



**PROFICIENCY TESTING PT.UA.1.7.2018
SUGAR (QUALITY)
PROFICIENCY TESTING REPORT
ROUND 8 AUGUST 2026**

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Status:	Final

Kyiv-2026

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2. SUMMARY

2.1. The purpose of proficiency testing in sugar testing is to demonstrate the laboratory's competence (as described in ISO/IEC 17043:2023[1]) and improve the reliability of test results.

2.2. This proficiency testing involves the use of inter-laboratory comparisons to confirm the performance of individual laboratories' abilities and/or identify areas of improvement. Current PT scheme is registered in the EPTIS database.

2.3. This is the final report on the PT.UA.1.7.2018 Round 8 held in August – September 2026. This report is issued according to ISO/IEC 17043[1] and PT.UA.1.7.2018 Round 8 Programme. The report is issued in two languages – Ukrainian and English. English should be considered as the basic language of the report. Both versions of this report can be found at: <http://www.metrologyservice.com.ua>

2.4. A total of 8 participants have reported. Their results are presented in the next clauses.

2.5. Technical experts list and/or subcontractors for this round can be provided to the Participant by request.

2.6. Any calculations, formulas, raw and intermediate data used in this round can be provided to the Participant by request, except confidential information about other participants and information that may contain commercial secret.

2.7. If the Participant does not agree with the proficiency testing results or has any comments on the Provider's work, one can submit a complaint or appeal within 10 days. More information on the complaint procedure can be found at <https://www.metrologyservice.com.ua/> or by contacting the Provider.

2.8. The Provider declares that all results presented in this report are confidential. Each participant is identified by a unique number assigned to them based on their registration application for each round of the program separately. This number is confidential information and may only be disclosed at the participant's request

2.9. Where applicable, the metrological traceability of assigned values is ensured, as confirmed by the use of measurement equipment properly calibrated in accordance with current EA and NAAU policies.

2.10. The uncertainty of the assigned values (for quantitative evaluation) may be provided upon the participant's request.

2.11. All users of this report are prohibited from copying or reproducing it, in whole or in part, without the written consent of the Provider.

2.12. Provider is accredited by NAAU in accordance with the requirements of ISO/IEC 17043. The list of parameters is specified in the scope of accreditation, which can be found on the website <https://www.metrologyservice.com.ua/> or obtained upon request from the Provider.

3. GENERAL PROTOCOL FOR PROFECIENCY TESTING

3.1. MANAGEMENT SYSTEM.

3.1.1. The functioning management system of Metrology service Ltd. (further - Provider) complies with ISO/IEC 17043[1] requirements and covers all aspects of proficiency testing (further - PT) for all proficiency tests.

3.2. SAMPLES PREPARATION, HOMOGENITY AND STABILITY

3.2.1. Provider has used IIII 7.3.1 procedure and appropriate technical experts and contractors for the samples' selection, production, homogenization and division designs that is proved to be satisfactory for the purposes of PT programme PT.UA.1.7.2018 Round 8. Details of test material preparation and homogenization are not published in the report, though can be provided to the Participant by request. Tests, required to prove (validate) homogeneity and stability of samples were performed by competent contracting laboratories according to [1]. These results with statistics are published in the report.

3.2.2. Participants may contact the Provider to request details of test material selection, preparation, homogenization and division of those test material samples, for which they tested in PT. Such information can be provided to the Participant in confidence and only if it cannot compromise other Participants and/or is not a commercial secret.

3.2.3. During sample preparation, all necessary procedures (where applicable) were performed, such as the removal of impurities. Sample preparation report can be provided upon request.

3.3. DISPATCH AND RECEIPT OF SAMPLES

3.3.1. Samples of test material – **White sugar** were dispatched 03.08.2026 according to schedule of proficiency testing programme PT.UA.1.7.2018 Round 8.

3.3.2. Each produced and identified sample was hermetically sealed.

3.3.3. A total of 8 participants **from two countries** received one sample. Results were returned from 8 participants.

3.3.4. The samples were shipped to participants via the commercial delivery service «Nova Poshta» LL, the delivery to abroad was done by courier delivery.

3.4. FOLLOW-UP SERVICES

3.4.1. If a participant wishes to obtain advice/consultation on any aspect of their performance, one should contact the Provider. Provider can (with agreement with Participant) pass on the Participant's inquiry to a technical expert and/or contracting laboratory.

3.4.2. Surplus samples from this round are available for sale as certified reference materials (CRM) with the certified values and uncertainties. Please email Provider for details.

3.5. PERFORMANCE ASSESMENT

3.5.1. Provider expressed Participant's results as traditional z-scores according to [1].

3.5.2. The assigned value for each analyte was calculated as the robust mean of the trial data using Huber H15 method [2] or Algorithm A variation, Annex C.3 [4]

3.5.3 The target standard deviation for each analyte was chosen from either the appropriate form of the Horwitz equation, method trial standard deviation (if stated in the method from inter-laboratory comparisons), standard deviation from the previous trials (PT rounds, see clause 3.5.6), or the robust trial standard deviation, after the removal of outliers. The choice was made using current industry practices used in other collaborative trials and proficiency testing schemes.

3.5.4. z-Scores were deemed satisfactory if $|z| \leq 2$. z-Scores were deemed questionable if $2 < |z| \leq 3$ (marked yellow in tables). If $|z| > 3$, the results were considered to be unsatisfactory (marked red in tables). The calculations were made according to [1,4]. Provider recommends corrective actions if $|z| > 3$ and preventive actions if $2 < |z| \leq 3$.

3.5.5. All results in this round were considered to be satisfactory. In previous Round 7, all results were considered satisfactory.

3.5.6. To ensure confidence of assessment of participants, the Provider combined the test results for individual fractions - sugar retained on the 0,4mm and 0,25mm and mesh size of sieves less than 0,25mm, determined by sieve analysis in accordance with ICUMSA Method GS2/9-37 (2007) - into a single parameter: «Fraction content (sugar retained on the sieve) mesh size of sieves less than 0,5 mm,%».

3.5.7. Participant № 8 stated the result for the «Fraction content (sugar retained on the sieve) mesh size of sieves 0,2 mm, % (ДСТУ 4242:2003)» as the sum of the test results for the content of fractions retained on the 0,8mm, 0,5mm, and 0,2mm sieves. This result was assessed by the Provider but was not taken into account in the calculation of robust mean and robust SD. This result is stated in the appropriate tables and charts.

4. HOMOGENITY AND STABILITY ASSESMENT

4.1. Samples were assessed for homogeneity and stability after blending and packing by selecting three samples of material at random from all those produced. Three of these samples were tested in duplicate under repeatability conditions and for stability as only 16 samples were produced according to [6].

4.2. Homogeneity and stability were deemed satisfactory only if 100% of results are identical with intended results, i.e. with “Satisfactory (S)” result.

4.2.1. Homogeneity and stability for ДСТУ 4624:2006 «Solution purity»

Sample N	Method: ДСТУ 4624:2006	Satisfactory/ Not satisfactory
	Solution purity	
1	Sugar solution is slightly opalescent, free from insoluble sediment, mechanical and other foreign matter.	«Satisfactory (S)»
2	Sugar solution is slightly opalescent, free from insoluble sediment, mechanical and other foreign matter.	«Satisfactory (S)»
3	Sugar solution is slightly opalescent, free from insoluble sediment, mechanical and other foreign matter.	«Satisfactory (S)»

Homogeneity and stability confirmed by 100% of satisfactory results.

4.2.2. Homogeneity and stability for ДСТУ 4624:2006 «Odor and taste»

Sample N	Method: ДСТУ 4624:2006	Satisfactory/ Not satisfactory
	Odor and taste	
1	Sweet with a molasses odour	«Satisfactory (S)»
2	Sweet with a molasses odour	«Satisfactory (S)»
3	Sweet with a molasses odour	«Satisfactory (S)»

Homogeneity and stability confirmed by 100% of satisfactory results.

4.2.3. Homogeneity and stability for ДСТУ 4624:2006 «Appearance»

Sample N	Method: ДСТУ 4624:2006	Satisfactory/ Not satisfactory
	Appearance	
1	Clean and free from spots and foreign matter, with a yellowish tint. Free-flowing and free from lumps	«Satisfactory (S)»
2	Clean and free from spots and foreign matter, with a yellowish tint. Free-flowing and free from lumps	«Satisfactory (S)»
3	Clean and free from spots and foreign matter, with a yellowish tint. Free-flowing and free from lumps	«Satisfactory (S)»

Homogeneity and stability confirmed by 100% of satisfactory results.

4.3. Statistical analysis of the resulting data for homogeneity and stability was carried out using the industry standard Cochran's 'C' test and analytical variance test for 'sufficient homogeneity' according to [3] or Annex B.2[4].

4.4. Produced samples were found to be sufficiently homogeneous and stable for every analyte according to programme, except for those that can be considered equivalent or homogeneity can be assumed from other analyte homogeneity.

4.5. ICUMSA GS2-15 (2007) Moisture content, %

Moisture content, %						ICUMSA GS2-15 (2007)/ ДСТУ 3659:2023					
Дослідження гомогенності/Homogeneity test						Аналіз на 'достатню однорідність'/Test for 'sufficient homogeneity'					
Аналіз викидів за тестом Кохрана(C-тест)/Cohran's C test for outliers											
Номер зразку/ Sample number	Результат/ Result A	Результат/ Result B	Average	SD ²		Номер зразку /Sample number	Результат/ Result A	Результат/ Result B	SUM	Difference ²	
1	0,015	0,015	0,015	0,0000	0,00	1	0,02	0,02	0,03	0,0000	
2	0,015	0,016	0,016	0,0000	0,00	2	0,02	0,02	0,03	0,0000	
3	0,018	0,014	0,016	0,0000	0,00	3	0,02	0,01	0,03	0,0000	
Mean	0,016		Worst pair	0,0000		Mean	0,016				0,00002
Max	0,02		SUM of SD ²	0,0000		Max	0,02				
Min	0,01		C	0,9412		Min	0,01				
			Ccr, 5%	0,9669							
			Ccr, 1%	0,9933		Analytical variance S ² an	0,0000	SD	0,0014		
			Conclusion			Sanal	0,0017	RSDR	8,8929		
			5% PASS			Ssums	0,0000				
			1% PASS			MSb	0,0000				
						Between sample variance S ² sam	0,0000				
Remarks											
1. Cohran's C test is described in ISO 5727-2 and ISO 13528:2022											
2. Test for 'sufficient homogeneity' is performed according to Annex B ISO 13528:2022											

Source of σp value to use	
Use(write '1')	Source
	C>13.8%, HORWITZ
1	120ppb<C<13.8%, HORWITZ
	C<120 ppb
	MASS NEGATIVE POWER FOR HORWITZ EQUATION(%=2, ppb=9,ppm=6)
	SD
	Trial SD
	Target SD chosen
	σ ² all
	Replicates
	F1
	F2
	Critical value
	Between sample variance S ² sam
	Sufficient homogeneity test

