

## National technical approval

### Zulassungsstelle für Bauprodukte und Bauarten Bautechnisches Prüfamt

Eine vom Bund und den Ländern  
gemeinsam getragene Anstalt des öffentlichen Rechts

Mitglied der EOTA, der UEAtc und der WFTAO

Date:

9 Jan 2019

Reference:

I 42-1.3.210-15/17

#### Approval number:

**Z-3.210-2153**

#### Applicant:

**Mapei S.p.A.**  
Via Cafiero, 22  
20158 MILAN  
ITALY

#### Validity

from: **9 January 2019**

to: **9 January 2024**

#### Subject of approval:

**"Re-Con Zero Evo" recycling aid**

The subject of approval named above is herewith granted a national technical approval (*allgemeine bauaufsichtliche Zulassung*).

This decision contains six pages.

Translation authorised by DIBt

DIBt

## I GENERAL PROVISIONS

- 1 This national technical approval confirms the fitness for use of the subject of approval within the meaning of the Building Codes of the federal states (*Landesbauordnungen*).
- 2 The national technical approval does not replace the permits, approvals and certificates prescribed by law for carrying out building projects.
- 3 The national technical approval is granted without prejudice to the rights of third parties, in particular private property rights.
- 4 Notwithstanding further provisions in the 'Special Provisions', manufacturers and distributors of the subject of approval shall make copies of the national technical approval available to the user and point out that the national technical approval must be available at the place of use. Upon request, copies of the national technical approval shall be placed at the disposal of the authorities involved.
- 5 The national technical approval shall be reproduced in full only. Partial publication requires the consent of Deutsches Institut für Bautechnik. Texts and drawings in promotional materials shall not contradict the national technical approval. In the event of a discrepancy between the German original of the national technical approval and this authorised translation, the German version shall prevail.
- 6 The national technical approval may be revoked. The provisions of the national technical approval can subsequently be supplemented and amended, in particular if this is required by new technical findings.
- 7 This decision is based on the information and documents provided by the applicant on the subject of approval during the approval procedure. Alterations to the information on which this national technical approval was based are not covered by this decision and shall be notified to Deutsches Institut für Bautechnik without delay.

## II SPECIAL PROVISIONS

### 1 Subject of approval and field of use

#### 1.1 Subject of approval

The national technical approval covers the production and use of the "Re-Con Zero Evo" recycling aid used to produce a reclaimed aggregate.

By adding the "Re-Con Zero Evo" recycling aid to the truck mixer or another suitable mixing device, a coarse aggregate with a high-strength coating is produced from the remaining concrete in a granulating process.

#### 1.2 Field of use

The "Re-Con Zero Evo" recycling aid may be used to produce reclaimed aggregates (from remaining concrete) based on DIN EN 206-1<sup>1</sup>, Clause 5.2.3.3, under the conditions of this national technical approval.

In deviation from DIN 1045-2<sup>2</sup>, Clause 5.2.3.3, the aggregates do not have to be washed out. The aggregates may be used as recycled aggregates for the production of concrete in accordance with DIN EN 206-1<sup>1</sup> in conjunction with DIN 1045-2<sup>2</sup> in compliance with the DAfStb Guideline "Concrete in accordance with DIN EN 206-1 and DIN 1045-2 with recycled aggregates in accordance with DIN EN 12620"<sup>3</sup>.

### 2 Provisions for the construction product

#### 2.1 Properties and composition

**2.1.1** The composition of the recycling aid used to produce an aggregate shall correspond to that of the sample on which the approval testing was based. The composition of the components is deposited with Deutsches Institut für Bautechnik. Any change to the composition requires the written consent of Deutsches Institut für Bautechnik.

**2.1.2** The "Re-Con Zero Evo" recycling aid consists of a hydrophilic super-absorbent polymer (component A) and a hardening accelerator (component B).

**2.1.3** The aggregate produced with the "Re-Con Zero Evo" recycling aid shall meet the requirements of the principles given in "Assessment of the impact of building products on soil and groundwater" as amended<sup>4</sup>.

