Based on the ordinance of the Minister of Infrastructure of 8th November 2004 on technical approvals and the bodies entitled to issue technical approvals (Dz. U. (Journal of Laws) No. 249/2004, item. 2497), as a result of the approval procedure carried out at Building Research Institute in Warsaw on request of the companies:

TECH SERVICE Polska Sp. z o.o.
ul. Zielona 11, 43-502 Czechowice -Dziedzice

Przedsiębiorstwo Produkcyjno-Uslugowo-Handlowe AKCES Brunon Kieloch
ul. Zielona 11, 43-502 Czechowice -Dziedzice

The product named:

LIGHT INSULATING - LEVELLING MORTARS POLYTECH
AND INSULATING MORTARS POLYTECH 100

is stated as suitable for application in construction

within the scope and in conformity with the principles specified in the Annex, which is an integral part of this Technical Approval ITB

Valid until 31 August 2010

DIRECTOR
of Building Research Institute

Warsaw, 31 August 2006
ANNEX

GENERAL AND TECHNICAL PROVISIONS

CONTENTS

1. SUBJECT OF THE APPROVAL 3
2. INTENDED USE, SCOPE AND CONDITIONS FOR USE 3
3. TECHNICAL PROPERTIES, REQUIREMENTS 4
   3.1 Raw materials 4
   3.2 Technical properties 4
4. PACKAGING, STORAGE AND TRANSPORT 6
5. CONFORMITY ASSESSMENT 6
   5.1 General principles 6
   5.2 Initial type-testing 7
   5.3 In-plant production control 7
   5.4 Testing of finished products 8
   5.5 Frequency of tests 8
   5.6 Testing methods 8
   5.7 Taking samples for examination 9
   5.8 Evaluation of test results 9
6. FORMAL AND LEGAL PROVISIONS 9
7. PERIOD OF VALIDITY 10
ADDITIONAL INFORMATION 11
1. SUBJECT OF THE APPROVAL


POLYTECH mortar is received by mixing of factory prepared polystyrene granulate with granule diameter: 2 - 6 mm and added foaming modifying agents - trade name TECH, with Portland cement CEM I or CEM II, class 32.5 N acc. to PN-EN 197-1-2002 and mixing water in the amount which allows for receiving liquid consistency of the mortar.

POLYTECH 100 mortar is received by: mixing modifying foamy additive TECH with Portland cement CEM I or CEM II, sand with grain size of up to 0.8 mm and mixing water in the amount which allows for receiving liquid consistency of the mortar. TECH additive is a surface active agent improving mortar workability.

Depending on the amount of cement and polystyrene granulate used the following types of POLYTECH mortars are differentiated:

- POLYTECH 20/80 (800 l of polystyrene, 200 kg of cement)
- POLYTECH 30/80 (500 l of polystyrene, 300 kg of cement)
- POLYTECH 35/50 (500 l of polystyrene, 350 kg of cement).

To produce mortars POLYTECH and POLYTECH 100 specialist mixing devices are used indicated by the proponents of this Approval. POLYTECH 20/80 may also be produced with the use of gravity concrete mixers.

2. PURPOSE, SCOPE AND CONDITIONS FOR USE

POLYTECH mortar is designed for making self-levelling compensating layers and floor screeds with declared thermal properties, and for thermal insulation of floors, roofs and other construction elements.

Floor screeds made of POLYTECH insulation mortars should be not less than 4 cm thick and covered by pressure layer of cement mortar C 12/15 with a thickness not less than 2 cm. At the design stage the calculation value of thermal conductivity coefficient should be assumed as equal to:
POLYTECH 20/80 - 0.07 W/(m-K),
POLYTECH 30/50 - 0.09 W/(m-K),
POLYTECH 35/50 - 0.10 W/(m-K),

POLYTECH 100 mortar is designed for making self-levelling compensating and filling up layers as well as floor screeds. Floor screeds made of POLYTECH 100 should have the thickness not less than 3.5 cm. The mortar surface should be secured against impacting forces and contact pressure.
While performing works the ambient and ground temperature should be neither lower than +5 °C nor higher than +25°C.
The scope of the POLYTECH and POLYTECH 100 mortars should be decided on the basis of technical properties specified in item 3.
Application of the POLYTECH and POLYTECH 100 mortars should be in accordance with:
- instructions of use prepared by the manufacturer.
- provisions of this ITB Technical Approval,
- standards in force

### 3. TECHNICAL PROPERTIES. REQUIREMENTS

#### 3.1. Raw materials
Properties of raw materials used for production of POLYTECH and POLYTECH 100 mortars and the method of their checking and acceptance are not covered by this ITB Technical Approval and should be specified in the quality assurance systems of the manufacturers.

#### 3.2 Technical properties
Required technical properties of POLYTECH mortars were given in Table 1, and POLYTECH 100 mortar in Table 2.