4.5. Data for all analytes

	ICUMSA GS2-15 (2007)/ ДСТУ 3659:2023	ICUMSA GS2-17 (2011)/ ДСТУ 4872:2023	ICUMSA Method GS9-8 (2011)	ICUMSA Method GS2-1 (2022)/ ДСТУ 3661:2023	ICUMSA Method GS2-18 (2013)
	Moisture content, %	Conductivity ash, % (expressed as a mass fraction of the product as received)	Sugar solution colour, ICUMSA units	Sugar polarisation, °Z	Turbidity of sugar solution, ICUMSA units

Homogeneity and stability (Гомогенність та стабільність)

Cohran's 'C' test (С-тест "Кохрана")

Critical value (5%,3pairs)=0,9669	0,9412	0,3333	0,3506	0,5294	0,5077
Mean Result	0,0155	0,0142	77,7333	99,9050	31,8800
Conclusion (Висновок)	PASS	PASS	PASS	PASS	PASS

Analytical variance test (тест аналітичної дисперсії)

S ² anal	0,0000	0,0000	0,8033	0,0003	2,2708
Sanal	0,0017	0,0001	0,8963	0,0168	1,5069
S ² sample	0,0000	0,0000	0,1192	0,0000	6,1346
σ _p	0,0012	0,0011	3,4790	0,0340	3,1110
σ _p source	Horwitz	Horwitz	Trial SD	Trial SD	Trial SD
σ ² all	0,0000001	0,0000001	1,0893	0,0001	0,8710
Critical value	0,0000125	0,0000003	6,6984	0,0015	12,3193
Conclusion (Висновок)	PASS	PASS	PASS	PASS	PASS

	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003
	Fractions content, %				
	mesh size of sieves 1.0 mm, %	mesh size of sieves 0.8 mm, %	mesh size of sieves 0.5 mm, %	mesh size of sieves 0.2 mm, %	mesh size of sieves less than 0.2 mm, %

Homogeneity and stability (Гомогенність та стабільність)

Cohran's 'C' test (С-тест "Кохрана")

Critical value (5%,3pairs)=0,9669	0,8360	0,7697	0,8770	0,5292	0,6429
Mean Result	28,0017	22,0050	37,9167	11,8083	0,2700
Conclusion (Висновок)	PASS	PASS	PASS	PASS	PASS

Analytical variance test (тест аналітичної дисперсії)

S ² anal	1,9284	0,4183	1,5221	0,7863	0,0021
Sanal	1,3887	0,6468	1,2337	0,8867	0,0458
S ² sample	2,2238	0,4468	1,7537	0,5326	0,0017
σ _p	0,5292	0,4691	0,6158	0,3257	0,0132
σ _p source	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz
σ ² all	0,0252	0,0198	0,0341	0,0095	0,0000
Critical value	8,3212	1,8482	6,6108	3,3908	0,0090
Conclusion (Висновок)	PASS	PASS	PASS	PASS	PASS

	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)
	Fractions content, %								MA (Mean Aperture) (mean particle size), mm	CV (Coefficient of Variation of Particle Size Distribution),%
	mesh size of sieves 1,25 mm, %	mesh size of sieves 0,9 mm, %	mesh size of sieves 0,7 mm, %	mesh size of sieves 0,6mm, %	mesh size of sieves 0,5mm, %	mesh size of sieves 0,4 mm, %	mesh size of sieves 0,25 mm, %	mesh size of sieves less than 0,25 mm,%		
Homogenity and stability (Гомогенність та стабільність)										
Cohran's 'C' test (С-тест "Кохрана")										
(5%,3pairs)=0,9669	0,4682	0,6002	0,4266	0,4133	0,5286	0,4187	0,6854	0,5683	0,5039	0,4393
Mean Result	6,5150	23,8883	24,5533	10,0600	16,7283	6,6633	10,5350	1,0633	0,7410	43,4200
Conclusion (Висновок)	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Analytical variance test (тест аналітичної дисперсії)										
S²anal	2,2429	1,5467	1,3954	0,1404	2,0021	1,5763	0,3160	0,1127	0,0009	2,3335
Sanal	1,4976	1,2437	1,1813	0,3747	1,4149	1,2555	0,5622	0,3358	0,0293	1,5276
S²sample	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
σp	0,1965	0,4888	0,4955	0,2843	0,4090	0,2003	0,2956	0,0421	0,0330	0,6589
σp source	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Trial SD	Horwitz
σ²all	0,0035	0,0215	0,0221	0,0073	0,0151	0,0036	0,0079	0,0002	0,0001	0,0391
Critical value	9,6009	6,6781	6,0331	0,6220	8,6061	6,7512	1,3749	0,4825	0,0040	10,0952
Conclusion (Висновок)	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

5. DATA SUMMARY

Method	ICUMSA GS2-15 (2007)/ ДСТУ 3659:2023	ICUMSA GS2-17 (2011)/ ДСТУ 4872:2023	ICUMSA Method GS9-8 (2011)	ДСТУ 4866:2007/ ГОСТ 12572-2007	ICUMSA Method GS2-1 (2022)/ДСТУ 3661:2023	ДСТУ 3945:2023	ICUMSA Method GS1-23 (2009)	Method based on ДСТУ 4866:2007/ ГОСТ 12572-2007	ICUMSA Method GS2-18 (2013)	ДСТУ 4624:2006	ДСТУ 4624:2006	ДСТУ 4624:2006
	Moisture content, %	Conductivity ash, % (expressed as a mass fraction of the product as received)	Sugar solution colour, ICUMSA units	Sugar solution colour, ICUMSA units	Sugar polarisation, °Z	Mass fraction of reducing sugars (expressed on a dry matter),%	pH value	Turbidity of sugar solution, ICUMSA units	Turbidity of sugar solution, ICUMSA units	Solution purity	Odor and taste	Appearance
No of Results	8	4	5	5	7	2	6	5	5	6	6	6
No of Results z >3 or NS	0	0	0	0	0	0	0	0	0	0	0	0
No of Results z >3, % or NS,%	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Mean	0,016	0,015	74,270	74,868	99,910	0,004	6,747	27,434	28,996			
Min	0,007	0,014	70,600	69,740	99,870	0,004	6,470	18,960	23,500			
Max	0,023	0,016	78,200	80,000	99,950	0,004	6,990	34,000	33,000			
SD	0,006	0,001	3,473	3,930	0,034	0,000	0,234	5,679	3,507			
Median	0,018	0,015	75,000	76,000	99,900	0,004	6,760	26,610	30,000			
Robust mean (assigned value)	0,016	0,015	74,270	74,868	99,910	0,004	6,747	27,434	29,203			
Robust SD	0,006	0,001	3,473	3,930	0,034	0,000	0,234	5,679	3,111			
SD from method (Tr.SD)	N/A	N/A	N/A	N/A	N/A	0,007	N/A	N/A	N/A			
SD from Horwitz eq.	0,001	0,001	N/A	N/A	N/A	0,000	N/A	N/A	N/A			
Target SD	0,006	0,001	3,473	3,930	0,034	0,007	0,234	5,679	3,111			
Source of target SD of PT	Trial SD	Horwitz	Trial SD	Trial SD	Trial SD	Method Tr SD	Trial SD	Trial SD	Trial SD			

Method	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003
	Fractions content, %					
	mesh size of sieves 2.5 mm, %	mesh size of sieves 1.0 mm, %	mesh size of sieves 0.8 mm, %	mesh size of sieves 0.5 mm, %	mesh size of sieves 0.2 mm, %	mesh size of sieves less than 0.2 mm, %
No of Results	6	8	6	7	8	8
No of Results z >3 or NS	0	0	0	0	0	0
No of Results z >3, % or NS,%	0,000	0,000	0,000	0,000	0,000	0,000
Mean	0,003	26,518	22,889	35,910	21,547	0,870
Min	0,000	22,360	19,770	30,480	11,610	0,270
Max	0,020	30,240	26,190	39,140	70,300	1,480
SD	0,008	2,320	2,447	3,137	19,854	0,396
Median	0,000	26,803	23,147	36,800	15,175	0,967
Robust mean (assigned value)	0,000	26,591	22,889	36,139	14,402	0,869
Robust SD	0,000	1,614	2,447	2,702	2,329	0,383
SD from method (Tr.SD)	N/A	N/A	N/A	N/A	N/A	N/A
SD from Horwitz eq.	N/A	0,516	0,478	0,601	0,379	0,035
Target SD	0,015	2,587	2,447	2,702	2,329	0,383
Source of target SD of PT	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD

Method	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)
	Fractions content, %							
	mesh size of sieves 1,25 mm, %	mesh size of sieves 0,9 mm, %	mesh size of sieves 0,7 mm, %	mesh size of sieves 0,6 mm, %	mesh size of sieves 0,5 mm, %	mesh size of sieves less than 0,5mm (0,4mm+ 0,25mm+ less than 0,25mm), %	MA (Mean Aperture) (mean particle size), mm	CV (Coefficient of Variation of Particle Size Distribution),%
No of Results	3	3	3	3	3	3	5	5
No of Results z >3 or NS	0	0	0	0	0	0	0	0
No of Results z >3, % or NS,%	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Mean	6,811	26,118	23,520	10,423	17,276	15,836	0,752	42,964
Min	6,593	24,003	22,160	10,050	15,760	14,660	0,710	41,000
Max	7,130	28,680	24,570	10,900	19,460	18,177	0,800	44,830
SD	0,282	2,370	1,235	0,434	1,938	2,028	0,033	1,548
Median	6,710	25,670	23,830	10,320	16,608	14,670	0,750	43,510
Robust mean (assigned value)	6,811	26,118	23,520	10,423	17,276	15,836	0,752	42,964
Robust SD	0,282	2,370	1,235	0,434	1,938	2,028	0,033	1,548
SD from method (Tr.SD)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SD from Horwitz eq.	0,204	0,511	0,485	0,293	0,416	0,398	N/A	0,655
Target SD	0,282	2,370	1,235	0,434	1,938	2,028	0,033	1,548
Source of target SD of PT	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD

6. RAW DATA

Method	ICUMSA GS2-15 (2007)/ ДСТУ 3659:2023	ICUMSA GS2-17 (2011)/ ДСТУ 4872:2023	ICUMSA Method GS9-8 (2011)	ДСТУ 4866:2007/ ГОСТ 12572-2007	ICUMSA Method GS2-1 (2022)/ДСТУ 3661:2023	ДСТУ 3945:2023	ICUMSA Method GS1-23 (2009)	Method based on ДСТУ 4866:2007/ ГОСТ 12572-2007	ICUMSA Method GS2-18 (2013)
Laboratory number	Moisture content, %	Conductivity ash, % (expressed as a mass fraction of the product as received)	Sugar solution colour, ICUMSA units	Sugar solution colour, ICUMSA units	Sugar polarisation, °Z	Mass fraction of reducing sugars (expressed on a dry matter),%	pH value	Turbidity of sugar solution, ICUMSA units	Turbidity of sugar solution, ICUMSA units
1	0,018	0,016	78,200	80,000	99,900		6,580	34	30
4	0,0065		70,75	69,74	99,95			26,61	28,28
5	0,023			76	99,87		6,56	31	33
6	0,010	0,014	75,000	-	99,870	0,004	-	-	23,500
7	0,019	0,015	70,600	72,400	99,940	-	6,990	26,600	30,200
8	0,010			76,200	99,900	0,004	6,470		
9	0,022						6,944		
10	0,020	0,016	76,800		99,940	-	6,940	18,960	

