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

GB/T 46719.6-2025

**Aerospace - Hydraulic filter elements test methods - Part 6:
Initial cleanliness level**

航空航天 液压滤芯试验方法 第6部分：洁净度等级

(English Translation)

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Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms and Definitions
4 Experimental Overview
5 Experimental Materials and Equipment
6 Program
7 Pollutant Analysis
8 Acceptance Criteria
9 Notes
Appendix A (Informative) Analytical Methods for Pollutants
Appendix B (Informative) Filter Cartridge Cleanliness Test Data Table
References

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.

This document is Part 6 of GB/T 46719 "Test Methods for Aerospace Hydraulic Filter Elements". GB/T 46719 has been published as follows.

Part 2.

---Part 2: Regulatory Role;

---Part 4: Validation of Crushing/Rupture Pressure Rating;

---Part 6: Cleanliness Levels this document adopts ISO 14085-6:2015 "Aerospace series hydraulic filter elements - Test methods - Part 6: Cleanliness".

grade".

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

---To align with existing standards, the standard name has been changed to "Test Methods for Aerospace Hydraulic Filter Elements - Part 6: Cleanliness".

grade";

---Added a note on "blank values" (see 5.2).

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 and is under the jurisdiction of the National Aircraft Standardization Technical Committee (SAC/TC435).

Introduction

GB/T 46719 aims to provide a unified and consistent procedure for performance testing of aerospace hydraulic filter elements, and is proposed to consist of six parts.

---Part 1: Test Sequence. The purpose is to specify the test sequence and provide guidelines for acceptance criteria.

---Part 2: Regulation. This section describes the filter element's thermal conditions and cold start test procedure.

---Part 3: Filtration Efficiency and Retention Capacity. This section describes the test procedures for the filtration efficiency and retention capacity of filter cartridges.

---Part 4: Crushing/Rupture Pressure Rating Validation. This section describes the crushing/rupture pressure test procedure for filter elements.

---Part 5: Resistance to Flow Fatigue. This section describes the test procedures for resisting flow fatigue in filter elements.

---Part 6: Cleanliness Class. This section describes the test procedures for the initial cleanliness of the filter element.

In aerospace hydraulic fluid power systems, power is transmitted and controlled through pressurized fluid. This fluid serves as both a lubricant and a...

It is the power transmission medium. The presence of solid contaminant particles in the liquid can interfere with the lubrication ability of the hydraulic oil and lead to wear and failure of components.

The degree of contamination in the fluid directly affects the system's performance, reliability, and safety, and needs to be controlled within the system's permissible level.

Filters typically consist of a filter element enclosed in a housing, which controls the contamination level of oil by removing solid contaminant particles. The filter element is...

A porous element that performs the actual filtration process. The assembly consisting of the filter element and the housing is called a filter.

The filter element cleanliness level test is used to determine whether the filter element is

clean, ensuring that the filter element itself will not degrade when the filter is installed in the system.

System cleanliness. This document provides a test method for testing the cleanliness of new hydraulic filter elements.

Aerospace hydraulic filter element test methods Part 6: Cleanliness Level

1 Scope

This document describes a test method for determining the cleanliness of new filter elements used in aircraft hydraulic systems after production and before shipment.

This document applies to filter elements used in systems with specific oil cleanliness requirements in certain specifications.

The test data obtained in this document can be used to compare the cleanliness of aerospace hydraulic filter elements.

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.

Note: GB/T 17484-1998 Identification and control of purification methods for hydraulic fluid sampling containers (ISO 3722:1976, IDT).

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.

extraction liquid

The test solution was extracted from the filter housing containing the filter element by shaking.

4 Experimental Overview

The test involves installing the test filter element into a pre-cleaned filter housing and adding the test solution. The filter should then be shaken, rinsed, and collected.

Collect contaminants inside the filter cartridge. Multiple extract samples should be used to remove contaminants to the greatest extent possible, followed by particle counting or gravimetric analysis.

The collected pollutants should be analyzed using analytical methods, and the quantity of pollutants should be reported.

5 Experimental Materials and Equipment

5.1

Test Solution. Use a suitable solvent with a viscosity of less than 5 mm²/s at the test temperature. The test solution should be compatible with all materials used in the filter.

The test solution should be compatible with the working fluid of the material and filter application system. The test solution should be compatible with all test equipment, including seals and filters, and the filter achieves the following initial cleanliness level.

Manufacturers and customers should agree on the test solution to be used during the collection process and the required initial cleanliness before testing. to use all test solutions should be less than 1% of the filter cartridge's set or permissible cleanliness level, or better than ISO 11218 Class 1, so that it will not...