<table>
<thead>
<tr>
<th>Item</th>
<th>Properties</th>
<th>Requirements</th>
<th>Testing methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Appearance after mixing with water</td>
<td>uniform grey mass without lumps and mechanical impurities with visible polystyrene granules</td>
<td>ZUAT-15/VIII 14:2000</td>
</tr>
<tr>
<td>2</td>
<td>Bulk density of fresh mortar, g/cm³</td>
<td>0,4 ± 5%</td>
<td>0,5 ± 5%</td>
</tr>
<tr>
<td>3</td>
<td>Consistence cm: flow table cone immersion</td>
<td>16±1 19±1</td>
<td>19 ± 1 25 ± 1</td>
</tr>
<tr>
<td>4</td>
<td>Linear contraction at the mortar thickness 20 mm (%):</td>
<td>≤ 0,2</td>
<td>≤ 0,25</td>
</tr>
<tr>
<td>5</td>
<td>Flexural strength MPa</td>
<td>≥ 0.15</td>
<td>≥ 0.40</td>
</tr>
<tr>
<td>6</td>
<td>Compression strength MPa</td>
<td>≥ 0.40</td>
<td>≥1.20</td>
</tr>
<tr>
<td>Item</td>
<td>Properties</td>
<td>Requirements</td>
<td>Testing methods</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------</td>
<td>-----------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Appearance after mixing with water</td>
<td>uniform grey mass without lumps and mechanical impurities</td>
<td>ZUAT-15/VIII 14:2000</td>
</tr>
<tr>
<td>2</td>
<td>Bulk density of fresh mortar, g/cm³</td>
<td>0.4 ± 5% 0.5 ± 5% 0.6 ± 5%</td>
<td>PN-85/B-04500</td>
</tr>
<tr>
<td>7</td>
<td>Binding time h: beginning-end</td>
<td>≥ 10  ≥ 12</td>
<td>PN-EN 196-3:2005</td>
</tr>
<tr>
<td>8</td>
<td>Adhesiveness to the concrete undercoat, MPa</td>
<td>≥ 0.1  ≥ 0.2  ≥ 0.3</td>
<td>PN-85/B-04500</td>
</tr>
<tr>
<td>9</td>
<td>Impact resistance in air-dry condition, J</td>
<td>≥ 1  ≥ 1  ≥ 1</td>
<td>p. 5.6.1</td>
</tr>
<tr>
<td>10</td>
<td>Declared value of thermal conductivity coefficient $\lambda_D^W/(m-K)$, in the temp. of +10°C</td>
<td>≤ 0.07 ≤ 0.09 ≤ 0.10</td>
<td>PN-EN 12564:2002</td>
</tr>
</tbody>
</table>

4. PACKAGING, STORAGE AND TRANSPORT

Polystyrene granulate and TECH agent should be delivered, stored and transported in original packages of the Manufacturer in a way that ensures constancy of their technical properties. A label should be attached to each package, containing at least the following data:
- name and address of the manufacturer
- trade name of the product,
5. DECLARATION OF CONFORMITY

5.1 General principles

According to Art 4, Art 5 sec. 1, item 3 and Art. 8 sec. 1 of the Act of 16 April 2004 on Building products (Dz. U. No. 92/2004, item. 881), products which are covered by this Technical Approval may be marketed and used in construction works in the scope corresponding with their functional properties and the intended use, if the manufacturer performed the procedure of assessment of conformity, issued national declaration of conformity with ITB Technical Approval AT-15-6690/2009 and marked the products with construction label, according to binding regulations.

According to the ordinance of Minister of Infrastructure of 11 November 2004 concerning the methods of declaring conformity of construction products and methods of marking them with construction label (Dz. U. No. 198/2004, item. 2041), evaluation of conformity of insulation mortars POLYTECH and POLYTECH 100 with ITB Technical Approval AT-15-6690/2009 shall be performed by the Manufacturer, applying system no. 4.

In the case of system no. 4 of conformity assessment, Manufacturer may issue national declaration of conformity with ITB Technical Approval AT-15-6690/2009 based on:

a) preliminary examination performed by the Manufacturer or to his order,
b) in-plant production control

5.2 Initial type-testing

Initial type-testing is a study in aim to confirm required technical and functional properties, performed before marketing products.

Initial type-testing includes:

A) In the case of POLYTECH mortar

- linear contraction,
- flexural strength,
- compression strength,
- binding time,
- adhesiveness to the concrete undercoat,
- impact resistance,
- declared value of thermal conductivity coefficient

B) In the case of POLYTECH 100 mortar:

- contraction
- flexural strength,
- compression strength,
- adhesiveness to the concrete undercoat,

Tests which constituted the basis for specifying technical-functional properties in the approval procedure represent the initial type-testing in the conformity assessment.