Method	ДСТУ 4624:2006	ДСТУ 4624:2006	ДСТУ 4624:2006
Laboratory number	Solution purity	Odor and taste	Appearance
1	Розчин цукру з легкою опалесценцією, без нерозчинного осаду, механічних та інших сторонніх домішок.	Солодкий, зі стороннім запахом меляси.	Чистий, без сторонніх домішок, з жовтуватим відтінком. Сипкий, без грудочок.
4	Розчин цукру з легкою опалесценцією, без нерозчинного осаду, механічних та інших сторонніх домішок.	Солодкий, зі стороннім запахом меляси.	Чистий, без сторонніх домішок, з жовтуватим відтінком. Сипкий, без грудочок.
5	Sugar solution is slightly opalescent, free from insoluble sediment, mechanical and other foreign matter.	Sweet with a molasses odour	Clean and free from spots and foreign matter, with a yellowish tint. Free-flowing and free from lumps
7	Розчин цукру з легкою опалесценцією, без нерозчинного осаду, механічних та інших сторонніх домішок.	Солодкий , з слабким запахом меляси.	Чистий, без сторонніх домішок, з жовтуватим відтінком. Сипкий, без грудочок.
9	Розчин цукру з легкою опалесценцією, без нерозчинного осаду, механічних та інших сторонніх домішок.	Солодкий, зі стороннім запахом меляси.	Чистий, без сторонніх домішок, з жовтуватим відтінком. Сипкий, без грудочок.
10	Розчин цукру з легкою опалесценцією, без нерозчинного осаду, механічних та інших сторонніх домішок.	Солодкий , з слабким запахом меляси.	Цукор сипкий, без грудочок, білий з жовтуватим відтінком.

Method	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003
Laboratory number	Fractions content, %					
	mesh size of sieves 2.5 mm, %	mesh size of sieves 1.0 mm, %	mesh size of sieves 0.8 mm, %	mesh size of sieves 0.5 mm, %	mesh size of sieves 0.2 mm, %	mesh size of sieves less than 0.2 mm, %
1	0,000	28,001	22,004	37,917	11,807	0,270
4	0,02	24,51	20,76	34,67	19,16	0,88
5	0,00	22,36	24,32	36,80	16,06	0,47
6	0,000	26,900	19,770	39,140	13,090	1,100
7		30,240	26,190	30,480	11,610	1,480
8	0,000	26,800			70,300	1,100
9		26,806		38,692	15,449	1,053
10	0,000	26,530	24,290	33,670	14,900	0,610

Method	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)
Laboratory number	Fractions content, %								MA (Mean Aperture) (mean particle size), mm	CV (Coefficient of Variation of Particle Size Distribution),%
	mesh size of sieves 1,25 mm, %	mesh size of sieves 0,9 mm, %	mesh size of sieves 0,7 mm, %	mesh size of sieves 0,6 mm, %	mesh size of sieves 0,5 mm, %	mesh size of sieves 0,4 mm, %	mesh size of sieves 0,25 mm, %	mesh size of sieves less than 0,25 mm, %		
1	6,593	24,003	24,570	10,050	16,608	6,617	10,481	1,079	0,742	43,510
4										
5	7,13	25,67	22,16	10,90	19,46	2,50	9,88	2,29	0,75	41,78
6	6,710	28,680	23,830	10,320	15,760	7,950	5,590	1,120	0,710	44,830
7									0,800	41,000
8										
9										
10									0,760	43,700

7. Z SCORES

Method	ICUMSA GS2-15 (2007)/ ДСТУ 3659:2023	ICUMSA GS2-17 (2011)/ ДСТУ 4872:2023	ICUMSA Method GS9-8 (2011)	ДСТУ 4866:2007/ ГОСТ 12572-2007	ICUMSA Method GS2-1 (2022)/ДСТУ 3661:2023	ДСТУ 3945:2023	ICUMSA Method GS1-23 (2009)	Method based on ДСТУ 4866:2007/ ГОСТ 12572-2007	ICUMSA Method GS2-18 (2013)	ДСТУ 4624:2006	ДСТУ 4624:2006	ДСТУ 4624:2006
Laboratory number	Moisture content, %	Conductivity ash, % (expressed as a mass fraction of the product as received)	Sugar solution colour, ICUMSA units	Sugar solution colour, ICUMSA units	Sugar polarisation, °Z	Mass fraction of reducing sugars (expressed on a dry matter),%	pH value	Turbidity of sugar solution, ICUMSA units	Turbidity of sugar solution, ICUMSA units	Solution purity	Odor and taste	Appearance
1	0,31	0,70	1,13	1,31	-0,30		-0,71	1,16	0,26	S	S	S
2												
3												
4	-1,54		-1,01	-1,30	1,19			-0,15	-0,30	S	S	S
5	1,12			0,29	-1,19		-0,80	0,63	1,22	S	S	S
6	-0,98	-1,05	0,21		-1,19	0,00			-1,83			
7	0,44	-0,35	-1,06	-0,63	0,89		1,04	-0,15	0,32	S	S	S
8	-0,98			0,34	-0,30	0,00	-1,18					
9	0,95						0,84			S	S	S
10	0,63	0,70	0,73		0,89		0,82	-1,49		S	S	S

Remarks

1. Green colored cells contain results that are considered to be satisfactory.
2. Red colored cells contain results that are considered to be not satisfactory.
3. Results that are considered to be questionable are marked by yellow colored cell.
4. Blank cell – results were not reported by the Participant

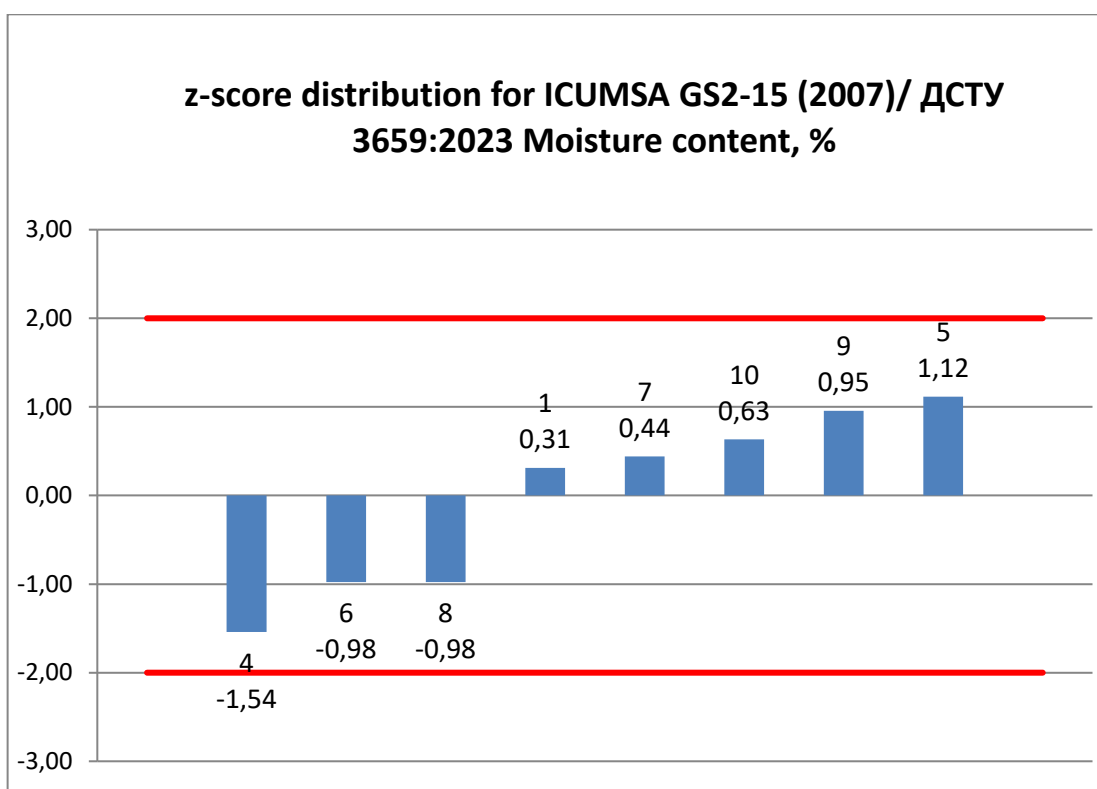
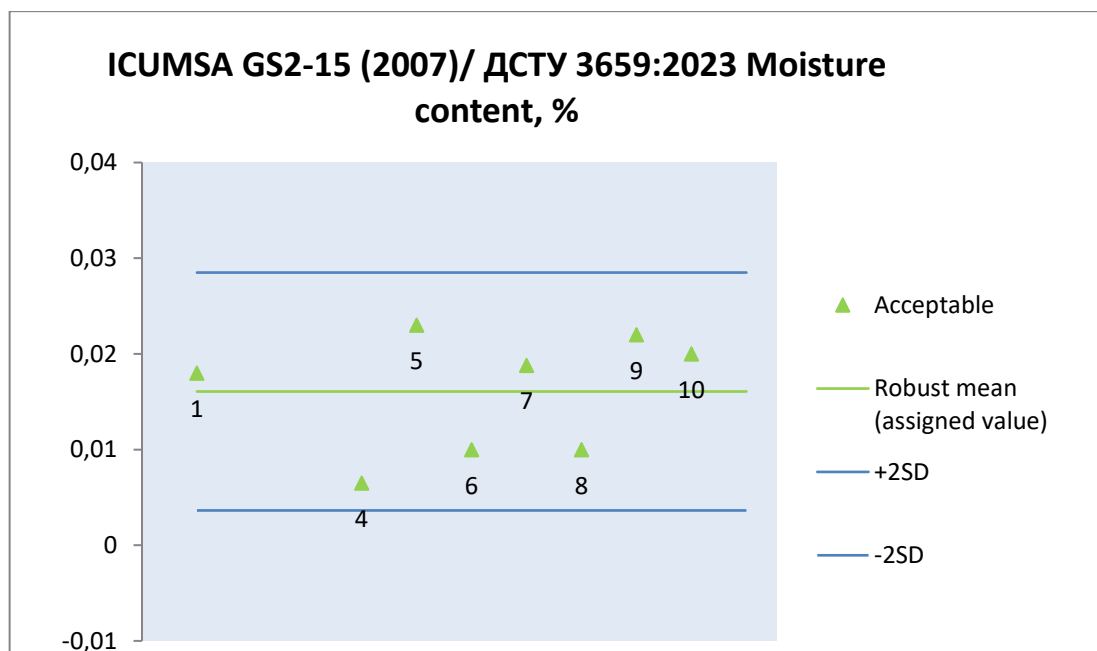
Method	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ДСТУ 4242:2003	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)	ICUMSA GS2/9-37(2007)
Laboratory number	Fractions content, %						Fractions content, %						MA (Mean Aperture) (mean particle size), mm	CV (Coefficient of Variation of Particle Size Distribution),%
	mesh size of sieves 2.5 mm, %	mesh size of sieves 1.0 mm, %	mesh size of sieves 0.8 mm, %	mesh size of sieves 0.5 mm, %	mesh size of sieves 0.2 mm, %	mesh size of sieves less than 0.2 mm, %	mesh size of sieves 1,25 мм, %	mesh size of sieves 0,9 mm, %	mesh size of sieves 0,7 mm, %	mesh size of sieves 0,6 mm, %	mesh size of sieves 0,5 mm, %	mesh size of sieves less than 0,5mm (0,4mm+ 0,25mm+ less than 0,25mm), %		
1	0,00	0,54	-0,36	0,66	-1,11	-1,56	-0,77	-0,89	0,85	-0,86	-0,34	1,15	-0,32	0,35
2														
3														
4	1,33	-0,80	-0,87	-0,54	2,04	0,03								
5	0,00	-1,64	0,58	0,24	0,71	-1,04	1,13	-0,19	-1,10	1,10	1,13	-0,57	-0,07	-0,77
6	0,00	0,12	-1,27	1,11	-0,56	0,60	-0,36	1,08	0,25	-0,24	-0,78	-0,58	-1,30	1,21
7		1,41	1,35	-2,09	-1,20	1,60							1,46	-1,27
8	0,00	0,08			-0,72	0,60								
9		0,08		0,94	0,45	0,48								
10	0,00	-0,02	0,57	-0,91	0,21	-0,68							0,23	0,48

