



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 787-28:2020

General methods of tests for pigments and extenders - Part 28: Determination of total content of polychlorinated biphenyls (PCB) by dissolution, cleanup and GC-MS (ISO 787-28:2019)

**I.S. EN ISO 787-28:2020**

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## National Foreword

I.S. EN ISO 787-28:2020 is the adopted Irish version of the European Document EN ISO 787-28:2020, General methods of tests for pigments and extenders - Part 28: Determination of total content of polychlorinated biphenyls (PCB) by dissolution, cleanup and GC-MS (ISO 787-28:2019)

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EUROPEAN STANDARD

EN ISO 787-28

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2020

ICS 87.060.10

English Version

**General methods of tests for pigments and extenders - Part  
28: Determination of total content of polychlorinated  
biphenyls (PCB) by dissolution, cleanup and GC-MS (ISO  
787-28:2019)**

Méthodes générales d'essai des pigments et matières  
de charge - Partie 28: Détermination de la teneur totale  
en biphényles polychlorés dans les pigments  
organiques par dissolution, purification et GC-SM (ISO  
787-28:2019)

Allgemeine Prüfverfahren für Pigmente und Füllstoffe -  
Teil 28: Bestimmung des Gesamtgehalts an  
polychlorierten Biphenylen (PCB) durch Auflösung,  
Reinigung und GC/MS (ISO 787-28:2019)

This European Standard was approved by CEN on 28 September 2020.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN ISO 787-28:2020 (E)**

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## **European foreword**

The text of ISO 787-28:2019 has been prepared by Technical Committee ISO/TC 256 "Pigments, dyestuffs and extenders" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 787-28:2020 by Technical Committee CEN/TC 298 "Pigments and extenders" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2021, and conflicting national standards shall be withdrawn at the latest by April 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Endorsement notice**

The text of ISO 787-28:2018 has been approved by CEN as EN ISO 787-28:2020 without any modification.

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# INTERNATIONAL STANDARD

**ISO**  
**787-28**

First edition  
2019-05

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## General methods of tests for pigments and extenders —

Part 28:

### **Determination of total content of polychlorinated biphenyls (PCB) by dissolution, cleanup and GC-MS**

*Méthodes générales d'essai des pigments et matières de charge —*

*Partie 28: Détermination de la teneur totale en biphényles polychlorés  
dans les pigments organiques par dissolution, purification et CG-SM*



Reference number  
ISO 787-28:2019(E)

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**ISO 787-28:2019(E)**



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## ISO 787-28:2019(E)

## 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](http://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](http://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 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 256, *Pigments, dyestuffs and extenders*.

A list of all parts in the ISO 787 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 <https://www.iso.org/members.html>.

## **Introduction**

A number of methods to quantify PCBs in “environmental samples” or oil residues prove inadequate for pigments due to being merely extractive on the particle surface without taking into account occlusions of contaminants in the crystal lattice of pigments (see References [\[1\]](#) to [\[3\]](#)).

Occurrence and formation principles are referred to in References [\[5\]](#), [\[6\]](#) and [\[8\]](#).



# General methods of tests for pigments and extenders —

## Part 28:

# Determination of total content of polychlorinated biphenyls (PCB) by dissolution, cleanup and GC-MS

## 1 Scope

This document specifies a method for determining the total content of polychlorinated biphenyls (PCBs), checking for all 209 possible congeners in pigment materials.

This document is applicable to a working range from 1 mg/kg to 150 mg/kg. The lower quantitation limit of this method is 1 mg/kg per congener. Results below 1 mg/kg are considered to be qualitative only.

## 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 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 terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### polychlorinated biphenyls PCB

209 congeners, from mono- through deca-chlorinated biphenyls, which may be subdivided into homologue groups comprising PCB congeners with the same degree of chlorination, i.e. same gross formula

Note 1 to entry: The general CAS-Number for polychlorinated biphenyls is 1336-36-3. For a comprehensive congener list with CAS-Numbers, see [Annex A](#) or Reference [5].

### 3.2

#### internal reference material

mixture of defined quantities of <sup>13</sup>C-Isotope-labelled PCBs added directly into the freshly weighed pigment sample

Note 1 to entry: No subsequent additions of internal reference materials are permitted. Surrogate standards reference materials can be added to assess recovery rates only, but these cannot be deemed an internal reference materials, nor can these be used for quantitation.

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