



European Organisation for Technical Approvals
Europäische Organisation für Technische Zulassungen
Organisation Européenne pour l'Agrément Technique

ETAG 005

Edition March 2000

GUIDELINE FOR EUROPEAN TECHNICAL APPROVAL
OF
LIQUID APPLIED ROOF WATERPROOFING KITS

Revision March 2004

**Part 8: SPECIFIC STIPULATIONS
FOR KITS
BASED ON WATER DISPERSIBLE POLYMERS**

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TABLE OF CONTENTS

	Page
FOREWORD	4
General	4
Normative references	4
SECTION ONE: INTRODUCTION	
1. PRELIMINARIES	5
1.1 Legal basis	5
1.2 Status of ETAGs	5
2. SCOPE	5
3. TERMINOLOGY	
3.1 Definitions and abbreviations	5
3.2 Particular definitions	5
3.3 Particular abbreviations	6
SECTION TWO: GUIDANCE FOR THE ASSESSMENT OF THE FITNESS FOR USE	
4. REQUIREMENTS	
4.0 General	7
4.1 ER1: Mechanical resistance and stability	7
4.2 ER2: Safety in case of fire	7
4.3 ER3: Hygiene, health and the environment	7
4.4 ER4: Safety in use	7
4.5 ER5: Protection against noise	7
4.6 ER6: Energy economy and heat retention	7
4.7 Related aspects of serviceability	8
5. SPECIFIC METHODS OF VERIFICATION	
5.0 General	8
5.1 ER1: Mechanical resistance and stability	8
5.2 ER2: Safety in case of fire	8
5.3 ER3: Hygiene, health and the environment	8
5.4 ER4: Safety in use	9
5.5 ER5: Protection against noise	9
5.6 ER6: Energy economy and heat retention	9
5.7 Related aspects of serviceability	9
5.8 Identification of components	10

6.	ASSESSING AND JUDGING THE FITNESS OF PRODUCTS FOR THE INTENDED USE	
6.0	General	10
6.1	ER1: Mechanical resistance and stability	10
6.2	ER2: Safety in case of fire	11
6.3	ER3: Hygiene, health and the environment	11
6.4	ER4: Safety in use	12
6.5	ER5: Protection against noise	12
6.6	ER6: Energy economy and heat retention	12
6.7	Related aspects of serviceability	12
6.8	Identification of components	12
7.	PRECONDITIONS CONCERNING INCORPORATION OF PRODUCTS IN THE WORKS	13
7.1	Application methods and design rules	13
7.2	Maintenance and repair	13

SECTION THREE: ATTESTATION OF CONFORMITY

8.	ATTESTATION AND EVALUATION OF CONFORMITY	
8.1	EC-decision	14
8.2	AC-procedures	14
8.3	CE-marking and information	14

SECTION FOUR: THE ETA CONTENT

9.	THE ETA CONTENT	
9.1	Exceptions	15

FOREWORD

General

This ETAG has been established by the EOTA WG 4.02/01 dealing with liquid applied roof waterproofing kits.

This ETAG 005 – Part 8 "Specific stipulations for kits based on water dispersible polymers" shall be used in conjunction with ETAG 005 – Part1 - "General".

This Complementary Part (ETAG 005 – Part 8) expands and/or modifies the requirements given in ETAG 005 – Part 1 – “General, taking into account the specific family of products referred to.

Normative references

This ETAG 005 – Part 8 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 these publications apply to this ETA-Guideline only when incorporated in it by amendment or revision. For undated references the latest dated revision of the publication referred to, applies.

EN 933-1	Tests for geometrical properties of aggregates – Part 1:Determination of particle size distribution – Sieving method.
prEN 1768 (1995)	Products and systems for the protection and repair of concrete structures – Test methods – Determination of volatile and not volatile matter.
prEN 1769 (1995)	Products and systems for the protection and repair of concrete structures – Test methods – Surface drying test – Ballotini method.
prEN 1879 (1995)	Products and systems for the protection and repair of concrete structures – Test methods – Determination of ash by direct calcinations.
prEN 1781 (1995)	Products and systems for the protection and repair of concrete structures – Test methods – Determination of viscosity.
EN ISO 527-3	Plastics – Determination of tensile properties – Part 3:Test conditions for films and sheets.
EN ISO 1675	Plastics – Liquid resins – Determination of density by the pyknometer method.
ISO 9073-1	Textiles – Test methods for nonwovens – Part 1:Determination of mass per unit area.
ISO 9073-3	Textiles – Test methods for nonwovens – Part 3:Determination of tensile strength and elongation.
ETAG 005 Part 1	Liquid applied water proofing kits : Part 1 – General.
EOTA TR – 004	Determination of the resistance to delamination.