Remarks

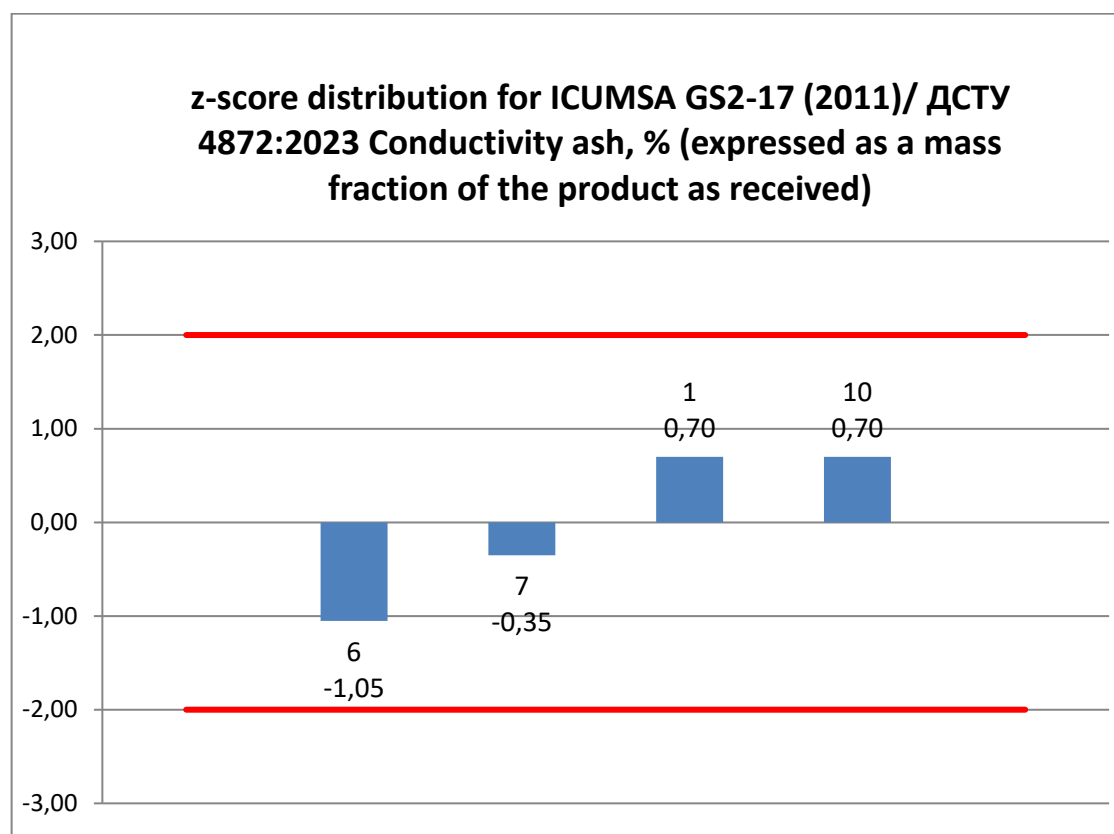
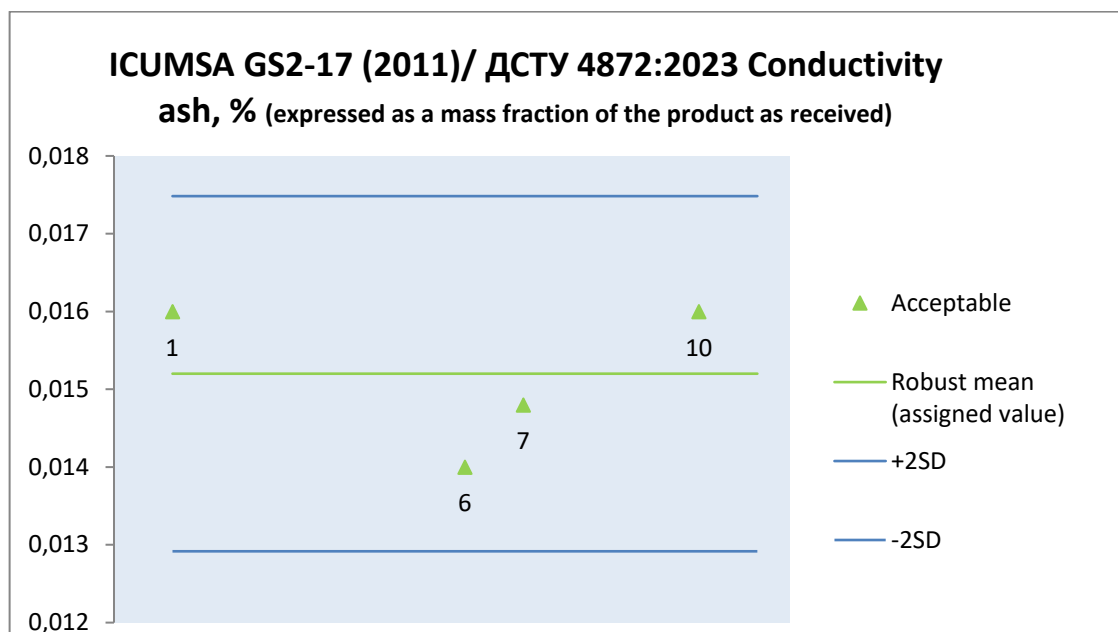
1. Green colored cells contain results that are considered to be satisfactory.
2. Red colored cells contain results that are considered to be not satisfactory.
3. Results that are considered to be questionable are marked by yellow colored cell.
4. Blank cell – results were not reported by the Participant

8. Z SCORE PLOTS AND RESULTS CHARTS.

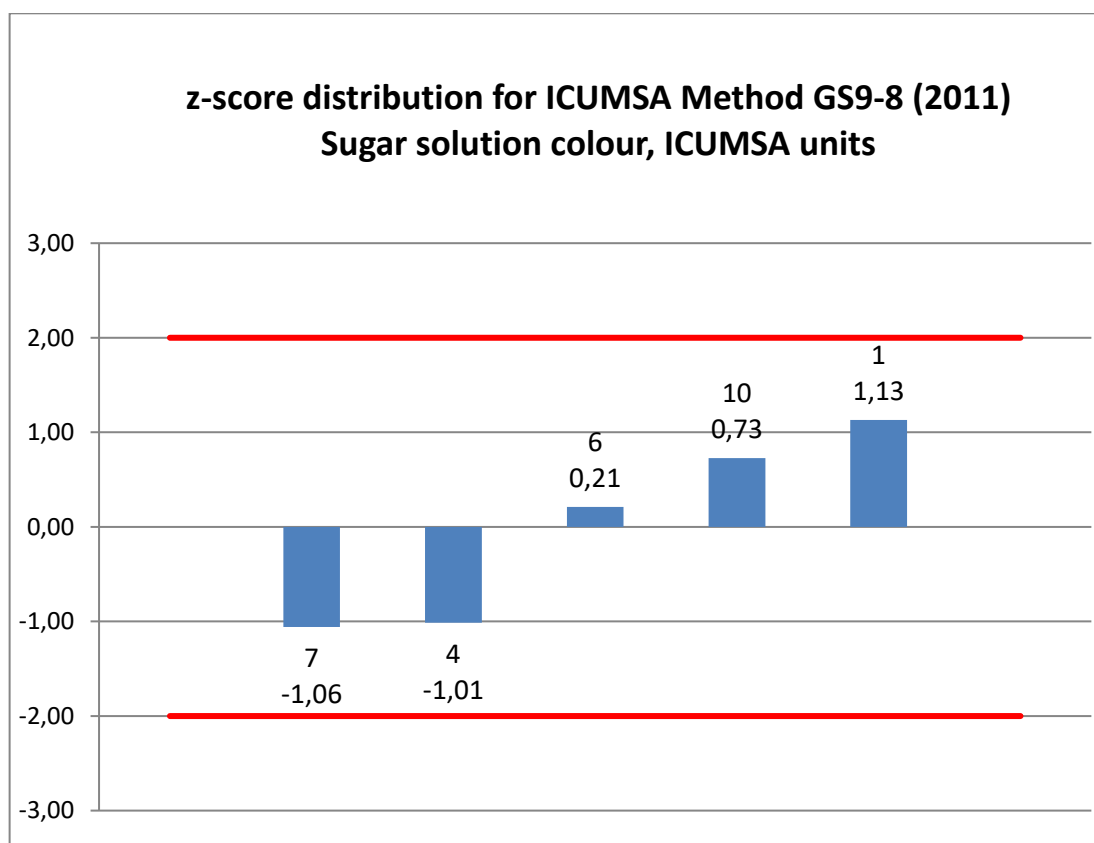
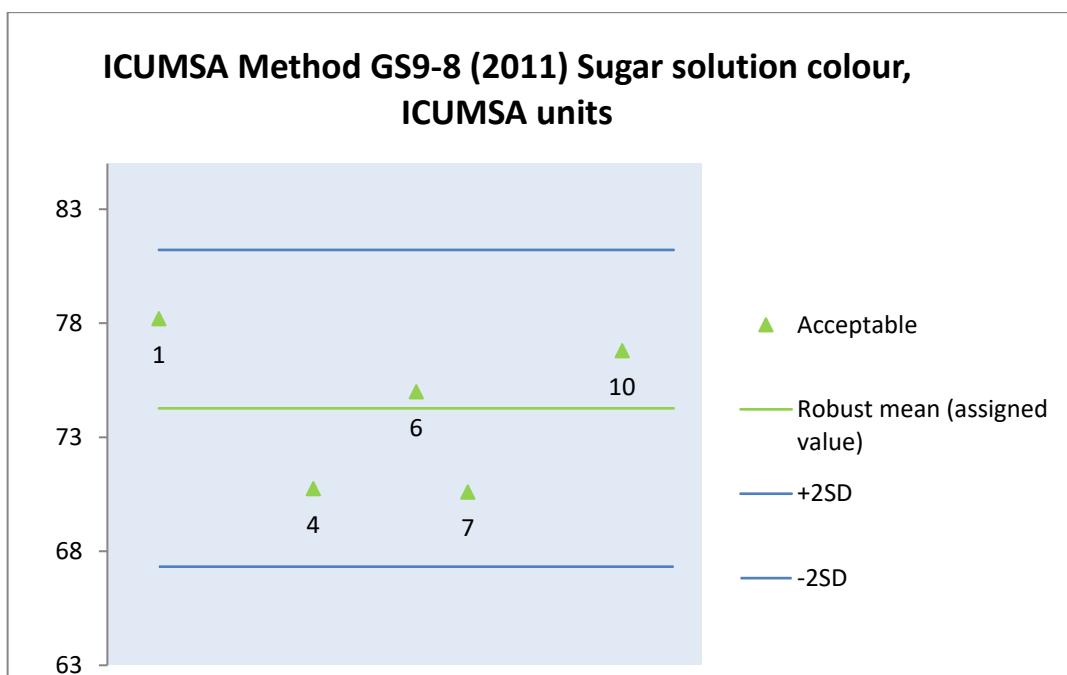
8.1. ICUMSA GS2-15 (2007)/ ДСТУ 3659:2023 Moisture content, %



