



PROFICIENCY TESTING PLAN

ZK 2027/1 – Testing of aggregates and natural stone

Poskytovatel zkoušení způsobilosti při SZK FAST

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1 Basic Information about the Proficiency Testing Program

The aim of the Proficiency Testing Program (PTP) is to compare and evaluate the results of tests conducted on aggregates in compliance with selected parts of ČSN EN 933-1 [1], ČSN EN 933-3 [2], ČSN EN 933-4 [3], ČSN EN 933-8+A1 [4], ČSN EN 933-9 [5], ČSN EN 933-10 [6], ČSN EN 1097-1 [7], ČSN EN 1097-2, kap. 5 [8], ČSN EN 1097-2, kap. 6 [8], ČSN EN 1097-3 [9], ČSN EN 1097-5 [10], ČSN EN 1097-6, kap. 8 [11], ČSN EN 1097-7 [12], ČSN EN 1097-8 [13], ČSN EN 1367-1 [14], ČSN EN 1367-2 [15], ČSN EN 1367-3 [16], TP 137 Příloha 1 a 2 [17], ČSN 721179, kap. B [18], ČSN EN 1744-1+A1, kap. 10.1 [19], ČSN EN 1744-1+A1, kap. 11 [19], ČSN EN 1744-1+A1, kap. 12 [19], ČSN EN 1744-1+A1, kap. 14.2 [19], ČSN EN 1744-1+A1, kap. 15.1 [19], ČSN EN 1926 [20], ČSN EN 1936 [21], ČSN EN 12372 [22], ČSN EN 13755 [23] and ČSN EN 14231 [24].

This PTP is organised in cooperation with BETOTECH, s.r.o., Beroun 660, 266 01 Beroun, which cooperates in the preparation of the proficiency testing items.

The program strives to provide objective information about the measuring skills of PTP participants. The basic criterion for participation is timely registration for the program, and the prerequisites for obtaining the Certificate of Participation and the Final Report on the Results of Interlaboratory Comparison are timely payment of the fee and adherence to the schedule.

Important dates:

Registration deadline:	February 28, 2027
Distribution of samples:	April 26, 2027
Realization/initiation of testing:	May 17, 2027
Results sent to the organizer:	June 14, 2027
Presentation of the Certificate of Participation:	August 31, 2027

Submission of test results takes place exclusively via the MyPT customer zone at <https://test.ptprovider.cz/zona>. Results are entered by the laboratory after signing in to their account, in the section of the respective programme.

2 Implementation of the Proficiency Testing Program

2.1 Specifications and Characteristics

Testing laboratories and other institutions interested can register for the PTP. The minimum number of participants is 5. If the number of participants is close to the minimum, the coordinator will consider the evaluation of PTP results using Horn's procedure to determine the assigned value and measurement uncertainty. The maximum number of participants is 30. If the minimum number of participants is not reached, the PT Provider reserves the right to cancel the PTP. This takes place according to Chapter 3 of the "Cancellation and Complaint Proceedings" instructions [25] available on <http://ptprovider.cz/?lang=en>.

ZK01 ČSN EN 933-1 [1]

- Characteristics: Particle size distribution
- Units: %
- Material: Fine aggregate - G_f 85
- Amount: cca 2,5 kg
- Range of observed parameters: max G_c 80/20
- Number of determinations: 3
- Perform using sieves with aperture size 4, 2, 1, 0,5 0.25, 0.125 a 0.063 mm – dry sample without washing.
- A collective sample will be prepared from which you prepare 3 sub-specimens.

ZK02 ČSN EN 933-3 [2]

- Characteristics: Flakiness index (FI)
- Units: %
- Material: Coarse aggregate
- Amount: cca 3 kg
- Range of observed parameters: max FI_{35}
- Number of determinations: 3
- Perform 3 times on the same sample.

ZK03 ČSN EN 933-4 [3]

- Characteristics: Shape index (SI)
- Units: %
- Material: Coarse aggregate
- Amount: cca 1.5 kg
- Range of observed parameters: max SI_{40}
- Number of determinations: 3
- Perform 3 times on the same sample.

ZK04 ČSN EN 933-8+A1 [4]

- Sand equivalent test (SE_d)
- Units: -
- Material: Coarse aggregate
- Amount: cca 1 kg
- Range of observed parameters: -
- Number of determinations: 3
- An aggregate sample will be prepared, from which the laboratory will prepare 3 partial batches.
- Perform the test according to EN 933-8 + A1 [1], Annex A.