<sup>1</sup> DIN EN 206-1:2001-07 Concrete – Part 1: Specification, performance, production and conformity  
 DIN EN 206-1/A1:2004-10 Concrete – Part 1: Specification, performance, production and conformity; German version EN 206-1:2000/A1:2004  
 DIN EN 206-1/A2:2005-09 Concrete – Part 1: Specification, performance, production and conformity; German version EN 206-1:2000/A2:2005

<sup>2</sup> DIN 1045-2:2008-08 Concrete, reinforced and prestressed concrete structures; Part 2: Concrete – Specification, performance, production and conformity – Application rules for DIN EN 206-1

<sup>3</sup> German Committee for Reinforced Concrete (*Deutscher Ausschuß für Stahlbeton e.V. - DAfStb*):  
 "DAfStb Guideline concrete in accordance with DIN EN 206-1 and DIN 1045-2 with recycled aggregates in accordance with DIN EN 12620 – September 2010" (*DAfStb-Richtlinie Beton nach DIN EN 206-1 und DIN 1045-2 mit rezyklierten Gesteinskörnungen nach DIN EN 12620 - September 2010*) Berlin: Beuth, 2010 (sales no. 65080)

<sup>4</sup> Most recently:  
 Deutsches Institut für Bautechnik:  
 Principles given in "Assessment of the impact of building products on soil and groundwater"  
 Part I "General assessment concept" – May 2009 version"  
 Part II "Assessment concept for special building products" – September 2011 version"  
 Part III "Analytical method" – May 2009 version"  
 Publications of Deutsches Institut für Bautechnik

**2.2 Manufacture, packaging, transport, storage and marking**

**2.2.1 Manufacture**

The applicant shall keep a record of when the recycling aid was manufactured and delivered. The records shall be kept for at least five years.

The "Re-Con Zero Evo" recycling aid is manufactured from deposited components at the MAPEI S.p.A. plant.

**2.2.2 Packaging, transport and storage**

The components of the "Re-Con Zero Evo" recycling aid shall be stored at the manufacturing plant in suitable containers bearing the clearly visible label:

"Re-Con Zero Evo" recycling aid, component A and/or B  
in accordance with national technical approval no. Z-3.210-2153

The components of the "Re-Con Zero Evo" recycling aid are packed in water-soluble bags and shall be stored dry.

The maximum shelf-life is two years.

**2.2.3 Marking**

**2.2.3.1 General**

The bags and the delivery note of the building product shall be marked by the manufacturer with the conformity mark (*Ü-Zeichen*) in accordance with the Conformity Marking Ordinances (*Übereinstimmungszeichen-Verordnungen*) of the federal states. The mark shall only be applied if the requirements given in Section 2.3 are met.

**2.2.3.2 Labelling of the bags**

The following information shall be affixed to the bags of the "Re-Con Zero Evo" recycling aid in a clearly legible, durable and framed manner:

Designation:	"Re-Con Zero Evo" recycling aid
Manufacturing plant:	MAPEI S.p.A., Italy
Conformity mark ( <i>Ü-Zeichen</i> ) with	
Approval no.	Z-3.210-2153
Delivery quantity (mass):	.....
Date of manufacture and	
Batch number:	.....
Permissible quantity to be added:	1 bag per m <sup>3</sup> of remaining concrete

Particular attention shall be paid to the instructions for use and Section 3 of approval Z-3.210-2153

**2.2.3.3 Delivery note**

The delivery notes shall include the following information:

Designation:	"Re-Con Zero Evo" recycling aid
Approval no.	Z-3.210-2153
Batch number <sup>5</sup> :	.....
Delivery quantity (mass):	.....

<sup>5</sup> Indicating the batch number on the delivery note is not necessary if the building product is not delivered directly to the place of use but, for example, via the building materials trade.

## 2.3 Confirmation of conformity

### 2.3.1 General

Confirmation of conformity of the building product with the provisions of this national technical approval shall be provided for each manufacturing plant by way of a declaration of conformity of the manufacturer based on factory production control and a certificate of conformity issued by a recognised certification body, as well as by way of regular external surveillance carried out by a recognised inspection body in accordance with the following provisions.

