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Road Vehicles – Cleanliness of Components and Systems

道路车辆 零部件和系统的清洁度

(ISO 16232:2018, IDT)

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Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 *Directives for Standardization – Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This Document equivalently adopted ISO 16232:2018 *Road Vehicles – Cleanliness of Components and Systems*.

The following minimal editorial changes have been made to this Document:

--- Delete Annex L (Informative) of ISO 16232:2018.

Please note some contents of this Document may involve patents. The issuing agency of this Document shall not assume the responsibility to identify these patents.

This Document was proposed by the Ministry of Industry and Information Technology of PRC.

This Document shall be under the jurisdiction of the National Technical Committee of Auto Standardization (SAC/TC 114).

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Road Vehicles – Cleanliness of Components and Systems

1 Scope

WARNING: The use of this document can involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of any other restrictions prior to its use.

This document specifies requirements for applying and documenting methods for determining particulate contamination on functionally-relevant components and systems (cleanliness inspection) of road vehicles.

A cleanliness inspection comprises the basis of an assessment of technical cleanliness, which is performed, for example, under the following circumstances:

- initial inspection and evaluation;
- inspection of incoming and outgoing components; and
- quality control or monitoring of manufacturing processes relevant to cleanliness (e.g. cleaning, surface treatment and assembly processes).

This document is intended to improve the informative quality and comparability of test results. It also defines the standardized expression of cleanliness specifications and cleanliness test results in the quality chain of the automotive industry.

This document does not apply to the following:

- detection of filmy contamination (grease, oils, etc.);
- application of non-quantifiable particulate detection methods on test components (e.g., visual assessment, wipe test with clean cloth, etc.); and
- characterization of operating fluids (fuel, oils, coolants, brake fluid, etc.).

This document does not define any cleanliness limit values for specific components or systems. The degree of cleanliness required for a specific component or system is dependent on a number of highly individual factors. Cleanliness specifications are intended to be undertaken only by specialists who not only know the component concerned but also the system it is built into, the later conditions of use, technically-feasible practices and possible consequences for manufacturing processes and the supply chain. Guidance for deriving limit values can be found in Annex H.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

ISO 11500 Hydraulic Fluid Power – Determination of the Particulate Contamination Level of a Liquid Sample by Automatic Particle Counting Using the Light-Extinction Principle

NOTE: GB/T 37163-2018 Hydraulic Fluid Power - Determination of the Particulate Contamination Level of a Liquid Sample by Automatic Particle Counting Using the Light-Extinction Principle (ISO 11500:2008, MOD)

3 Terms and Definitions

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

3.1 Active component

Component which may set the fluid in motion or be activated by the fluid during operation.

EXAMPLE: Pump, cylinder, distributor, injector, valve regulator.

3.2 Aerosol formation

Atomization of a liquid to create small droplets.

NOTE: e.g., in pressure-rinsing due to the shape of nozzles or impaction of the pressure-rinsing jet on a surface.

3.3 Agglomerate

Two or more particles which are in intimate contact and cannot be separated by gentle stirring and the small shear forces thus generated.

3.4 Agitation

Extraction method implemented for internal surfaces.

NOTE: Its cleaning effect is based on the turbulent change in direction of the test liquid inside the component.

3.5 Air cleanliness class

Specification of air quality based on the concentration of particles in a defined volume of air.

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