ZK05 ČSN EN 933-9 [5]

- Characteristics: MB value
- Units: g/kg
- Material: Fine aggregate - $G_F 85$
- Amount: cca 1.5 kg
- Range of observed parameters: -
- Number of determinations: 3
- A collective sample will be prepared from which you prepare 3 sub-specimens.
- Preparation of test runs according to Chapter 4 of EN 933-9 \cite {933-9}.

ZK06 ČSN EN 933-10 [6]

- Characteristics: Grading of filler aggregates
- Units: %
- Material: Filler
- Range of observed parameters: -
- Number of determinations: 3
- A collective sample will be prepared from which you prepare 3 sub-specimens.

ZK07 ČSN EN 1097-1 [7]

- Characteristics: Determination of the resistance to wear M_{DE}
- Units: -
- Material: Coarse aggregate
- Range of observed parameters: max $M_{DE} 20$
- Number of determinations: 1
- One unwashed sample weighing at least 5 kg will be prepared in accordance with § 6 EN 1097-1 [7].

ZK08 ČSN EN 1097-2, kap. 5 [8]

- Characteristics: Determination of resistance to fragmentation LA
- Units: -
- Material: Coarse aggregate
- Range of observed parameters: max LA_{30}
- Number of determinations: 1
- Laboratory will prepare the sample in accordance with clause 5.2 EN 1097-2 [8].

ZK09 ČSN EN 1097-2, kap. 6 [8]

- Characteristics: Determination of resistance to fragmentation SZ
- Units: %

- Material: Coarse aggregate
- Range of observed parameters: max SZ_{26}
- Number of determinations: 1
- Laboratory will prepare the sample in accordance with clause 6.2 EN 1097-2 [8].

ZK10 ČSN EN 1097-3 [9]

- Characteristics: Determination of loose bulk density and voids ρ_b , V
- Units: Mg/m^3 , %
- Material: Fine aggregate - $G_f 85$
- Amount: cca 10 kg
- Range of observed parameters: -
- Number of determinations: 3
- A collective sample will be prepared from which you prepare 3 sub-specimens.

ZK11 ČSN EN 1097-5 [10]

- Characteristics: Water content (W)
- Units: %
- Material: Fine aggregate - $G_f 85$
- Amount: cca 3 kg
- Range of observed parameters: -
- Number of determinations: 3
- A collective sample will be prepared from which you prepare 3 sub-specimens.

ZK12 ČSN EN 1097-6, kap. 8 [11]

- Characteristics: Determination of apparent particle density and water absorption (ρ_a , WA_{24})
- Units: Mg/m^3 , %
- Material: Coarse aggregate
- Amount: cca 5 kg
- Range of observed parameters: -
- Number of determinations: 3
- A collective sample will be prepared from which you prepare 3 sub-specimens.

ZK13 ČSN EN 1097-7 [12]

- Characteristics: Determination of the particle density of filler (ρ_f)
- Units: Mg/m^3
- Material: Filler
- Range of observed parameters: -
- Number of determinations: 1

ZK14 ČSN EN 1097-8 [13]

- Characteristics: Polished stone value (PSV)
- Units: -
- Material: Coarse aggregate, 10 kg, part 8/11 mm
- Range of observed parameters: -
- Number of determinations: 1
- A collective sample will be prepared from which you prepare 4 sub-specimens.
- Results see 12.1. e) f) and g)

ZK15 ČSN EN 1367-1 [14]

- Characteristics: Resistance to freezing and thawing (F)
- Units: %
- Material: Coarse aggregate
- Amount: cca 10 kg
- Range of observed parameters: max F₄
- Number of determinations: 3
- A collective sample will be prepared from which you prepare 3 sub-specimens.

ZK16 ČSN EN 1367-2 [15]

- Characteristics: Magnesium sulfate test (MS)
- Units: %
- Material: Coarse aggregate
- Amount: cca 5 kg
- Range of observed parameters: max MS₃₅
- Number of determinations: 1
- A cumulative sample will be prepared. The laboratory will prepare 2 partial samples.

ZK17 ČSN EN 1367-3 [16]

- Characteristics: Weight loss (M₁), Strength loss (S_{LA})
- Units: %, %
- Material: Coarse aggregate
- Range of observed parameters: -
- Number of determinations: 3

ZK18 TP 137 Příloha 1 a 2 [17]

- Characteristics: Reactivity of aggregates in connection with alkalies
- Units: %
- Material: Coarse aggregate

- Amount: cca 1 kg
- Range of observed parameters: -
- Number of determinations: 1

ZK19 ČSN 721179, kap. B [18]

- Characteristics: Reactivity of aggregates in connection with alkalies
- Units: %
- Material: Coarse aggregate
- Amount: cca 1 kg
- Range of observed parameters: -
- Number of determinations: 1

ZK20 ČSN EN 1744-1+A1, kap. 10.1 [19]

- Characteristics: Content of water-soluble sulfates in natural and artificial aggregates, SO₃
- Units: %
- Range of observed parameters: -
- Material: Fine aggregate, 10 kg
- Number of determinations: 2
- A collective sample will be prepared from which you prepare 2 sub-specimens.