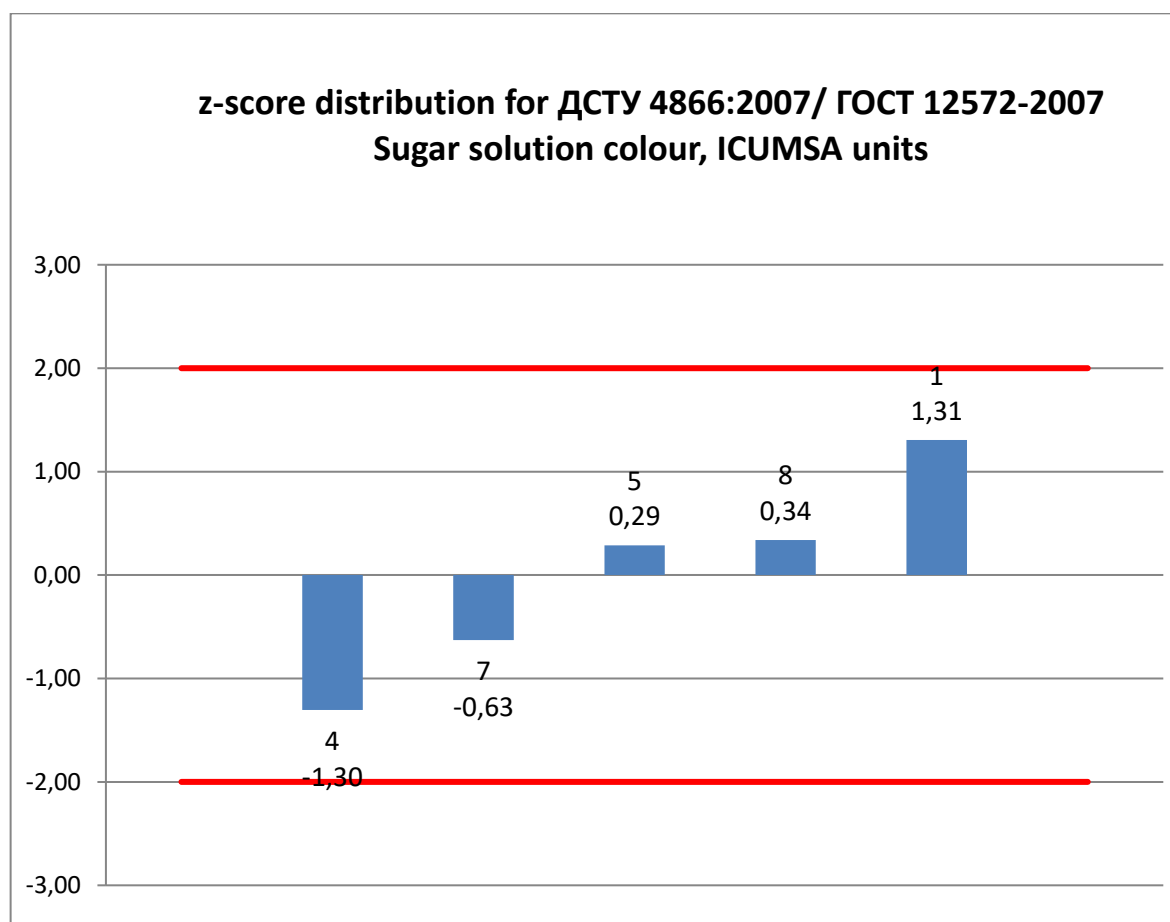
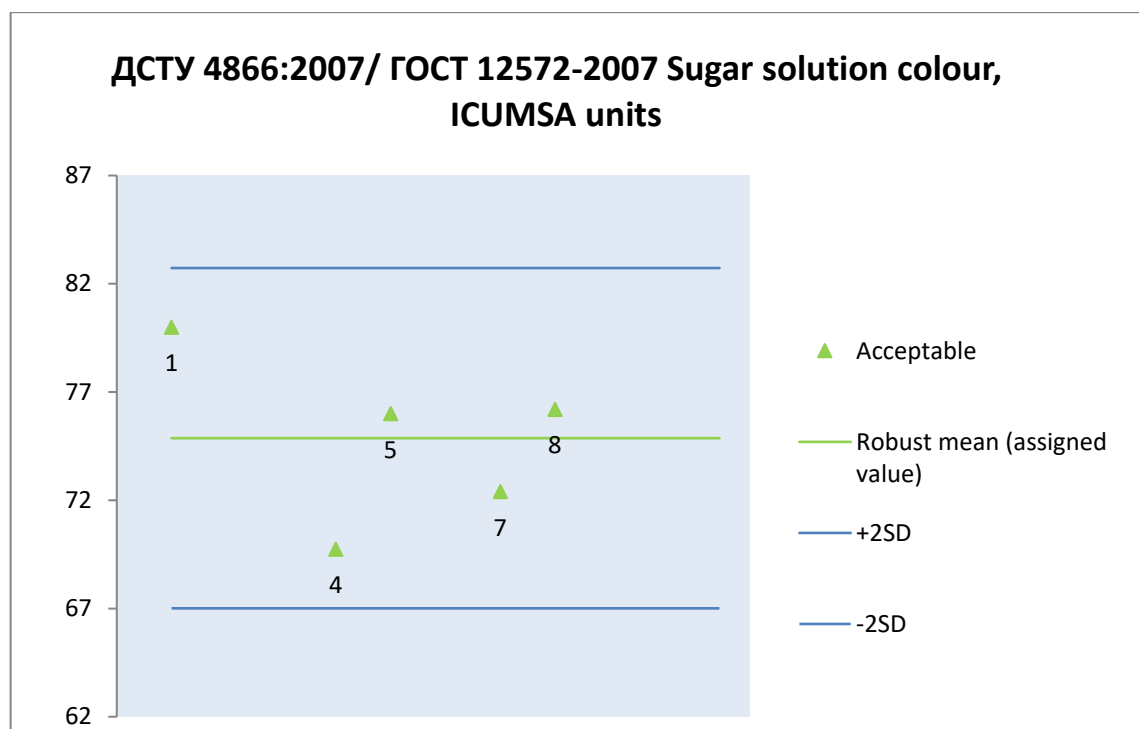
8.2. ICUMSA GS2-17 (2011)/ ДСТУ 4872:2023 Conductivity ash, % (expressed as a mass fraction of the product as received)



