GB/T 14039 Hydraulic Transmission Fluid Solid Particle Pollution Level Code (GB/T

14039-2002, ISO 4406.1999,

MOD)

GB/T 17446 Vocabulary of Fluid Transmission Systems and Components (GB/T 17446-2012, ISO 5598.2008, IDT)

Calibration of GB/T 18854 Hydraulic Transmission Liquid Automatic Particle Counter (GB/T 18854-2015, ISO 11171.2010,

MOD)

GB/T 21540 Calibration and Verification Method of Hydraulic Transmission Fluid Online Automatic Particle Counting System (GB/T 21540-2008,

ISO 11943.1999, IDT)

GB/T 37162.1 Monitoring of Particle Pollution Degree of Hydraulic Transmission Fluid Part 1.General (GB/T 37162.1-2018,

ISO 21018-1.2008, MOD)

3 Terms and Definitions

GB/T 17446 as well as the following terms and definitions apply to this document.

3.1

cleansamplebottle

Clean bottles that have been cleaned and tested according to GB/T 17484.

3.2

Line sampling linefluidsampling

Extract fluid samples from turbulent sections of hydraulic line flow.

3.3

Take a fluid sample from the tank of a working hydraulic system.

3.4

sampler sampler

A device for extracting a representative amount of fluid from a hydraulic system.