BSI Standards Publication

Road vehicles — Test contaminants for filter evaluation

Part 1: Arizona test dust

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National foreword

This British Standard is the UK implementation of ISO 12103-1:2024. It supersedes BS ISO 12103-1:2016, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/22, Engines for road vehicles.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Road vehicles — Test contaminants for filter evaluation —

Part 1: Arizona test dust

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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.

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.

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