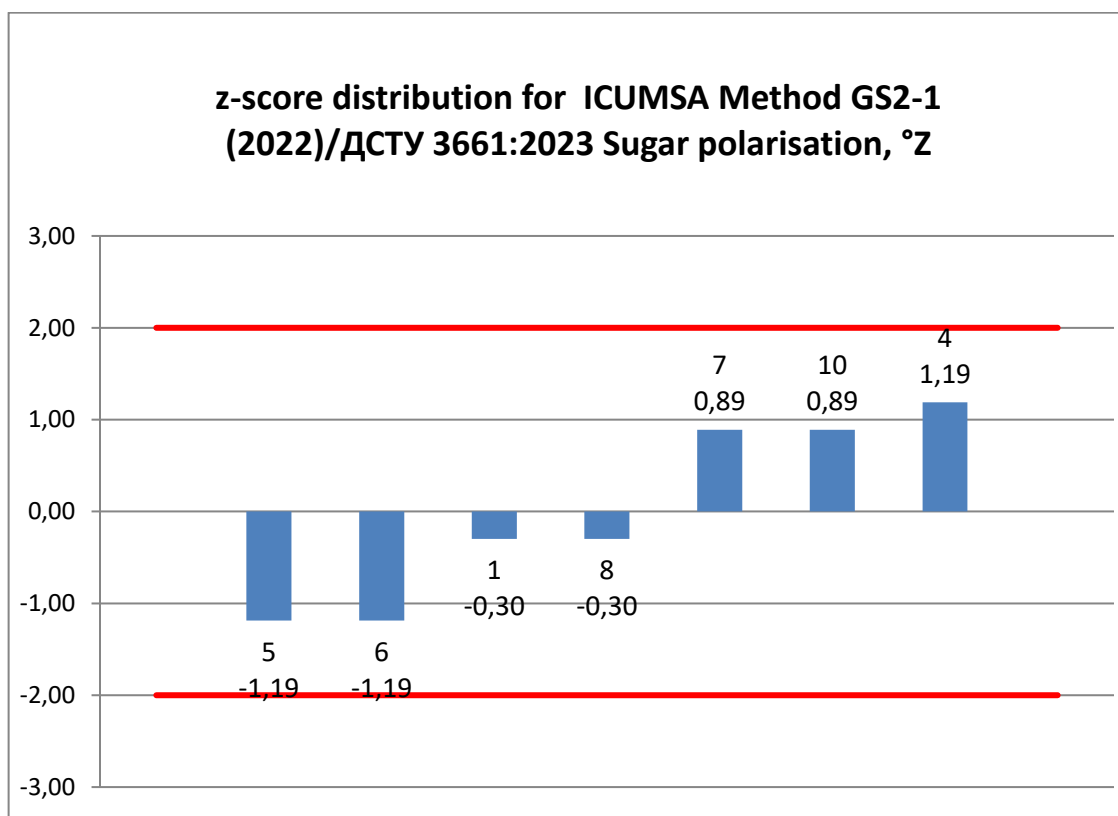
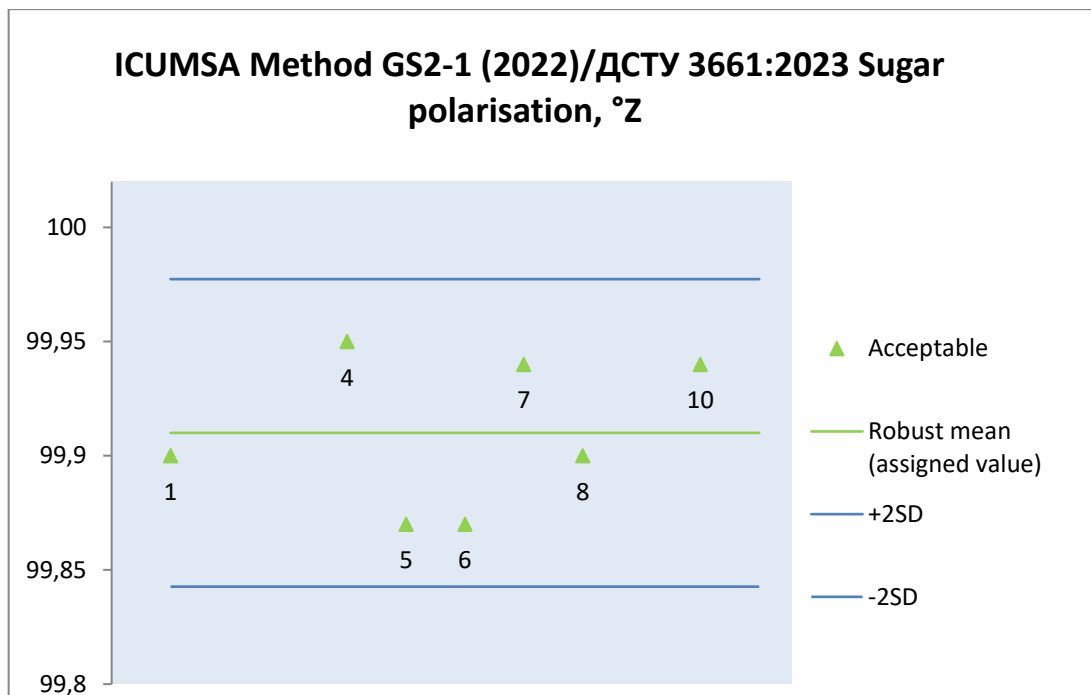
8.3. ICUMSA Method GS9-8 (2011) Sugar solution colour, ICUMSA units



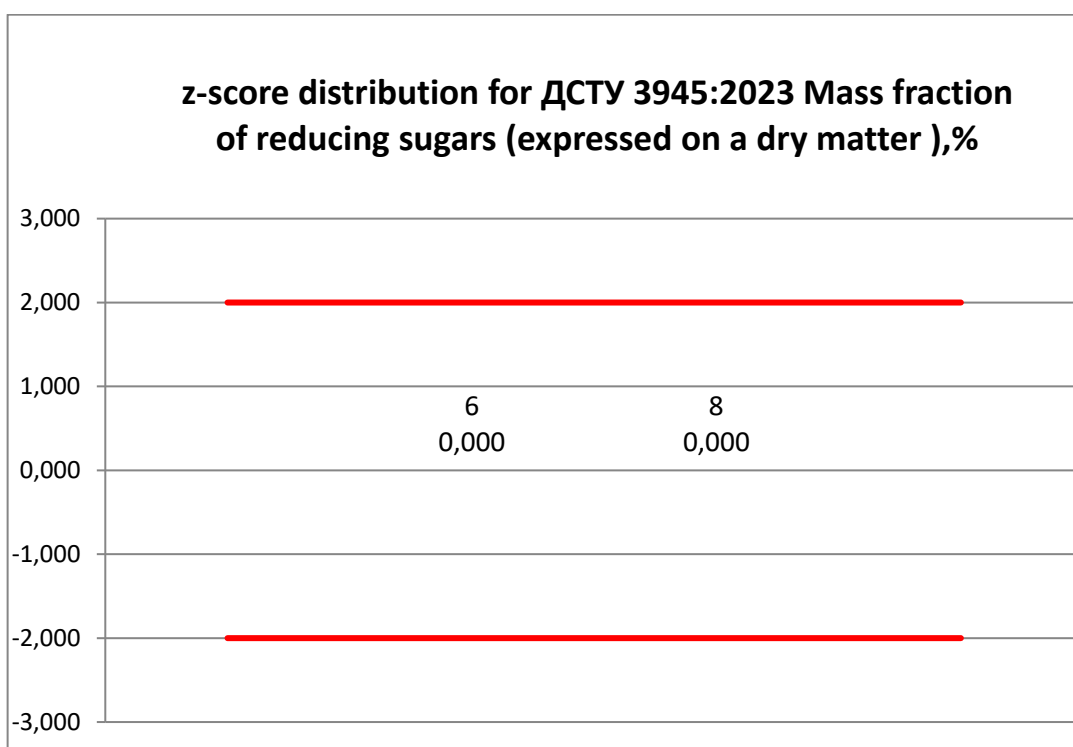
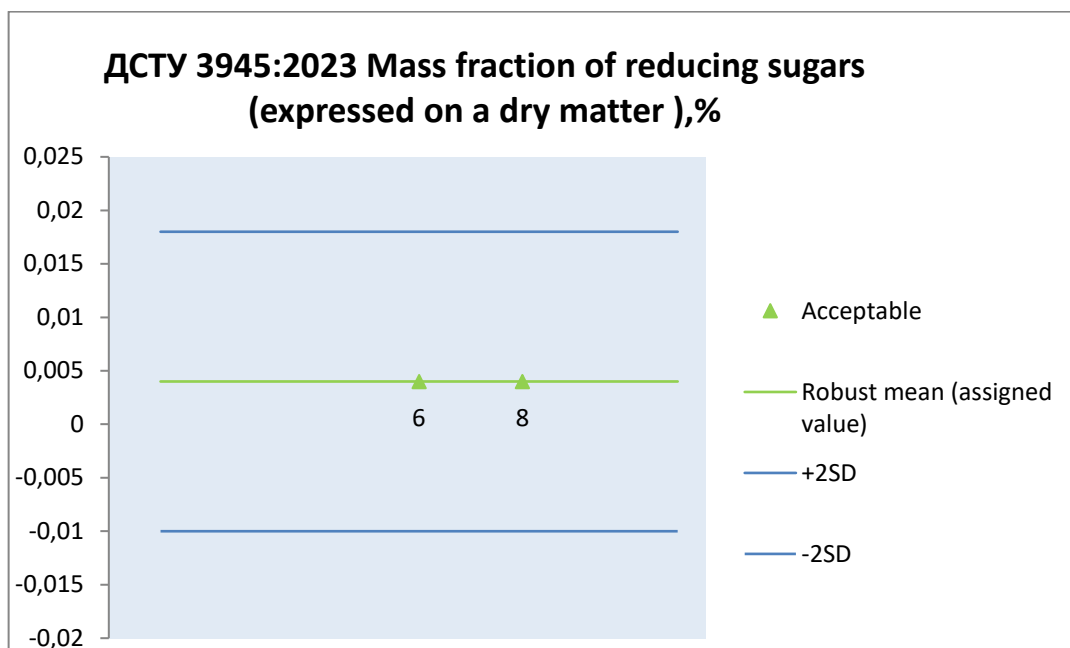
8.4. ДСТУ 4866:2007/ ГОСТ 12572-2007 Sugar solution colour, ICUMSA units



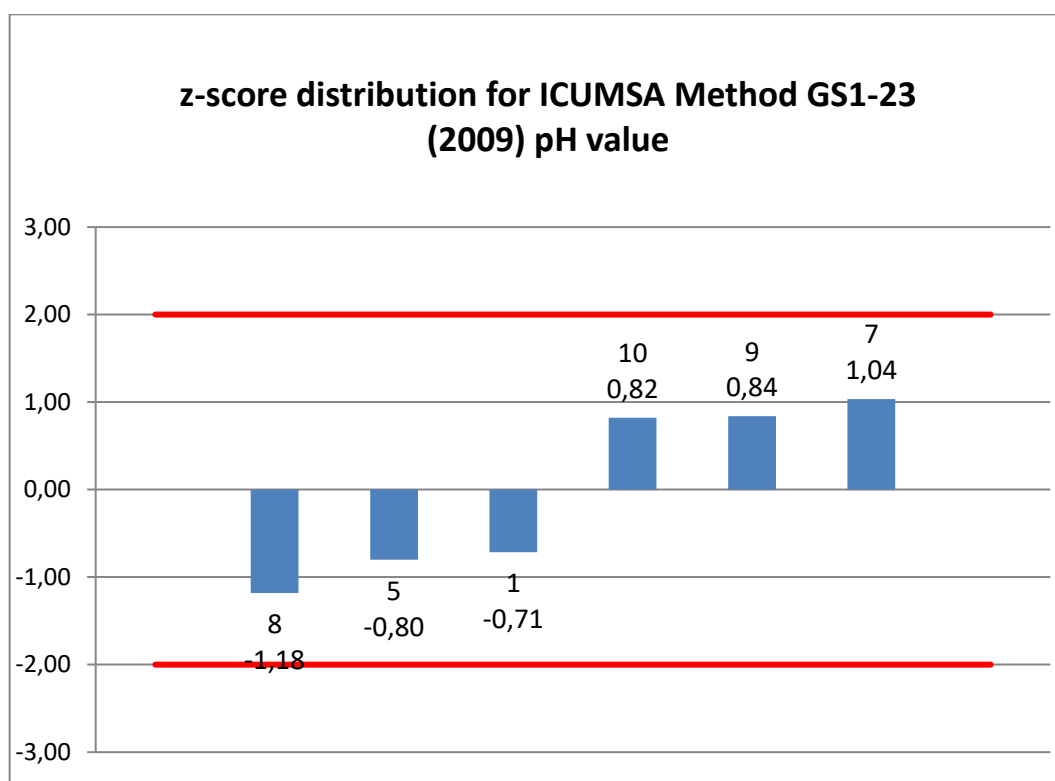
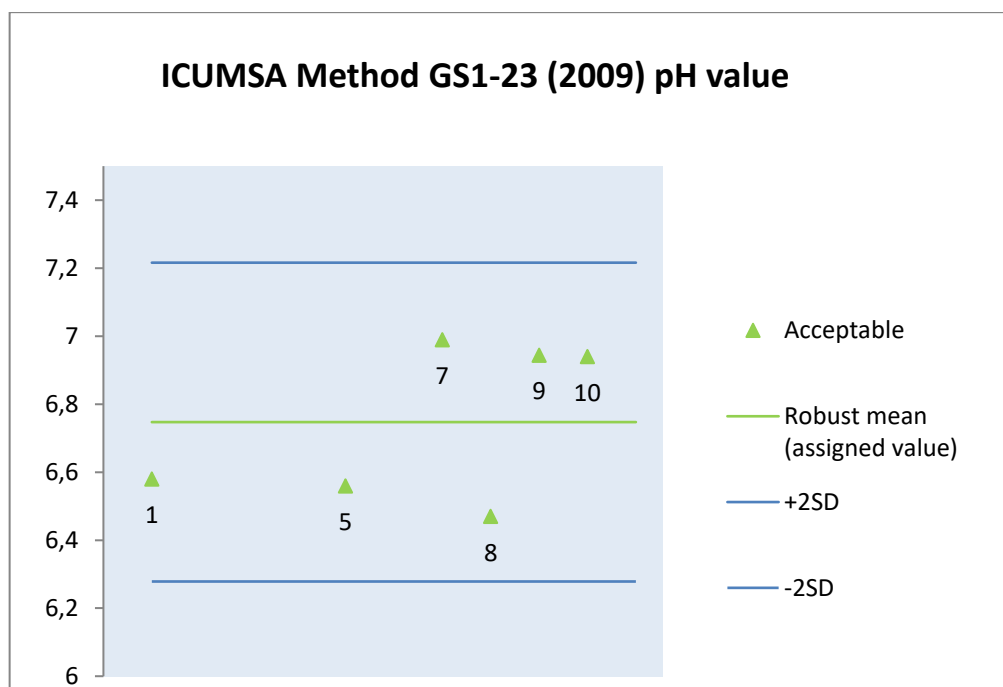
8.5. ICUMSA Method GS2-1 (2022)/ДСТУ 3661:2023 Sugar polarisation, °Z



