



## INSTITUTE FOR TESTING AND CERTIFICATION

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Division CSI - Centre of Civil Engineering

Notified Body No. 1023



## AUDIT SAMPLES RESULTS EVALUATION REPORT

No. 345200130 / 2022

Product: **Cement CEM IV/B(V) 32.5 R**  
according to EN 197-1

Applicant: **WŁODAR TRADE WIESŁAW WŁODARCZYK**  
**SPÓŁKA JAWNA**  
Ul. Gminna 42,  
42-200 Częstochowa, Poland

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

Certificate No.: **1023 - CPR - 0669 P**

Assessed by: **Lubomír Martiník**

Issued on: **2022-04-04**

Number of pages: **5**



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Representative of the Notified Body No. 1023





## 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 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.

## 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, Ul. Gminna 42, 42-200 Częstochowa, Poland on 22<sup>nd</sup> February 2022 **CEM IV/B(V) 32.5 R**. Sampling was performed in accordance with EN 196-7, in the presence of the WŁODAR TRADE WIESŁAW WŁODARCZYK SPÓŁKA JAWNA representative, Mr. Wojciech Pacierpnik Sampling No. 345200130 took place with Mr. Lubomír Martiník Ph.D. and Mr. Petr Karlík, Institut pro testování a certifikaci, Inc., Zlín (ITC) as the representatives of NB 1023.

25 kg in one container was transported by car to ITC laboratory.

### 2.2 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 VUSH Inc., chosen and verified by ITC - NB 1023. The samples taken on 22<sup>nd</sup> February 2022 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 (February - March 2022) – tests 2-5)
- Výzkumný ústav stavebních hmot, Inc., Hněvkovského 30/65, 617 00, Brno, Czech Republic (February - April 2022) – test 1, 6-9)

### 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 CEN/TR 196-4:2007 "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;
- 9) Cr 6+ content according to EN 196-10

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 26<sup>th</sup> 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	13.2 ± 0.8	≥ 10.0	Conformity
	Flexural strength at 2 days	MPa	3.6 ± 0.4	-	-
3	Standard compressive strength (at 28 days)	MPa	43.1 ± 1.9	≥ 32.5 ≤ 52.5	Conformity
	Flexural strength at 28 days	MPa	8.7 ± 0.5	-	-
4	Initial setting time	h., min.	280 min.	≥ 75 min.	Conformity
5	Soundness	mm	1.0 ± 0.1	≤ 10.0	Conformity
6	Pozzolanicity	-	Pass	Pass	Conformity
7	Sulfate content	% wt.	2.48 ± 0.05	≤ 3.50	Conformity
8	Chloride content	% wt.	0.047 ± 0.003	≤ 0.10	Conformity
9	Cr 6+ content	ppm	0.43	≤ 2	Conformity

**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 (%)	3.97	2.58	38.28	3.12	52.05
Results without setting time regulator (%)	-	2.7	39.9	3.2	54.2
Requirement (%)	-	-	36 – 55*	-	45 – 64*
Evaluation			Conformity		Conformity

\*Tolerance for single result is ±2%.

## 2.5 The assessment of products results

The results of the product - Cement CEM IV/B(V) 32.5 R - according to EN 197-1 meets all requirements 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 CEM IV/B(V) 32.5 R according to EN 197-1 meets the requirements of verification compliance by Notified Body, the system of assessment 1+. NB 1023 declares that the certificate stated in chapter 1 of this report remains valid.

### 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"
- EN 196-2 "Methods of testing cement – Part 2: Chemical analysis of cement"
- Sampling report No: 345200130 on 22<sup>nd</sup> February 2022
- Test report of the accredited laboratory, reference No. 345200130-01, issued by ITC (Institute for Testing and Certification) Inc. in Zlín, Czech Republic, on 24<sup>th</sup> March 2022
- Test Report No. 20/2022 issued by VÚSH (Výzkumný ústav stavebních hmot – Building Materials Research Institute) Inc. in Brno, Czech Republic, on 1<sup>st</sup> April 2022
- 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