International Standard

ISO 12103-1

Road vehicles — Test contaminants for filter evaluation —

Part 1: Arizona test dust

Véhicules routiers — Poussière pour l'essai des filtres —

Partie 1: Poussière d'essai d'Arizona

Third edition
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles,* Subcommittee SC 34, *Propulsion, powertrain and powertrain fluids*.

This third edition cancels and replaces the second edition (ISO 12103-1:2016), which has been technically revised.

The main changes are as follows:

— A0 (0 to 5) µm test dust was added.

A list of all parts in the ISO 12103 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document specifies five grades of test dusts made from Arizona desert sand composed of naturally occurring compounds which motor vehicles are commonly subjected to. These test dusts are used to determine performance of filtration systems. Due to the abrasive characteristics of these materials, they have also been used in wear studies involving bearings, internal combustion engines and fuel injection systems, seals, fan blades, windshield wipers, etc.

This document specifies particle size distribution of five grades of test dust by volume percent as opposed to number characterization.

Dusts complying with volume distribution specified in this document are not appropriate for calibration of particle counters. For this purpose, refer to ISO 11171.

This is an Arizona test dust standard, not other region document. Other dusts and documents can be brought forward to the committee to be developed into a standard.

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Road vehicles — Test contaminants for filter evaluation —

Part 1: Arizona test dust

1 Scope

This document defines particle size distribution and chemical content limits involving five grades of test dust made from Arizona desert sand.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Test dust description

ISO test dusts according to this document are manufactured from Arizona desert sand. Arizona desert sand is a naturally occurring contaminant consisting primarily of silicon dioxide with smaller amounts of other compounds. It is collected from the Salt River area of Arizona desert and sized to specific particle size. Refer to Annex B for the history of Arizona test dust and to Annex C for the proper handling of the material.

Arizona desert sand has also been referred to as Arizona road dust, Arizona test dust, Arizona silica, AC fine or coarse test dust, and SAE fine or coarse test dust.

Bulk density of ISO test dusts made from Arizona sand varies with particle size (see Table 1).

Table 1 — Bulk density

Category	Approximate bulk density, kg/m^3
ISO (0 to 5) µm	500
ISO ultrafine	500
ISO fine	900
ISO medium	1 025
ISO coarse	1 200

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