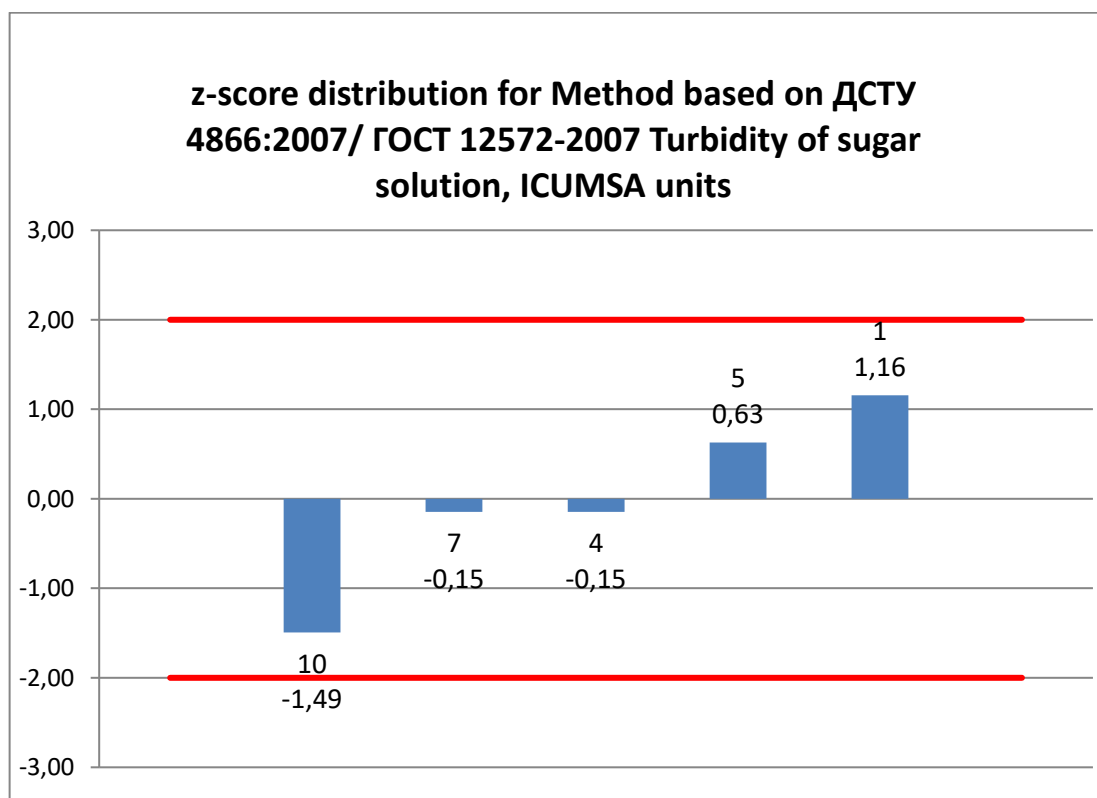
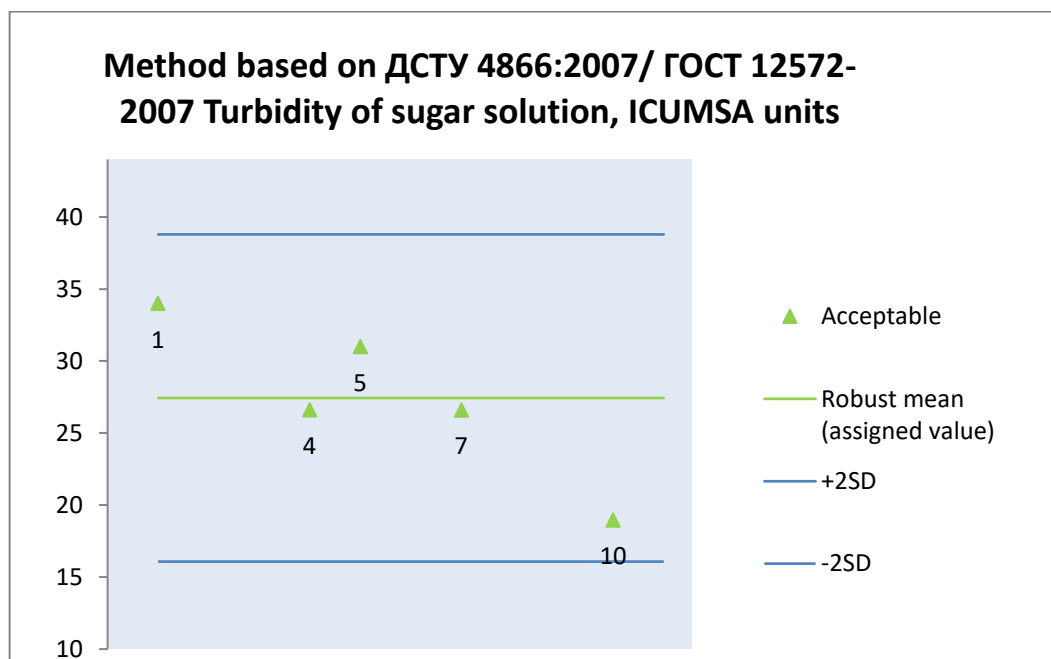
8.6. ДСТУ 3945:2023 Mass fraction of reducing sugars (expressed on a dry matter),%



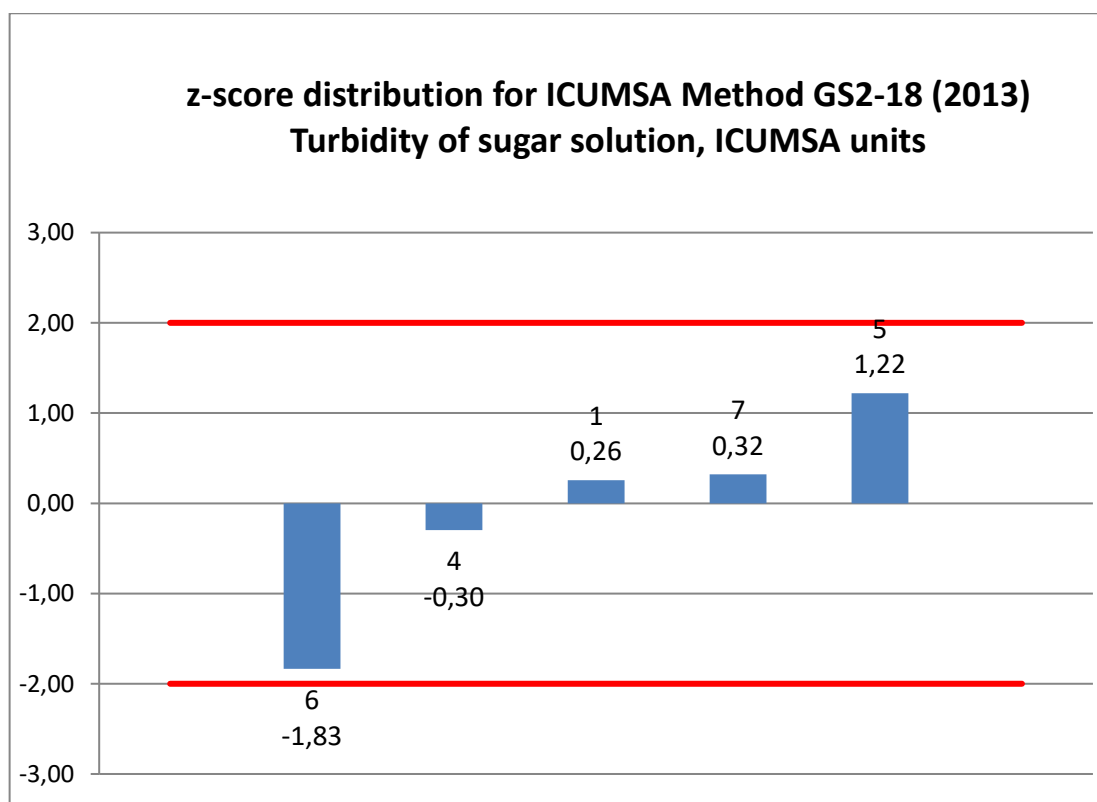
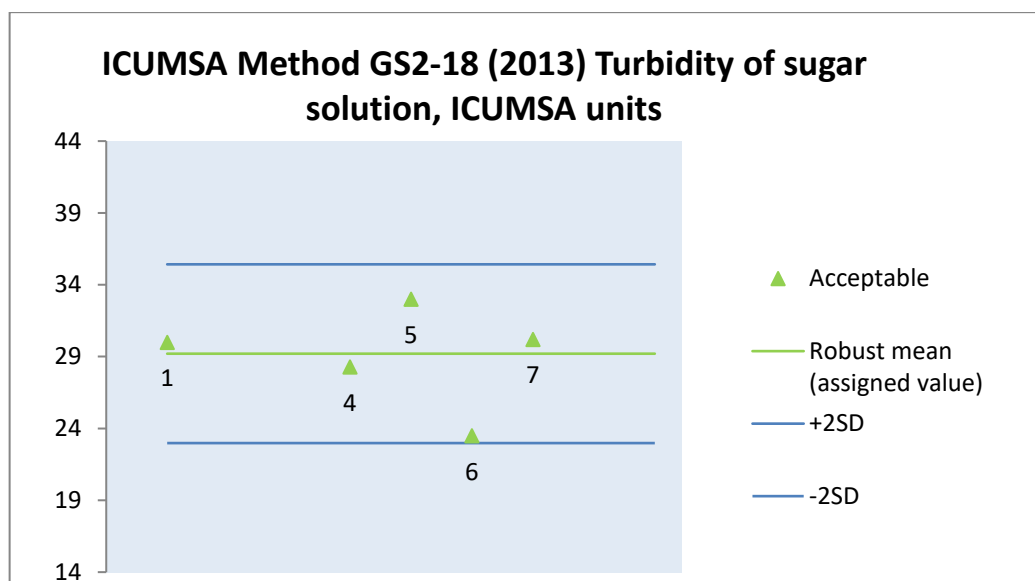
8.7. ICUMSA Method GS1-23 (2009) pH value



