

Adhesives for tiles — Definitions and specifications

The European Standard EN 12004:2001, with the incorporation of amendment A1:2002, has the status of a British Standard

ICS 01.040.83; 01.040.91; 83.180; 91.100.10

National foreword

This British Standard is the official English language version of EN 12004:2001, including amendment A1:2002. It supersedes BS EN 1322:1999 which is withdrawn.

By the incorporation of amendment A1:2002, EN 12004:2001 becomes candidate “harmonized” European Standard EN 12004:2001 which fully takes into account the requirements of the European Commission mandate M127, *Construction adhesives*, given under the EU Construction Products Directive (89/106/EEC), and intended to lead to CE marking. The date of applicability of EN 12004 as a “harmonized” European Standard, i.e. the date after which this standard may be used for CE marking purposes, is subject to an announcement in the *Official Journal of the European Communities*.

EN 12004:2001 is the subject of transitional arrangements agreed under the European Commission mandate. The Member States have agreed a transition period for the co-existence of harmonized European Standards and their corresponding national standard(s). It is intended that this period will comprise a nine month period, during which any required changes to national regulations are to be made, followed by a further twelve month period, for the implementation of CE marking. At the end of this co-existence period, the national standard(s) will be withdrawn. In the UK, the corresponding national standard is:

— BS 5980:1980, *Specification for adhesives for use with ceramic tiles and mosaics*.

and based on this transition period of twenty-one months, BS 5980:1980 would be withdrawn in March 2004.

NOTE This date is approximate. Users of this standard should contact BSI Customer Services for confirmation of withdrawal.

The UK participation in the preparation of EN 12004:2001 was entrusted to Technical Committee B/539, Ceramic tiles and other rigid tiling, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on these committees can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 22, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments
14005	1 November 2002	Addition of Annex ZA and National Annex NA

This British Standard, having been prepared under the direction of the Sector Committee for Building and Civil Engineering, was published under the authority of the Standards Committee and comes into effect on 15 June 2001

© BSI 1 November 2002

ISBN 0 580 37678 8

English version

Adhesives for tiles — Definitions and specifications

(includes amendment A1:2002)

Colles à carrelage — Définitions et spécifications
(inclut l'amendement A1:2002)

Mörtel und Klebstoffe für Fliesen und Platten —
Definitionen und Spezifikationen
(enthält Änderung A1:2002)

This European Standard was approved by CEN on 18 January 2001. Amendment A1 was approved by CEN on 11 April 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
3.1 General	5
3.2 Products	6
3.3 Tools and working methods	6
3.4 Application properties	6
3.5 Final properties	7
3.6 Failure pattern	7
3.7 Characteristics	8
4 Specifications	8
4.1 Cementitious adhesives (C)	8
4.2 Dispersion adhesives (D)	9
4.3 Reaction resin adhesives (R)	10
5 Evaluation of conformity	11
5.1 Principle	11
5.2 Conditioning of the test specimen	11
5.3 Initial type testing	11
5.4 Factory production control	12
5.5 Registration, traceability and nonconforming materials	13
6 Classification and designation	14
7 Marking and labelling	15
Annex A (normative) Failure patterns	16
Annex ZA (informative) Adhesive for tiles — Definitions and specifications — Clauses of this European Standard addressing the provisions of the EU Construction Products Directive (89/106)	17
Bibliography	21

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 67, Ceramic tiles, the Secretariat of which is held by UNI.

This European Standard replaces EN 1322:1996.

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 September 2001, and conflicting national standards shall be withdrawn at the latest by September 2001.

This standard is one of a series of standards on tile adhesives including:

- EN 1308 *Adhesives for tiles — Determination of slip.*
- EN 1323 *Adhesives for tiles — Concrete slabs for tests.*
- EN 1324:1996 *Adhesives for tiles — Determination of shear adhesion strength of dispersion adhesives.*
- EN 1346 *Adhesives for tiles — Determination of open time.*
- EN 1347 *Adhesives for tiles — Determination of wetting capability.*
- EN 1348:1997 *Adhesives for tiles — Determination of tensile adhesion strength for cementitious adhesives.*
- EN 12002 *Adhesives for tiles — Determination of transverse deformation for cementitious adhesives and grouts.*
- EN 12003 *Adhesives for tiles — Determination of shear adhesion strength of reaction resin adhesives.*
- EN 12004 *Adhesives for tiles — Specifications and requirements.*
- EN 12808-1 *Adhesives and grouts for tiles — Determination of chemical resistance of reaction resin mortars.*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Foreword to amendment A1

This document (EN 12004:2001/A1:2002) has been prepared by CEN/TC 67, Ceramic tiles, the Secretariat of which is held by UNI.

