
**Extenders for paints — Specifications and
methods of test —**

**Part 5:
Natural crystalline calcium carbonate**

*Matières de charge pour peintures — Spécifications et méthodes d'essai —
Partie 5: Carbonate de calcium cristallin naturel*
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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3262-5 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 2, *Pigments and extenders*.

Together with the other parts (see below), this part of ISO 3262 cancels and replaces ISO 3262:1975, which has been technically revised. Part 1 comprises the definition of the term extender and a number of test methods that are applicable to most extenders, whilst part 2 and the following parts specify requirements and, where appropriate, particular test methods for individual extenders.

At present, the following parts of ISO 3262 are published or in preparation, under the general title *Extenders for paints* — *Specifications and methods of test*:

- *ISO 3262-5:1998*
<https://standards.iteh.ai/catalog/standards/sist/d645de43-d1bd-4884-9ce9-6a52de3b1563/iso-3262-5-1998>
- *Part 1: Introduction and general test methods*
- *Part 2: Barytes (natural barium sulfate)*
- *Part 3: Blanc fixe*
- *Part 4: Whiting*
- *Part 5: Natural crystalline calcium carbonate*
- *Part 6: Precipitated calcium carbonate*
- *Part 7: Dolomite*
- *Part 8: Natural clay*
- *Part 9: Calcined clay*

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International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet iso@iso.ch

Printed in Switzerland

- Part 10: Natural talc/chlorite in lamellar form
- Part 11: Natural talc, in lamellar form, containing carbonates
- Part 12: Muscovite-type mica
- Part 13: Natural quartz (ground)
- Part 14: Cristobalite
- Part 15: Vitreous silica
- Part 16: Aluminium hydroxides
- Part 17: Precipitated calcium silicate
- Part 18: Precipitated sodium aluminium silicate
- Part 19: Precipitated silica
- Part 20: Fumed silica
- Part 21: Silica sand (unground natural quartz)
- Part 22: Diatomaceous earth (*kieselguhr*)

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Extenders for paints — Specifications and methods of test —

Part 5:

Natural crystalline calcium carbonate

1 Scope

This part of ISO 3262 specifies requirements and corresponding methods of test for natural crystalline calcium carbonate.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 3262. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 3262 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 787-2:1981, *General methods of test for pigments and extenders — Part 2: Determination of matter volatile at 105 °C.*

ISO 787-3:1979, *General methods of test for pigments and extenders — Part 3: Determination of matter soluble in water — Hot extraction method.*

ISO 787-7:1981, *General methods of test for pigments and extenders — Part 7: Determination of residue on sieve — Water method — Manual procedure.*

ISO 787-8:1979, *General methods of test for pigments and extenders — Part 8: Determination of matter soluble in water — Cold extraction method.*

ISO 787-9:1981, *General methods of test for pigments and extenders — Part 9: Determination of pH value of an aqueous suspension.*

ISO 787-14:1973, *General methods of test for pigments — Part 14: Determination of resistivity of aqueous extract.*

ISO 842:1984, *Raw materials for paints and varnishes — Sampling.*

ISO 3262-1:1997, *Extenders for paints — Specifications and methods of test — Part 1: Introduction and general test methods.*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods.*

3 Definition

For the purposes of this part of ISO 3262, the following definition applies:

3.1 natural crystalline calcium carbonate: A calcium carbonate derived from limestone and marble. The trigonal rhombic crystals tend to be rather larger than those of chalk.

Limestone is a consolidated sedimentary rock whereas marble is a metamorphic carbonate rock.

4 Requirements and test methods

For natural crystalline calcium carbonate complying with this part of ISO 3262, the essential requirements are specified in table 1 and the conditional requirements are listed in table 2.

Table 1 — Essential requirements

Characteristic	Unit	Requirement				Test method
		Grade A	Grade B	Grade C	Grade D	
CaCO ₃ content, min.	% (m/m)	99	98	95	90	ISO 3262-1
Matter volatile at 105 °C, max.	% (m/m)	0,4				ISO 787-2
Loss on ignition, max.	% (m/m)	46 ¹⁾				ISO 3262-1
Matter soluble in water, max.	% (m/m)	0,5				ISO 787-3 or ISO 787-8 ²⁾
pH value of aqueous suspension		8 to 10 ¹⁾				ISO 787-9
Matter insoluble in hydrochloric acid, max.	% (m/m)	1	2		8	See clause 6

1) These values do not take account of the effect on the result of any surface treatment.

2) Method to be agreed between the interested parties.

Table 2 — Conditional requirements

Characteristic	Unit	Requirement	Test method
Residue on 45 µm sieve	% (m/m)	To be agreed between the interested parties	ISO 787-7
Particle size distribution (instrumental method)	% (m/m)	To be agreed between the interested parties ¹⁾	
Colour		To be agreed between the interested parties	ISO 3262-1
Lightness			To be agreed between the interested parties ²⁾
Resistivity of aqueous extract	Ω·m		ISO 787-14

1) A general description of a sedimentation method using X-ray absorption is given in EN 725-5:1996, *Advanced technical ceramics — Methods of test for ceramic powders — Part 5: Determination of the particle size distribution*.

2) Test method in preparation.

5 Sampling

Take a representative sample of the product to be tested, as described in ISO 842.

6 Determination of matter insoluble in hydrochloric acid

6.1 Reagents

During the analysis, use only reagents of recognized analytical grade and only water of at least grade 3 purity as defined in ISO 3696.

6.1.1 Hydrochloric acid, approximately 25 % (), $\rho \approx 1,125$ g/ml.

6.2 Apparatus

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

6.2.1 Membrane filter, pore size 0,8 μm .

6.2.2 Air oven, capable of being maintained at (105 ± 2) °C.

6.3 Procedure

Weigh, to the nearest 0,1 mg, approximately 10 g (m_0) of the test sample into a 600 ml beaker. Add 50 ml of water and, carefully, approximately 50 ml of hydrochloric acid (6.1.1). Cover the beaker with a watch glass and boil the solution for 15 min.

Dry the membrane filter (6.2.1) in the air oven (6.2.2) at (105 ± 2) °C to constant mass, cool in a desiccator to room temperature and weigh it to the nearest 0,1 mg (m_1). Then filter the solution through it. Wash the residue on the filter eight times with hot distilled water. Dry the residue on the filter in the air oven at (105 ± 2) °C for about 1 h. Allow to cool in a desiccator to room temperature and weigh to the nearest 0,1 mg (m_2).

6.4 Expression of results

Calculate the matter insoluble in hydrochloric acid $w(\text{MI}_{\text{HCl}})$, expressed as a percentage by mass, using the equation

$$w(\text{MI}_{\text{HCl}}) = \frac{m_2 - m_1}{m_0} \times 100$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in grams, of the dried membrane filter;

m_2 is the mass, in grams, of the dried membrane filter plus the residue.

7 Test report

The test report shall contain at least the following information:

- all details necessary to identify the product tested;
- a reference to this part of ISO 3262 (ISO 3262-5);
- the results of the tests and whether or not the product complies with the relevant specification limits;
- any deviation from the test methods specified;
- the dates of the tests.

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ICS 87.060.10

Descriptors: paints, extenders, calcium carbonates, specifications, materials specifications, tests.

Price based on 3 pages