SECTION ONE

INTRODUCTION

1. PRELIMINARIES

1.1 Legal basis

The legal basis of the ETA-Guidelines is given in clause 1.1 of ETAG 005 – Part 1.

No existing ETA-Guideline is superseded.

1.2 Status of ETA-Guidelines

The Status of the ETA-Guidelines is given in clause 1.2 of ETAG 005 - Part 1.

2. SCOPE

This Part 8 shall be used in conjunction with ETAG 005 – Part 1.

This Complementary Part (ETAG 005 – Part 8) - "**Specific stipulations for kits based on water dispersible polymers**" specifies the terminology and definitions, methods of verification for the construction products and for the identification of its component characteristics.

It also gives guidance for the assessment of the specific installation instructions and for the Attestation of Conformity for such kits for use in roof waterproofing.

It is applicable to roof waterproofing kits based on water dispersible polymers, in-situ applied by spraying or spreading, with or without a supporting layer, an internal layer and/or a protection layer.

The nature of the polymer(s) shall be specified for each (group of) kit(s).

3. TERMINOLOGY

3.1 Definitions and abbreviations

For the purpose of this Complementary Part (ETAG 005 – Part 8) the particular definitions and abbreviations as stated in clause 3 of ETAG 005 – Part 1 and the Common Terminology adopted by the Technical Board (see Annex II of ETAG 005 – Part 1) applies.

3.2 Particular definitions

For the purpose of this ETAG – Part 8 the following definitions apply:

3.2.1 **primer or first layer:** a primer is a first coat to improve adhesion of the base layer(s) and to seal the substrate; its nature depends on the kind of substrate.

3.2.2 **base layer(s):** the base layer, applied to attempt to achieve watertightness, is constituted of

one or several coats, with or without an internal layer (see ETAG 005 – Part 1 clause 3.1.9). The binder is on basis of water dispersible polymers (acrylic, vinyl-acrylic, styrene-acrylic, styrene-butadien copolymers).

3.2.3 **finish layer:** the finish layer may have several functions e.g. protection against the effects of weathering, improvement of non-skid properties, aesthetic properties; its nature (mineral aggregate, coat, ...) depending on the required effect.

3.2.4 **day joint:** a joint necessitated by a temporary termination in the liquid applied roof waterproofing layer due to a suspension of work (e.g. end of the working day).

3.3 **Particular abbreviations**

For the purpose of this ETAG 005 – Part 8 no particular abbreviations apply.

SECTION TWO

GUIDANCE FOR THE ASSESSMENT OF THE FITNESS FOR USE

4. REQUIREMENTS

4.0 **General**

The performance requirements, establishing the fitness for use of LARWK(s) based on water dispersible polymers, shall be in accordance with chapter 4 of ETAG 005 – Part 1, and with the following specific stipulations for this family of products:

- 4.1 **ER 1: Mechanical resistance and stability** No requirements
- 4.2 **ER 2: Safety in case of fire**
- 4.2.1 **External fire performance** Specific requirements in 6.2.1.
- 4.2.2 **Reaction to fire** Specific requirements in 6.2.2.
- 4.3 **ER 3: Hygiene, health and the environment** The following additional requirements:
(Working life and durability aspects)
- 4.3.1 **Resistance to wind loads**
- Delamination strength - additional requirements in 7.3.1
- 4.3.2 **Effects of low and high surface temperatures**
- 4.3.2.1 Effects of low surface temperatures - no specific requirements
- 4.3.2.2 Effects of high surface temperatures - limited requirements in 5.3.2.1 and 5.3.2.2
- 4.3.3 **Resistance to ageing media**
- 4.3.3.1 Heat ageing - specific ageing conditions in 5.3.3.1
- 4.3.3.2 Tensile strength and elongation at break after heat ageing - additional requirements in 6.3.3.1.
- 4.3.3.3 Tensile strength and elongation at break after UV ageing - additional requirements in 6.3.3.2.
- 4.3.3.4 Delamination strength to be determined after water ageing - additional requirements in 6.3.3.3.
- 4.4 **ER 4: Safety in use** No specific requirements.
- 4.5 **ER 5: Protection against noise** No requirements.