5.3 In-plant production control

In-plant production control includes:

1. specification and checking of raw materials and components,
2. inspection and testing of the production process as well as examination of finished goods (item 5.4), held by the manufacturer in line with agreed examination schedule and in accordance with rules and procedures specified in the documentation of plant production control, adapted to production technology and aimed at receiving products with required properties.

Production control should ensure that the products are compliant with ITB Technical Approval AT-15-6690/2009. Production control results should be systematically recorded. These records should confirm that the product meets the conformity criteria. Each batch of products should be unequivocally identified in the examination register and trade documents.

5.4 Examination of finished goods

5.4.1 Schedule of tests

a) routine tests
b) periodical tests

5.4.2 Routine tests. Routine tests include checking:

- the appearance of mortars after mixing with water
- bulk density of fresh mortars
- consistency

5.4.3 Periodical tests. Periodical tests include checking:
- contraction
- flexural strength
- compression strength,
- adhesiveness to concrete undercoat,
- declared value of thermal conductivity coefficient (POLYTECH mortar),

5.5 Frequency of tests

Routine tests should be performed for each batch of the product. The size of each batch should be specified in plant production control documents.
Periodical tests should be performed at least once in 3 years

5.6 Testing methods

Tests should be performed in accordance with the documents listed in Table 1 col. 6, Table 2 col. 4 and item 5.6.1. Test results should be compared to the ones given in Table 1 col. 3, 4, 5 as well as Table 2 col. 3.

5.6.1 Testing impact resistance in air-dry condition.

The test should be performed on 3 control samples, stored for 28 days in laboratory conditions (temperature 20 ± 2°C, humidity 65 ± 5%).
The principle of the test is based on vertical lowering of steel ball weighing 535 g and indicating maximum impact energy the mortar can take on without being damaged.

5.7 Taking samples for tests

The elements of the mortar should be taken randomly, according to PN-83/N-03010. Samples of the mortar for tests should be made in accordance with the assumed technology.

5.8 Evaluation of test results

The goods produced should be considered compliant with the requirements of this ITB Technical Approval, if the results of all tests are objective.

6. FORMAL AND LEGAL PROVISIONS


6.2. ITB Technical Approval AT-15-6690/2009 is a document stating suitability of light insulation-levelling POLYTECH mortars and levelling POLYTECH 100 for use in construction within the scope as provided for in the provisions of the Approval.
According to Art. 4, Art 5 sec. 1, item 3 as well as Art. 8 sec. 1 of the Act of 16 April 2004 on Building products (Dz. U. No. 92/2004, item. 881), products which are covered by this Technical Approval may be marketed and used for construction works in the scope corresponding with their functional properties and the intended use, if the manufacturer carried out conformity assessment procedure, issued national declaration of conformity with ITB Technical Approval AT-15-6690/2009 and marked the products with construction label, according to binding regulations.

6.3 Technical Approval ITB shall not prejudice the rights resulting from the provisions of industrial property protection, and, in particular, the announcement of the Marshal of the Polish Parliament of 13 June 2003 on publishing the consolidated text of the Act of 30 June 2000 on Industrial Property Law (Dz. U. No. 2119, item. 1117). Ensuring these rights is an obligation of the parties who benefit of this Technical Approval.

6.4 ITB by issuing the Technical Approval shall not bear responsibility for possible infringement of exclusive and acquired laws.

6.5 ITB Technical Approval shall not release the manufacturer from the responsibility for proper quality of the products and contractors performing construction work from the responsibility for the proper application of the products.

6.6 The brochures and announcements and any other documents concerning marketing and application of light insulation-levelling mortars POLYTECH and levelling POLYTECH 100 in construction should contain the information of the ITB Technical Approval AT-15-6690/2009.

7. VALIDITY PERIOD

ITB Technical Approval AT-15-6690/2009 shall be valid until 31 August 2014. The validity of Technical Approval may be prolonged for subsequent periods, if its Proponent or formal successor moves for this to Building Research Institute not later than 3 months before the validity of the document expires.

THE END
ADDITIONAL INFORMATION

Standards and related documents
PN-85/B-04500 Mortars. Testing physical properties and strengths.
PN-EN 1015-3:2000 Methods for testing mortars for walls. Specifying consistency of fresh mortar (by means of flow table)
PN*,83/N-0301O Statistic quality control. Randomized choice of product units for sampling.


PN-EN 12664:2002  Thermal properties of building materials and products. Definition of thermal resistance by unguarded hot plate method and heat flux sensor. Dry and wet materials with moderate or small heat resistance.


Statements, reports from testing, evaluations, classifications

2. NT-512/A/05 Laboratory testing of three assortment types of POLYTECH insulation underlayments, for the purpose of approval. ITB, Department of New Finishing Techniques, Warsaw 2005.