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Construction products: Assessment of release of dangerous substances - Sampling and quantitative determination of asbestos in construction products

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/24

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TECHNICAL SPECIFICATION

**CEN/TS 18020**

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English Version

## Construction products: Assessment of release of dangerous substances - Sampling and quantitative determination of asbestos in construction products

Produits de construction: Evaluation de l'émission de substances dangereuses - Échantillonnage et dosage qualitatif de l'amiante dans les produits de construction

Bauprodukte: Bewertung der Freisetzung von gefährlichen Stoffen - Probenahme und qualitative Bestimmung von Asbest in Bauprodukten

This Technical Specification (CEN/TS) was approved by CEN on 12 February 2024 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## **European foreword**

This document (CEN/TS 18020:2024) has been prepared by Technical Committee CEN/TC 351 “Construction products: Assessment of release of dangerous substances”, the secretariat of which is held by NEN.

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.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: 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, Türkiye and the United Kingdom.

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### Introduction

Under regulation (EC) No 1272/2008 (the CLP regulation) of the European Union, asbestos is classified as a carcinogen of group 1A [EC 1272/2008]. The REACH Regulation (EC) No. 1907/2006 prohibits the placing on the market and use of asbestos fibres and of articles containing these fibres added intentionally [EC 1907/2006]. Asbestos was banned in the 1990s at the international level in several European countries and, since 2005, it has been completely banned within the European Union. Asbestos was used in very large quantities for decades and was incorporated into many construction products which were used in the construction of buildings and structures, as well as in industrial applications. Depending on the country, buildings and structures constructed before 2005 may contain a variety of asbestos-containing materials that still may pose a risk to building occupants and persons involved in construction and demolition work [1999/77/EC].

Asbestos is a generic term encompassing six hydrated silicates with fibrous morphology comprising chrysotile, amosite, crocidolite, anthophyllite, tremolite and actinolite, which are regulated by the European Union through the REACH Regulation [EC 1907/2006]. Chrysotile, amosite, crocidolite or anthophyllite were the asbestos types which were intentionally added in the past to construction products. Chrysotile accounted for approximately 95 % of commercial asbestos consumption, and amosite and crocidolite accounted for almost all of the remaining asbestos use. Tremolite asbestos and actinolite asbestos were not extensively used commercially, however can appear as natural contaminants in construction products (see ISO 22262-1).

Although the EU has now prohibited all asbestos use, there are several situations, however, which require special attention to avoid “new construction products” which may contain asbestos being distributed in the EU market. Several non-EU countries (primarily the Russian Federation, Kazakhstan, and China) still mine and export asbestos and asbestos-containing products. Consequently, asbestos-containing products manufactured in those countries and other countries where the importation of asbestos has not been prohibited may enter the European market illegally. Naturally occurring asbestos (NOAs), which are not technically enriched and processed, may be present as impurities in mineral raw materials, which are used to manufacture new construction products. Even though European countries implement strict quality control systems to prevent materials containing asbestos from re-entering new construction products in the course of waste recycling [Cinderela, 2021], asbestos contamination may be found in some cases. If a comprehensive asbestos survey and the consequent removal of all asbestos is not conducted prior to demolition of a building or structure from the critical construction period (depending on the country up to 2005), asbestos-containing materials (ACMs) may be present in the resulting construction and demolition waste (C&D waste). Recycling of this waste may lead to contaminated secondary raw materials (SRM) with ACMs and free asbestos fibres/bundles.

Therefore, in certain circumstances, manufacturers of products that may contain asbestos or traces of asbestos need to declare the asbestos content of those products to meet all the legal requirements for CE marking [EU 305/2011]. In most cases, the asbestos content in contaminated construction products (excluding materials intentionally containing asbestos) is expected to be low. The need to quantify asbestos in these materials depends on the maximum mass fraction that has been adopted by the jurisdiction to define an ACM for the purpose of regulation. The method for sampling and quantitative determination of asbestos in construction products can differ significantly. Quantitative determination of asbestos in secondary raw materials derived from contaminated C&D waste requires a detailed knowledge of the asbestos-containing manufactured products that were used in the past.

This document summarizes the procedures for the collection of samples, sample preparation and qualitative analysis of construction products for the presence of commercially added and naturally occurring asbestos. This document specifies procedures for the quantitative determination of the asbestos mass fraction in natural, manufactured or recycled large mineral aggregates and construction products of fine mineral particle size material. The methods used in this document to identify asbestos are polarized light microscopy (PLM), scanning electron microscopy (SEM) and transmission electron microscopy (TEM).

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The method in this document will in future be validated for its robustness and its repeatability and reproducibility, according to CEN Guide 13. The aim is to have a fully validated EN standard for the assessment of asbestos in construction products in the end, with which producers of construction products can declare the absence or the content of asbestos fibres in their products. More information on CEN/TC 351 and its way of working in general is available from [www.cen351.org](http://www.cen351.org).



**CEN/TS 18020:2024 (E)****1 Scope**

This document summarizes methods for sampling, sample preparation and identification of asbestos in construction products. This document specifies appropriate sample preparation procedures for the quantitative analysis of the asbestos mass fraction in natural, manufactured or recycled large mineral aggregates and construction products of fine mineral particle size materials. This document describes the identification of asbestos by polarized light microscopy (PLM) and dispersion staining, scanning electron microscopy (SEM) with energy dispersive X-ray analysis or transmission electron microscopy (TEM) with energy dispersive X-ray and electron diffraction analysis.

NOTE This document is intended for microscopists familiar with polarized light, transmission electron- and scanning electron microscopy methods and the other analytical techniques specified (see ISO 10312, ISO 13794, ISO 14966, [McCrone et al., 1984], [Su et al., 1995]). It is not the intention of this document to provide instructions on basic analytical techniques.

**2 Normative references**

There are no normative references in this document.

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