



This is a preview of ISO 12141:2024. [Click here to purchase the full version from the ANSI store.](#)

ISO 12141

**Stationary source emissions —
Determination of low range mass
concentration of dust — Manual
gravimetric method**

*Émissions de sources fixes — Détermination de faibles
concentrations en masse de poussières — Méthode gravimétrique
manuelle*

**Second edition
2024-09**

This is a preview of ISO 12141:2024. Click [here](#) to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

This is a preview of ISO 12141:2024. [Click here to purchase the full version from the ANSI store.](#)

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviations	5
4.1 Symbols.....	5
4.2 Abbreviations.....	5
5 Principle	6
6 Measurement planning and sampling strategy	6
6.1 Measurement planning.....	6
6.2 Sampling strategy.....	7
6.2.1 General.....	7
6.2.2 Measurement section and measurement plane.....	7
6.2.3 Minimum number and location of measurement points.....	7
6.2.4 Measurement ports and working platform.....	7
7 Equipment and materials	8
7.1 Gas velocity, temperature, pressure and composition measurement devices.....	8
7.2 Sampling equipment.....	8
7.2.1 Sampling system.....	8
7.2.2 Filtration device.....	8
7.2.3 Entry nozzle.....	12
7.2.4 Suction tube for out-stack filtration devices.....	12
7.2.5 Suction unit.....	12
7.2.6 Gas metering devices.....	12
7.3 Dust deposit recovery accessories.....	14
7.4 Equipment for conditioning and weighing.....	14
8 Weighing procedure	14
8.1 General.....	14
8.2 Pre-sampling conditioning.....	14
8.3 Weighing.....	15
8.4 Post-sampling treatment of weighed parts.....	15
8.5 Post-sampling treatment of the rinsing solutions.....	16
8.6 Improvement of the weighing procedure.....	16
9 Sampling procedure	16
9.1 Preparation.....	16
9.2 Filter handling.....	17
9.3 Pre-measurements.....	17
9.4 Leak test.....	18
9.5 Sampling.....	18
9.6 Recovery of deposits upstream of the filter.....	19
9.6.1 General.....	19
9.6.2 Rinsing procedure.....	20
9.7 Field blank.....	20
10 Calculation	20
10.1 Sampling volumetric flow rate.....	20
10.2 Dust concentration.....	21
11 Measurement report	21
Annex A (informative) Performance characteristics of the method obtained in the method validation	23

This is a preview of ISO 12141:2024. [Click here to purchase the full version from the ANSI store.](#)

Annex C (informative) Proven design of the entry nozzles	31
Annex D (informative) Summary of the requirements	33
Annex E (normative) Sampling volume, flow rate and duration	34
Annex F (informative) Examples of weighing bias	35
Annex G (informative) Determination of the measurement uncertainty	37
Annex H (informative) Thermal behaviour of dusts	51
Annex I (informative) Significant technical changes	52
Bibliography	53

This is a preview of ISO 12141:2024. [Click here to purchase the full version from the ANSI store.](#)

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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by CEN (as EN 13284-1:2017) and drafted in accordance with its editorial rules. It was assigned to Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 1, *Stationary source emissions*, and adopted under the "fast-track procedure".

This second edition cancels and replaces the first edition (ISO 12141:2002), which has been technically revised.

The main changes are as follows:

- all technical changes have been listed in [Annex I](#);
- "this European Standard" has been changed to "this document";
- "section" has been changed to "Clause" or "subclause".

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 is a preview of ISO 12141:2024. [Click here to purchase the full version from the ANSI store.](#)

The measurement method specified in this document has been developed in close liaison and cooperation between ISO/TC 146/SC 1 and CEN/TC 264, resulting in the preparation of the first editions of the International Standard ISO 12141:2002 and the European Standard EN 13284-1:2001.

In the meantime, CEN/TC 264 has revised EN 13284-1:2001 in order to adapt the content to the state of the art. The basic concept of the measurement method has not been changed. Against this background and to ensure comparability of measurement results at international level, ISO/TC 146/SC 1 has decided to adopt EN 13284-1:2017 without technical changes. However, some editorial adjustments have been made to take account of the international application of this document. For example, references to EN 15259:2007 in EN 13284-1:2017 have been replaced in this document by references to the technically identical ISO 15259:2023.

To meet the specifications of this document, a certain level of accuracy for weighing the particle sample is needed. At low dust concentrations, this level of accuracy can be achieved by:

- a) exercising extreme care in weighing, as per procedures of this document;
- b) extending the sampling time at conventional sampling rates; or
- c) sampling at higher rates for conventional sampling times (high-volume sampling).

High-volume sampling is not part of this document since it was not part of the validation of the measurement method.

The measurement method specified in this document can be used for the calibration of automated measuring systems (AMS) (see ISO 10155). If the waste gas contains unstable, reactive or semivolatile substances, the measurement depends on the filtration temperature, and in-stack methods can be more applicable than out-stack methods for the calibration of AMS.