- 4.6 **ER 6: Energy economy and heat retention** No requirements.
- 4.7 **Related aspects of serviceability** The following additional requirements
To fall within the scope of this Complementary Part, the final product shall meet the additional requirements related to the following aspects:
- 4.7.1 **Effect of weather conditions**
- 4.7.1.1 Tensile strength and elongation at break - additional requirements in 6.7.1.1.
- 4.7.1.2 Dynamic indentation - requirements given in 6.7.1.2.
- 4.7.2 **Effect of day joints**
- 4.7.2.1 Delamination strength - additional requirements in 6.7.2.

5. SPECIFIC METHODS OF VERIFICATION

5.0 **General**

The methods of verification given in chapter 5 of ETAG 005 – Part 1 shall be applied, except where identified below.

- 5.1 **ER 1: Mechanical resistance and stability** Not applicable
- 5.2 **ER2: Safety in case of fire**
- 5.2.1 **External fire performance** Method of verification according to clause 5.2.1 of ETAG 005 – Part 1.
- 5.2.2 **Reaction to fire** Method of verification according to clause 5.2.2 of ETAG 005 – Part 1.
- 5.3 **ER 3: Hygiene, health and the environment** Specific methods of verification
The following specific methods of verification apply related to working life and durability aspects.
- 5.3.1 **Resistance to wind loads**
Delamination strength No specific method of verification.
- 5.3.2 **Effects of high surface temperatures**
Due to the wide range of material types covered by this Complementary Part (ETAG 005 – Part 8) the judgment of deletion or addition of specific methods of verification shall be made by the Approval Body on a case-by-case basis, considering the nature of polymers. In most cases the statements formulated in 5.3.2.1 and 5.3.2.2 are applicable.
- 5.3.2.1 Effects of high surface temperatures
{ETAG 005 – Part 1, clause 5.3.3.4.3 (i)} Since the high specific adherence of water dispersible polymers will not be affected by the high surface temperatures envisaged in service, the determination of the delamination strength at a temperature of + 40 °C will be omitted.
- 5.3.2.2 Effect of high surface temperatures

{ETAG 005 – Part 1, clause 5.3.3.4.3 (iii)}	Since water dispersible polymers are unlikely to flow or soften by the high surface temperatures envisaged in service, the determination of the resistance to sliding will be omitted.
5.3.3 Resistance to ageing media	
5.3.3.1 Heat ageing {ETAG 005 – Part 1 , clause 5.3.3.5.1 (i)}	Specific ageing conditions: - temperature: (70 ± 2) °C - exposure time: double period (Table 13 of ETAG 005 – Part 1).
5.3.3.1.1 Following the heat ageing period	Additional comparative testing of the tensile strength and elongation at break shall be performed on an <u>un</u> reinforced sample, according to EN-ISO 527-3; test speed 200 mm/min. Test pieces: 170 x 15 mm; 5 aged and 5 <u>un</u> aged samples.
5.3.3.2 UV ageing {ETAG 005 – Part 1, clause 5.3.3.5.2(ii)}	
5.3.3.2.1 Following the UV ageing period	Additional comparative testing of the tensile strength and elongation at break shall be performed on an <u>un</u> reinforced sample, according to EN-ISO 527-3; test speed 200 mm/min. Test pieces: 170 x 15 mm; 5 aged and 5 <u>un</u> aged samples.
5.3.3.3 Water ageing {ETAG 005 – Part 1 , clause 5.3.3.5.3 (ii)}	
5.3.3.3.1 Following the water ageing period	No specific method of verification for the determination of the delamination strength.
5.4 <u>ER4: Safety in use</u>	No specific methods of verification.
5.5 <u>ER 5: Protection against noise</u>	Not applicable.
5.6 <u>ER 6: Energy economy and heat retention</u>	Not applicable
5.7 <u>Related aspects of serviceability</u>	Additional methods of verification
5.7.1 <u>Effect of weather conditions</u>	Test pieces: <u>un</u> reinforced free film samples from the same batch, prepared and cured under the conditions defined by the Applicant.
5.7.1.1 Tensile properties	Additional comparative testing of tensile strength and elongation at break according to EN ISO 527-3.
5.7.1.2 Mechanical properties	Additional comparative testing of dynamic

