INTERNATIONAL STANDARD

ISO 12103-1

Second edition
2016-03-01

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

Reference number
ISO 12103-1:2016(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 34, *Propulsion, powertrain and powertrain fluids*.

This second edition cancels and replaces the first edition (ISO 12103-1:1997), which has been technically revised.

ISO 12103 consists of the following parts, under the general title *Road vehicles — Test contaminants for filter evaluation*:

— *Part 1: Arizona test dust*

— *Part 2: Aluminium oxide test dust*

The following parts are under preparation:

— *Part 3: Soot aerosol*

Introduction

This part of 12103 specifies four 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 part of ISO 12103 specifies particle size distribution of four grades of test dust by volume percent as opposed to number characterization.

Dusts complying with volume distribution specified in this part of ISO 12103 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 part of ISO 12103 defines particle size distribution and chemical content limits involving four grades of test dust made from Arizona desert sand.

2 Test dust description

ISO test dusts according to this part of ISO 12103 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.

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 ultrafine	500
ISO fine	900
ISO medium	1 025
ISO coarse	1 200

3 Test dust designation

Arizona test dusts are available in four standard grades designated as follows:

— ISO 12103-1, A.1 ultrafine test dust;

— ISO 12103-1, A.2 fine test dust;

— ISO 12103-1, A.3 medium test dust;

— ISO 12103-1, A.4 coarse test dust.

4 Particle size distribution

Particle size distribution is determined using a light scattering particle size analyser, as referenced in ISO 13320.