



## INSTITUTE FOR TESTING AND CERTIFICATION

třída Tomáše Bati 299, Louky, 763 02 Zlín, Czech Republic

### AUDIT SAMPLES RESULTS EVALUATION REPORT

No.: 343506825 / 2018

Applicant: **WŁODAR TRADE WIESŁAW WŁODARCZYK  
SPÓŁKA JAWNA**

Address: Ul. Gminna 42, 42-200 Częstochowa, Poland


Product: **Cement pucolanowy  
CEM IV/B (V) 32,5 R according to EN 197-1**

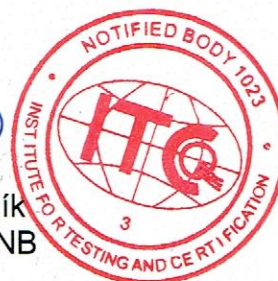
Production unit: Ul. Gminna 42, 42-200 Częstochowa, Poland

Certificate No.: 1023 - CPR - 0669 P

Carried out by: Lubomir Martinik, Ph.D., NB 1023

Date of issue: 10<sup>th</sup> May 2018

  
RNDr. Radomír Čevelík  
Representative of the NB







## Introduction

Cements as construction products are assessed on the basis of relevant clauses of the Construction Products Regulation (CPR) – Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.

For the Assessment and Verification of Constancy of Performance common cements the following harmonised standards (among others) have been adopted:

EN 197-1 "Cement – Part 1: Composition, specifications and conformity criteria for common cements"

For these products the system of the Assessment and Verification of Constancy of performance 1+ is laid down, which corresponds to Annex V, cl. 1.1 of the CPR, including certification of constancy of performance of the product by a Notified Body on the basis of determination of the product-type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product and initial inspection of the manufacturing plant and of factory production control as well as of its continuous surveillance, assessment and evaluation of factory production control and audit-testing of samples taken before placing the product on the market; in compliance with the Annex(es) ZA to the above mentioned standard(s) Table ZA.3.

The Assessment and Verification of Constancy of Performance is carried out with the application of the clause 9 of EN 197-1 and on Constancy of Performance, which shall be in accordance with EN 197-2, in compliance with provisions of the Table ZA.3 of the mentioned harmonized standard EN 197-1.

One of the tasks, specified for a Notified Body in the described attestation of constancy of performance of the product, is to evaluate results of audit samples testing – see EN 197-2, cl. 5.4, especially 5.4.5.

## 1. Product specification

One type of the cement has been applied for the certification:

- ☐ **Cement pucolanowy CEM IV/B (V) 32,5 R according to EN 197-1**

The cement is manufactured in the production unit seated in Ul. Gminna 42, 42-200 Częstochowa, Poland.

The Notified Body 1023 – Institut pro testování a certifikaci, a. s. Zlín, Czech Republic issued on 31<sup>st</sup> July 2015 the certificate 1023 - CPR - 0669 P confirming that the Factory Production Control (FPC) of above mentioned product fulfilled all provisions concerning the management and the attestation of FPC, as they are stated in the Annex ZA of the harmonized technical standard EN 197-1. The Initial assessment of factory production control is described in the Final report No.: 753501180 / 2015, issued on 31<sup>st</sup> July 2015. Last surveillance inspection No. 343506501/2017 was issued on 4<sup>th</sup> December 2017.





## **2. Sampling and test methods**

### **2.1 Place, time and way of sampling of the audit samples**

The audit samples were taken in the manufacturer's site, WŁODAR TRADE WIESŁAW WŁODARCZYK SPÓŁKA JAWNA, Ul. Gminna 42, 42-200 Częstochowa, Poland on 10<sup>th</sup> April 2017. Sampling was performed in accordance with EN 196-7, in the presence of the WŁODAR TRADE WIESŁAW WŁODARCZYK SPÓŁKA JAWNA, representative, Michał Czajkowski. Sampling No. 343506825 on 5<sup>th</sup> April 2018 took place with Mr. Lubomír Martiník, Institut pro testování a certifikaci Inc., Zlín (ITC) as the representative of NB 1023.

25 kg (one bag) was transported by car to ITC laboratory.

### **3.1 Place and date of the audit tests**

The audit tests were performed on behalf of the Notified Body (NB) 1023 in the laboratory of ITC (Institute for testing and certification), Zlín, Czech republic and VUSTAH Inc., chosen and verified by ITC - NB 1023. The samples taken on 5<sup>th</sup> April 2018 were tested in the following independent laboratories:

- Institut pro testování a certifikaci Inc. (ITC), accredited laboratory No. 1004, tř. T. Bati 299, 764 21, Zlín, Czech Republic (April - May 2018) – tests 2-8)
- Výzkumný ústav stavebních hmot, Inc., Hněvkovského 30/65, 617 00, Brno, Czech Republic (April - May 2018) – test 1)

### **2.3 Test methods**

The compliance of common cements properties with the essential characteristics of the construction product of the CPR is, in accordance with the corresponding the EN 197-1, assessed by evaluation of the following properties for CEM IV/B (V) 32,5 R:

