INTERNATIONAL STANDARD

ISO 3262-13

Second edition
2023-05

Extenders — Specifications and methods of test —

Part 13: Natural quartz (ground)

Matières de charge — Spécifications et méthodes d'essai —

Partie 13: Quartz naturel (broyé)

Reference number
ISO 3262-13:2023(E)

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

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 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 Technical Committee ISO/TC 256, *Pigments, dyestuffs and extenders*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 298, *Pigments and extenders,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 3262-13:1997), which has been technically revised.

The main changes are as follows:

— the first part of the title has been changed to “Extenders”;

— the test method for particle size distribution in Table 2 has been changed to ISO 8130-13;

— the normative references have been updated.

A list of all parts in the ISO 3262 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.

Extenders — Specifications and methods of test —

Part 13:
Natural quartz (ground)

1 Scope

This document specifies requirements and corresponding methods of test for natural quartz (ground).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 787-2, *General methods of test for pigments and extenders — Part 2: Determination of matter volatile at 105 °C*

ISO 787-3, *General methods of test for pigments and extenders — Part 3: Determination of matter soluble in water — Hot extraction method*

ISO 787-5, *General methods of test for pigments and extenders — Part 5: Determination of oil absorption value*

ISO 787-9, *General methods of test for pigments and extenders — Part 9: Determination of pH value of an aqueous suspension*

ISO 787-14, *General methods of test for pigments and extenders — Part 14: Determination of resistivity of aqueous extract*

ISO 787-18, *General methods of test for pigments and extenders — Part 18: Determination of residue on sieve — Mechanical flushing procedure*

ISO 3262-1, *Extenders — Specifications and methods of test — Part 1: Introduction and general test methods*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 8130-13, *Coating powders — Part 13: Particle size analysis by laser diffraction*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

ISO 18451-1, *Pigments, dyestuffs and extenders — Terminology — Part 1: General terms*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 18451-1 and the following apply.

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/

3.1
natural quartz
material, consisting of the low-temperature modification of quartz with a theoretical density of 2,65 g/cm^3, ground to a powder

4 Requirements and test methods

For ground quartz complying with this document, the essential requirements are specified in Table 1 and the conditional requirements are listed in Table 2. The test methods listed in Tables 1 and 2 shall apply.

Table 1 — Essential requirements

Characteristic	Unit	Requirement		Test method
		Grade A	Grade B	
Quartz content	% mass fraction min.	97	80	X-ray diffraction
Silica content, SiO_2	% mass fraction min.	97	80	X-ray fluorescence or Clause 6
Residue on sieve 63 µm 45 µm	% mass fraction min.	To be agreed between the interested parties	max. 0,1 1	ISO 787-18
Matter volatile at 105 °C	% mass fraction max.	0,3		ISO 787-2[a]
Loss on ignition	% mass fraction max.	0,5[b]		ISO 3262-1
Matter soluble in water (hot extraction)	% mass fraction max.	0,2		ISO 787-3
pH value of aqueous suspension		5,5 to 9[b]		ISO 787-9

[a] By agreement between the interested parties, test portions other than 10 g may be used.

[b] These values exclude a possible surface treatment.

Table 2 — Conditional requirements

Characteristic	Unit	Requirements	Test method
Particle size distribution (instrumental method)	% mass fraction	To be agreed between the interested parties	ISO 8130-13
Oil absorption	g/100 g		ISO 787-5
Colour			ISO 3262-1
Lightness			To be agreed between the interested parties
Resistivity of aqueous extract	Ω · m		ISO 787-14

5 Sampling

Take a representative sample of the product to be tested, in accordance with ISO 15528.

6 Determination of silica content

6.1 Reagents

Use only reagents of recognized analytical grade and only water of a least grade 3 purity as specified in ISO 3696.

NOTE This determination includes strontium sulfate.

6.1.1 Sulfuric acid, CAS Registry Number ®[1] 7664-93-9, diluted 1 + 1.

Add 1 part by volume of concentrated sulfuric acid (approximately 96 % mass fraction, $\rho \approx 1{,}84$ g/ml) slowly to 1 part by volume of water.

6.1.2 Hydrofluoric acid, CAS 7664-39-3, (approximately 40 % mass fraction, $\rho \approx 1{,}13$ g/ml).

6.2 Apparatus

Use ordinary laboratory apparatus and glassware, together with the following.

6.2.1 Platinum dish

6.2.2 Muffle furnace

6.2.3 Balance, with an accuracy of 0,000 1 g.

6.2.4 Desiccator

6.3 Procedure

Weigh, to the nearest 1 mg, approximately 2 g of the test sample, previously dried at 105 °C in accordance with ISO 787-2, into the tared platinum dish (6.2.1), ignite in the muffle furnace (6.2.2) at 1 000 °C ± 25 °C to constant mass (m_1) and allow to cool in a desiccator (6.2.4) containing phosphorus pentoxide.

Add approximately 1 ml of the sulfuric acid (6.1.1). Heat the platinum dish gently until fuming ceases and then continue the heating at 900 °C for 15 min in the muffle furnace. Remove from the furnace, allow to cool in the desiccator and weigh to the nearest 0,1 mg (m_2).

Add to the residue in the platinum dish 15 ml of the hydrofluoric acid (6.1.2) and 1 ml of the sulfuric acid (6.1.1) and evaporate to a syrup, taking care to avoid loss by spitting. Cool the dish and wash the sides down with small quantities of water. Then add a further 10 ml of hydrofluoric acid and evaporate to dryness. Heat the residue on a hot-plate until white fumes are no longer evolved, then ignite in the muffle furnace at 900 °C for 15 min. Remove the dish from the furnace, cool in the desiccator and weigh to the nearest 0,1 mg (m_3).

1) Chemical Abstracts Service (CAS) Registry Number® is a trademark of the American Chemical Society (ACS). This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

6.4 Expression of results

Calculate the silica content, $w(SiO_2)$, expressed as a percentage by mass of barium sulfate, using Formula (1):

$$w(SiO_2) = \frac{m_2 - m_3}{m_1} \times 100 \quad (1)$$

where

m_1 is the mass, expressed in grams, of the ignited residue;

m_2 is the mass, expressed in grams, after treatment with sulfuric acid and igniting;

m_3 is the mass, expressed in grams, after treatment with hydrofluoric acid and igniting.

7 Test report

The test report shall contain at least the following information:

a) all details necessary to identify the product tested;

b) a reference to this document, i.e. ISO 3262-13:2023;

c) the results of the test, the method used, and whether the product complies with the relevant specification limits;

d) any deviation from the method of test specified;

e) any unusual features (anomalies) observed during the test;

f) the date of the test.

ICS 87.060.10
Price based on 4 pages