indentation according to clause 5.3.3.2.1 of ETAG 005 – Part 1.

5.7.2 Effect of day joints

To check the compatibility of the system, freshly applied to the dried system,

Delamination strength

The delamination test shall be performed according to EOTA TR-004.

- the substrate is the "assembled system" bonded on the most suitable substrate for adherence (generally concrete) and dried for 7 days at normal conditions;
- the test specimen is the fresh kit applied on that substrate;

5.8 Identification of components

5.8.0 General

It is necessary to verify that components comply with the specification (including tolerances) of the Applicant. This is achieved by measuring relevant characteristics, preferably by using EN or ISO Standards. Where no appropriate EN or ISO Standard is available the use of an approved national standard is permitted.

5.8.1 Liquid components (primers, base layers, finish layers)

- 5.8.1.1 - nature method: infrared analysis must be put forward by the Applicant
- 5.8.1.2 - density method: EN ISO 1675
- 5.8.1.3 - dry extract method: prEN 1768
- 5.8.1.4 - ash content method: prEN 1879
- 5.8.1.5 - viscosity method: prEN 1781
- 5.8.1.6 - drying time method: prEN 1769

5.8.2 Internal layer

- 5.8.2.1 - nature by declaration
- 5.8.2.2 - mass per unit area method: ISO 9073-1
- 5.8.2.3 - tensile strength method: ISO 9073-2
- 5.8.2.4 - tensile elongation method: ISO 9073-3

5.8.3 Solid components (anti-skid additives)

- 5.8.3.1 - nature by declaration
- 5.8.3.2 - particle size method: EN 933-1

6. ASSESSING AND JUDGING THE FITNESS OF PRODUCTS FOR INTENDED USE.

6.0 General

The requirements given in chapter 6 of ETAG 005 – Part 1 shall be applied, except where identified below or where the test has been identified as being not required in chapter 5 of this Complementary Part (ETAG 005 – Part 8).

6.1 **ER 1: Mechanical resistance and stability** Not applicable

6.2 **ER2: Safety in case of fire**

6.2.1 **External fire performance** Classification in accordance with the provisions given in clause 6.2.1 of ETAG 005 – Part 1.

6.2.2 **Reaction to fire** Classification in accordance with the provisions given in clause 6.2.2 of ETAG 005 – Part 1.

6.3 **ER3: Hygiene, health and the environment** Additional assessment
(working life and durability aspects)

In addition or contrary to the requirements given in chapter 6 of ETAG 005 – Part 1, the following specific requirements shall be taken into account for the assessment of the fitness for use.

6.3.1 **Resistance to wind loads**

6.3.1.1 Delamination strength
{ETAG 005 – Part 1, clause 6.3.3.2 (ii)} The delamination strength of bonded systems determined in accordance with ETAG 005 – Part 1 clause 5.3.3.1 (ii) shall equal or exceed the values declared by the Applicant for the proposed substrate(s), but shall be at least 50 kPa.

Note:

On the basis of current knowledge the delamination strength of system bonded concrete is higher than 1000 kPa and bonded to other substrates, higher than 200 kPa.

6.3.2 **Effects of high temperatures**

6.3.2.1 Delamination strength at + 40 °C No assessment.

6.3.2.2 Influence of slope No assessment.

6.3.3 **Resistance to ageing media**

6.3.3.1 Heat ageing

6.3.3.1.1 When aged by heat and tested in accordance with 5.3.3.1.1 - the Approval Body shall satisfy itself that the expected working life, based on the data gathered in accordance with 5.3.3.1.1, is consistent with the defined working life categories.