- 1) Composition (see Table I in EN 197-1) according to ENV 196-4:1993 "Methods of testing cement. Part 4: Quantitative determination of constituents"
- 2) Early compressive strength at 2 days according to EN 196-1 "Methods of testing cement - Part 1: Determination of strength";
- 3) Standard compressive strength (at 28 days) according to EN 196-1;
- 4) Initial setting time in accordance with EN 196-3;
- 5) Soundness according to EN 196-3;
- 6) Pozzolanicity according to EN 196-5
- 7) Sulfate content (as SO<sub>3</sub>) in accordance with EN 196-2;
- 8) Chloride content according to EN 196-2;





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Ref. No. 343506825/2018

Page 4 of 6

The property of water-soluble hexavalent chromium (chromate) content according to EN 196-10 "Methods of testing cement - Part 10: Determination of the water-soluble chromium (VI) content of cement" was not tested, because the limit of the content is monitored during production of certified cement (the part of cement CEM IV/B (V) 32,5 R)

Note: The water-soluble hexavalent chromium content is not mentioned as an obligatory one in EN 197-1, however, in the clause ZA.1 the following statement can be found: "There may be requirements on dangerous substances applicable to the products falling within the scope of EN 197-1 (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply." The above mentioned statement was fulfilled with the Council Directive 2003/53/EC of the European Parliament of 18<sup>th</sup> June 2003 amending for the 26th time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations), according to which: "(1) Cement and cement-containing preparations may not be used or placed on the market, if they contain, when hydrated, more than 0,0002 % soluble chromium VI of the total dry weight of the cement".

### 2.4 Audit samples testing results

Test results are presented in the Table I and II.

Table I – tested properties

No.:	Aspect	Unit	Test result	Requirement	Evaluation
2	Early compressive strength at 2 days	MPa	18.2 ± 0.9	≥ 10.0	Conformity
	Flexural strength at 2 days	MPa	4.3 ± 0.4	-	-
3	Standard compressive strength (at 28 days)	MPa	45.9 ± 2.0	≥ 32.5 ≤ 52.5	Conformity
	Flexural strength at 28 days	MPa	8.3 ± 1.0	-	-
4	Initial setting time	h., min.	300 min.	≥ 75 min.	Conformity
5	Soundness	mm	0.8 ± 0.2	≤ 10.0	Conformity
6	Pozzolanicity	-	Pass	Pass	Conformity
7	Sulfate content	% wt.	2.22 ± 0.22	≤ 3.50	Conformity
8	Chloride content	% wt.	0.04 ± 0.04	≤ 0.10	Conformity





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Ref. No. 343506825/2018

Page 5 of 6

Table II - property 1 – Composition in percentages

Description/ component	R- setting time regulator	C -calcic component	P- Siliceous component	L - Slag	K - clinker
Results with setting time regulator (%)	3.01	2.76	37.96	2,64	53.63
Results without setting time regulator (%)	-	2.80	39,10	2.70	55.30
Requirement (%)	-	-	36 - 55	-	45 – 65*
Evaluation			Conformity		Conformity

\*Tolerance for single result is  $\pm 2\%$ .

### 2.5 The assessment of products results

The results of the product - Cement pucolanowy CEM IV/B (V) 32,5 R according to EN 197-1 have met all requirement of the standard EN 197-1 "Cement – Part 1: Composition, specifications and conformity criteria for common cements".

### 3. Conclusion

At the time, the certified product Cement pucolanowy CEM IV/B (V) 32,5 R according to EN 197-1 meets requirements of verification compliance by Notified Body, the system of assessment 1+.

### 4. List of the documents used for the Report elaborating

- EN 197-1 "Cement – Part 1: Composition, specifications and conformity criteria for common cements"
- EN 197-2 „Cement – Part 2: Conformity evaluation“
- CEN/TR 196-4:2007 "Methods of testing cement. Part 4: Quantitative determination of constituents"
- EN 196-1 "Methods of testing cement - Part 1: Determination of strength";
- EN 196-3 "Methods of testing cement - Part 3: Determination of setting time and soundness";
- EN 196-7 "Methods of testing cement; Methods of taking and preparing samples of cement"



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Ref. No. 343506825/2018

Page 6 of 6

- EN 196-2 "Methods of testing cement – Part 2: Chemical analysis of cement"
- EN 196-5 "Methods of testing cement – Part 5: Pozzolanicity test for pozzolanic cement"
- Sampling report No: 343506825 on 5<sup>th</sup> April 2018
- Test report, reference No. 343506825/01, issued by ITC (Institute for Testing and Certification) Inc. in Zlín, Czech Republic, on 7<sup>th</sup> May 2018
- Test report of the accredited laboratory, reference No. 343506825/02, issued by ITC (Institute for Testing and Certification) Inc. in Zlín, Czech Republic, on 24<sup>th</sup> April 2018
- Test Report No. 55/2018 issued by VÚSTAH (Výzkumný ústav stavebních hmot – Building Materials Research Institute) Inc. in Brno, Czech Republic, on 4<sup>th</sup> May 2018
- Construction Products Regulation (CPR) - REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9<sup>th</sup> March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
- COMMISSION DELEGATED REGULATION (EU) No 568/2014 of 18<sup>th</sup> February 2014 amending Annex V to Regulation (EU) No 305/2011 of the European Parliament and of the Council as regards the assessment and verification of constancy of performance of construction products