To issue the certificate of conformity and for external surveillance including the associated product testing to be carried out in the process, the manufacturer of the building product shall use an appropriately recognised certification body and an appropriately recognised inspection body.

The declaration of conformity shall be submitted by the manufacturer through marking of the construction products with the national conformity mark (*Ü-Zeichen*) including statement of the intended use.

The certification body shall send a copy of the certificate of conformity issued by it as well as a copy of the initial type-testing evaluation report to Deutsches Institut für Bautechnik.

### 2.3.2 Factory production control

A factory production control system in accordance with DIN EN 934-6 shall be set up and implemented in each manufacturing plant.<sup>6</sup> Factory production control is understood to be continuous surveillance of production by the manufacturer to ensure that the construction products manufactured satisfy the provisions of this national technical approval.

The factory production control shall additionally include at least the measures listed below.

- Description and verification of the starting material (incoming inspection) for each batch:
  - A declaration of compliance from the suppliers of all components shall be obtained and stored at regular intervals.

The results of factory production control shall be recorded and evaluated. The records shall include at least the following information:

- designation of the construction product or the starting material and the components
- type of check or test
- date of manufacture and testing of the construction product or the starting material or the components
- results of the checks and tests as well as, if applicable, comparison with requirements
- signature of the person responsible for factory production control

The records shall be kept for at least five years and submitted to the inspection body used for external surveillance. They shall be submitted to Deutsches Institut für Bautechnik and the competent supreme building authority upon request.

If the test result is unsatisfactory, the manufacturer shall immediately take the necessary measures to resolve the defect. Construction products which do not meet the requirements shall be handled in such a way that they cannot be confused with compliant products. After the defect has been remedied, the relevant test shall be repeated immediately - where technically feasible and necessary to show that the defect has been eliminated.

### 2.3.3 External surveillance

The factory production control system at each manufacturing plant shall be inspected regularly, i.e. at least twice a year, by means of external surveillance.

Within the scope of external surveillance, initial type-testing of the building product shall be carried out and samples shall be taken and tested. Samples for random testing may also be

<sup>6</sup>

DIN EN 934-6:2006-03

Admixtures for concrete, mortar and grout - Part 6: Sampling, conformity control and evaluation of conformity; German version EN 934-6:2001 + A1:2005

taken. Sampling and testing shall be the responsibility of the respective recognised inspection body.

The results of certification and external surveillance shall be kept for at least five years. They shall be presented by the certification or inspection body to Deutsches Institut für Bautechnik and the competent supreme building authority upon request.

### **3 Provisions for use**

#### **3.1 Use of the recycling aid**

One container of the "Re-Con Zero Evo" recycling aid shall be used per 1 m<sup>3</sup> of remaining concrete. A container comprises 1 x 0.5 kg of component A and 1 x 1.5 kg of component B.

The adding of the bags and the curing of the aggregate shall be handled in accordance with the manufacturer's specifications in the instructions for use.

Components A and B shall never be added to the remaining concrete at the same time, but in the sequence specified by the manufacturer in the instructions for use.

The "Re-Con Zero Evo" recycling aid shall only be used for remaining concrete up to flow class F4 or slump class S4. No water shall be added to the remaining concrete before treatment.

During the first 12 hours, the reclaimed aggregate shall be protected from rain.

After approximately 12 hours, the reclaimed aggregate shall be picked up again and turned.

#### **3.2 Use of the aggregate**

The reclaimed aggregate may be used without restriction in concrete in accordance with DIN EN 206-1<sup>1</sup> in conjunction with DIN 1045-2<sup>2</sup> in accordance with DAfStb Guideline "Concrete in accordance with DIN EN 206-1 and DIN 1045-2 with recycled aggregates in accordance with DIN EN 12620"<sup>3</sup>, Section 1(5), up to a proportion of 5 % by mass of the total aggregate amount.

Dr.-Ing. Wilhelm Hintzen  
Head of Section

Drawn up by