6.3.3.2 UV aging

6.3.3.2.1 When aged by UV and tested in accordance with 5.3.3.2.1 - the Approval Body shall satisfy itself that the expected working life, based on the data gathered in accordance with 5.3.3.2.1, is consistent with the defined working life categories

- 6.3.3.3 Water ageing
When aged by water and tested - the Approval Body shall satisfy itself that the expected working life, based on the data gathered in accordance with 5.3.3.3.1, is consistent with the defined working life categories .
- 6.4 **ER 4: Safety in use** No specific assessment.
- 6.5 **ER 5: Protection against noise** Not applicable.
- 6.6 **ER 6: Energy economy and heat retention** Not applicable.
- 6.7 **Related aspects of serviceability**
- 6.7.1 **Effects of weather conditions**
- 6.7.1.1 When, as result of comparative testing in accordance with clause 5.7.1.1 of this document (ETAG 005 – Part 8), the properties measured shall fall within the accepted limits declared by the Applicant and shall not affect the kits fitness for the intended use.
- 6.7.1.2 When, as result of comparative testing in accordance with clause 5.7.1.2 of this document (ETAG 005 – Part 8), the properties measured shall fall within the accepted limits declared by the Applicant and shall not affect the kits fitness for the intended use.
- 6.7.2 **Effects of day joints**
The delamination strength shall be at least 80% of the measured delamination strength of the assembled system bonded to the relevant substrate(s).
- 6.8 **Identification of components**
When verified in accordance with clause 5.8 of this document (ETAG 005 – Part 8), the characteristics of the components shall fall within the limits declared by the Applicant.
- The Approval Body shall assess the possible effects on the performances of the "assembled system" due to the declared tolerances.

7 PRECONDITIONS CONCERNING INCORPORATION OF PRODUCTS IN THE WORKS

7.1 Application methods and design rules (installation instructions)

All the information required as indicated in clause 7 of ETAG 005 – Part 1, shall be elaborated in the Manufacturer's Technical Dossier (MTD) taking into account the following particular points:

7.1.1 Transport and storage

There are no specific requirements.

7.1.2 Influence of weather conditions

There are no specific requirements.

7.1.3 Application of components

There are no specific requirements.

7.1.4 Details

There are no specific requirements.

7.1.5 Auxiliaries

There are no specific requirements.

7.1.6 Product waste

There are no specific requirements.

7.1.7 Special measures

There are no specific requirements.

7.1.8 Safety measures

There are no specific requirements.

7.2 Maintenance and repair

There are no specific requirements.

SECTION THREE

ATTESTATION OF CONFORMITY

8. ATTESTATION AND EVALUATION OF CONFORMITY

8.1 EC-decision

The decision as given in clause 8.1 of ETAG 005 – Part 1.

8.2 AC-procedures

This Complementary Part (ETAG 005 – Part 8) has no procedures contrary to those stated in clauses 8.1 and 8.2 of ETAG 005 – Part 1.

Because incorporation in the works implies the manufacturing of the final product, the installation instructions should also contain one or more practical parameters to verify some aspects which are indicative for **the designed quality of that final product**.

Consequently the installation instructions should not only give guidance on the on-site process control as indicated in clause 7.1.3 ("application of components") of ETAG 005 – Part 1, but should also contain instructions on the following, which are to be considered as "on-site **quality control**":

- verification of the water content in the substrate (when porous);
 - verification of thickness of the applied film and corrective measures, if necessary;
 - verification of adhesion to the substrate;
 - recommendations for the preparation of free film site samples to enable this on-site verification;
- directions for the registration of results of this on-site verification in a completion report.

8.3 CE-marking and information

This Complementary Part of the ETA-Guideline gives no additional or different information and/or requirements for CE-marking as detailed in clause 8.4 of ETAG 005 – Part 1.

SECTION FOUR

THE ETA CONTENT

9. THE ETA CONTENT

9.1 Exceptions

There are no exceptions to the conditions mentioned in chapter 9 of ETAG 005 – Part 1.