ZK21 ČSN EN 1744-1+A1, kap. 11 [19]

- Characteristics: Total sulfur content, S
- Units: %
- Range of observed parameters: -
- Material: Fine aggregate, 10 kg
- Number of determinations: 2
- A collective sample will be prepared from which you prepare 2 sub-specimens.

ZK22 ČSN EN 1744-1+A1, kap. 12 [19]

- Characteristics: Acid-soluble sulfate content, SO₃
- Units: %
- Range of observed parameters: -
- Material: Fine aggregate, 10 kg
- Number of determinations: 2
- A collective sample will be prepared from which you prepare 2 sub-specimens.

ZK23 ČSN EN 1744-1+A1, kap. 14.2 [19]

- Characteristics: Content of light contaminants, m_{LPC}

- Units: %
- Range of observed parameters: -
- Material: Fine aggregate, 10 kg
- Number of determinations: 2
- A collective sample will be prepared from which you prepare 2 sub-specimens.

ZK24 ČSN EN 1744-1+A1, kap. 15.1 [19]

- Characteristics: Potential presence of humus (comparison with normalized color solution)
- Units: -
- Range of observed parameters: -
- Material: Fine aggregate, 10 kg
- Number of determinations: 2
- A collective sample will be prepared from which you prepare 2 sub-specimens.

ZK25 ČSN EN 1926 [20]

- Characteristics: Uniaxial compressive strength, R
- Units: MPa
- Material: Cube (50 ± 5) mm
- Number of determinations: 10
- Specimen without present anisotropy planes

ZK26 ČSN EN 1936 [21]

- Characteristics: Open porosity and apparent density
- Units: %, kg/m³
- Material: Cube with volume of at least 60 ml
- Number of determinations: 6

ZK27 ČSN EN 12372 [22]

- Characteristics: Flexural strength under concentrated load, R_{tf}
- Units: MPa
- Material: Prism $50 \times 50 \times 300 (\pm 3)$ mm
- Number of determinations: 10

ZK28 ČSN EN 13755 [23]

- Characteristics: Water absorption at atmospheric pressure, A_b
- Units: %
- Material: Cube (50 ± 5) mm
- Number of determinations: 6

ZK29 ČSN EN 14231 [24]

- Characteristics: Slip resistance by means of the pendulum tester, SRV "dry"
- Units: %
- Material: 136 × 86 mm (76 mm wide slider with 126 mm span)
- Number of determinations: 6

2.2 Ensuring Homogeneity and Stability

PT Provider employees and any suppliers they may utilize are aware of the significance of the homogeneity and stability of test specimens for the results of the Proficiency Testing Program. The homogeneity and stability of specimens is ensured in the following ways:

1. preparing the material for the preparation of samples from one bearing,
2. the distribution of bodies made of more bearings so as to ensure homogeneity of bodies in the field of testing of related characteristics,
3. by review the material before releasing participants.

3 Procedures used in the Statistical Analysis of Laboratory Results

Procedures used in the statistical analysis of proficiency testing programs can be found at ptprovider.cz.

4 Certificate of Participation and the Final Report on the Results of Interlaboratory Comparison

The PT Provider gives expert commentary on participant efficiency evaluation in the Final Report as part of training courses the PT Provider organises. The Final Report preserves the anonymity of the PTP participants. Each participant, or the participant's test results, is represented by an ID number. The Certificate of Participation in the PT programme is part of the Final Report. The Certificate is unique to each participant and includes the participant's ID number.

5 Safeguards for Confidentiality

The identity of PTP participants is confidential and only known to persons/subjects involved with the PTP. All participant information is considered confidential by the PT Provider. The participant may renounce this confidentiality for the purposes of discussion and mutual assistance until the PTP results are obtained. The PT Provider reveals the proficiency testing results to no third party with the sole exception of a written request by a regulatory authority submitted prior to the commencement of the PTP and which has been granted a written consent by the PTP participants.

6 Related Documents

- Quality Handbook of the PT Provider at the SZK FAST
- Cancellation and Complaint Proceedings available at <http://ptprovider.cz/?lang=en> [25]
- MPA 20 – 01 - . . . for application of EN ISO/IEC 17043 Concordance Assessment – General Requirements for Proficiency Testing in the Accreditation System of the Czech Republic.

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