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 December 2002, and conflicting national standards shall be withdrawn at the latest by March 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The characteristics of the construction products defined in this standard have to consider that the normal stresses due to the works for which they are intended, assembled or installed, can be properly accommodated. Some special characteristics will take into account the type of substrate and that the adhesives should resist the degrading actions of climate, etc.

Many properties of adhesives for tiling are mainly determined by the type of binders used.

Different types of tile adhesives are defined according to the chemical nature of their binders.

The different types have specific characteristics in terms of their application properties and final performance.

The relationship between characteristics and the working conditions (dry or humid conditions, hot climate, fast setting, etc.) is not given in this standard.

The manufacturer should give information about the use of the product and the correct conditions of use.

The specifier should evaluate the state of the job site (mechanical and thermal influences) and choose the appropriate product considering all the possible risks.

1 Scope

This European Standard is applicable to ceramic tile adhesives for internal and external tile installations on walls and floors.

This standard gives the terminology concerning the products, working methods, application properties, etc, for ceramic tile adhesives.

This European Standard specifies the values of performance requirements for ceramic tile adhesives (cementitious, dispersion and reaction resin adhesives).

This European Standard does not provide criteria or recommendations for the design and installation of ceramic tiles.

NOTE Ceramic tile adhesives may also be used for other types of tiles (natural and agglomerated stones, etc.), where these do not adversely affect these materials.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references subsequent amendments to, or revisions of, any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 87	<i>Ceramic floor and wall tiles — Definitions, classification and marking.</i>
EN 1308	<i>Adhesives for tiles — Determination of slip.</i>
EN 1324:1996	<i>Adhesives for tiles — Determination of shear adhesion strength of dispersion adhesives.</i>
EN 1346	<i>Adhesives for tiles — Determination of open time.</i>
EN 1347	<i>Adhesives for tiles — Determination of wetting capability.</i>
EN 1348:1997	<i>Adhesives for tiles — Determination of tensile adhesion strength of cementitious adhesives.</i>
EN 12002	<i>Adhesives for tiles — Determination of transverse deformation for cementitious adhesives and grouts.</i>
EN 12003	<i>Adhesives for tiles — Determination of shear adhesion strength of reaction resin adhesives.</i>
EN 12808-1	<i>Adhesives and grouts for tiles — Determination of chemical resistance of reaction resin mortars.</i>

3 Terms and definitions

For the purposes of this standard the following terms and definitions are given.

3.1 General

3.1.1

thin bed method

method used for installing tiles onto a plane surface with an adhesive

The adhesive is usually applied with a trowel to obtain a layer and then combed with a notched trowel to achieve the right thickness and planarity.

3.1.2

fixing surface

plane rigid surface upon which the tile is fixed

3.1.3

wall and floor tiles

tiles made out of ceramic (see EN 87) or natural and agglomerated stones

3.2 Products

3.2.1

cementitious adhesive (C)

mixture of hydraulic binding agents, aggregates, and organic additives, which is mixed with water or liquid admix just before use

3.2.2

dispersion adhesive (D)

mixture of organic binding agent(s) in the form of an aqueous polymer dispersion, organic additives and mineral fillers, which is ready for use.

3.2.3

reaction resin adhesive (R)

mixture of synthetic resin, mineral fillers and organic additives in which hardening occurs by chemical reaction, available in one or more component forms

3.3 Tools and working methods

3.3.1

notched trowel

toothed tool, which makes it possible to apply the adhesive as a series of ribs of a uniform thickness onto the fixing surface and/or the reverse face of the tile

3.3.2

application to one surface only, "Notched trowel" or "Floating method"

adhesive applied only to the fixing surface, usually with a trowel to obtain a uniform layer and then combed with a notched trowel (see 3.1.1)

The tiles are then fixed before a film forms on the surface of the adhesive.

3.3.3

application to both surfaces, "Floating and buttering method"

adhesive applied to the fixing surface and to the reverse of the tiles

The combined layer of adhesive does not exceed the maximum recommended thickness. The tiles are then fixed before a film forms on the surface of the adhesive.

3.4 Application properties

3.4.1

shelf life

time of storage under stated conditions during which an adhesive may be expected to maintain its working properties

3.4.2

maturing time

interval between the time when the cementitious adhesive is mixed and the time when it is ready for use

3.4.3

pot-life

maximum time interval during which the adhesive can be used after mixing

3.4.4

open time

maximum interval after application at which tiles can be embedded in the applied adhesive and meet the specified tensile adhesion strength requirement, which is measured following EN 1346