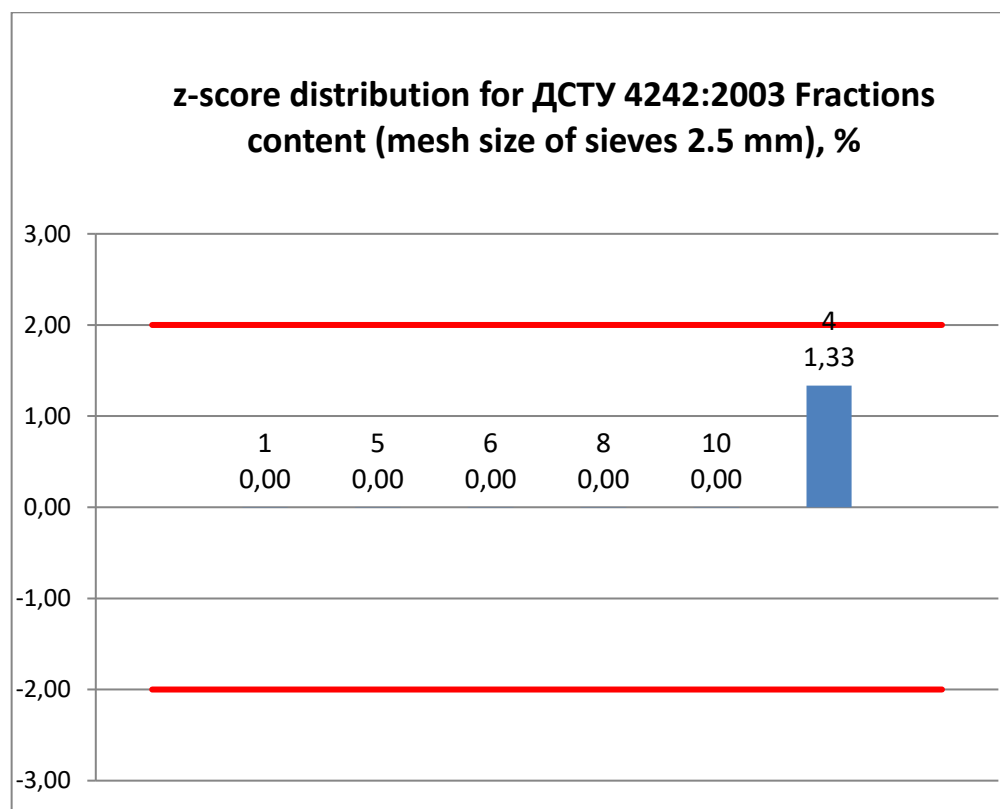
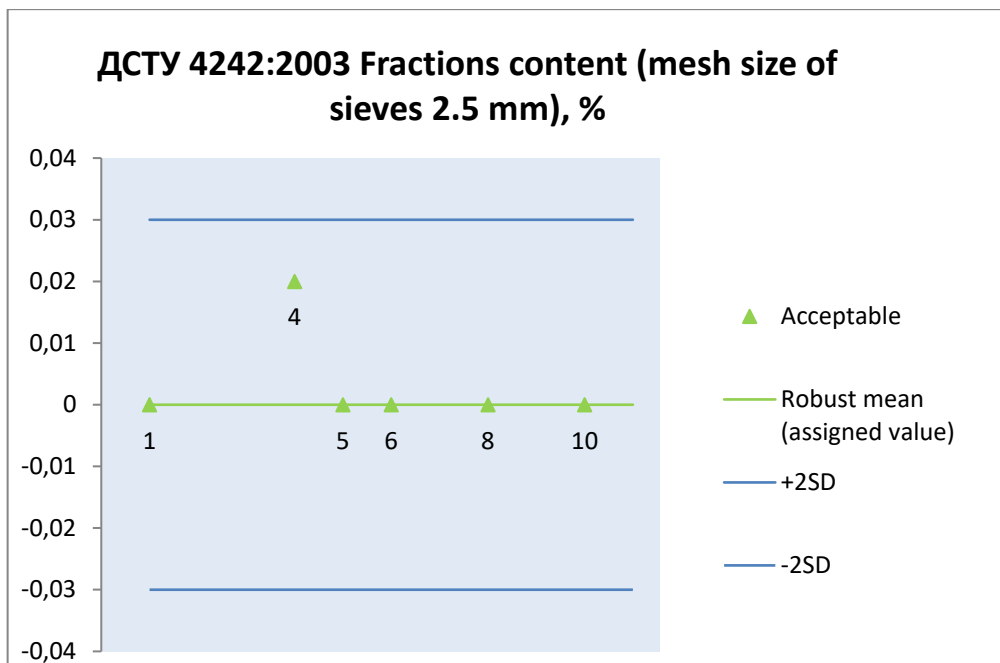
8.8. Method based on ДСТУ 4866:2007/ ГОСТ 12572-2007 Turbidity of sugar solution, ICUMSA units



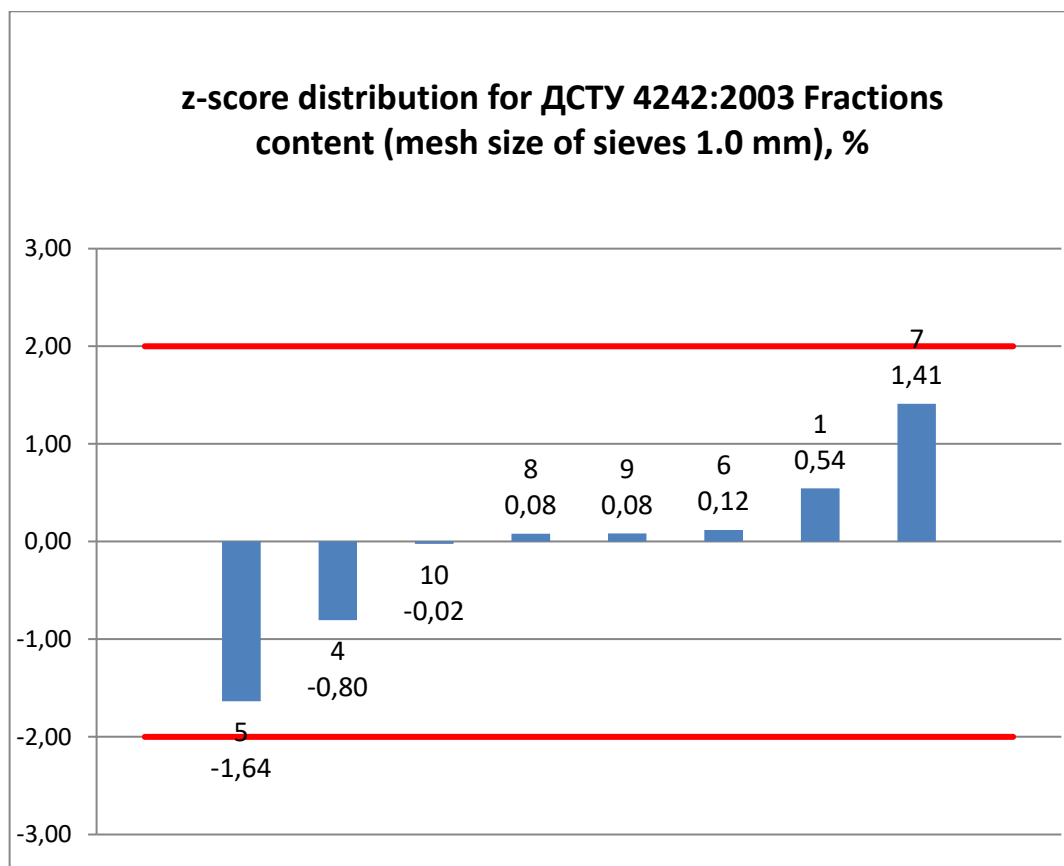
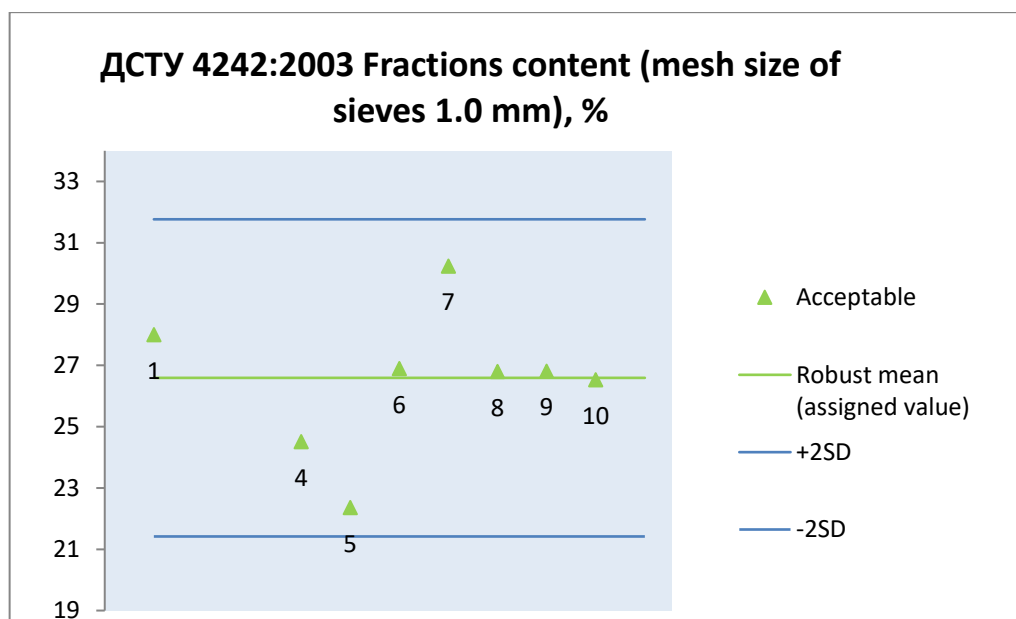
8.9. ICUMSA Method GS2-18 (2013) Turbidity of sugar solution, ICUMSA units



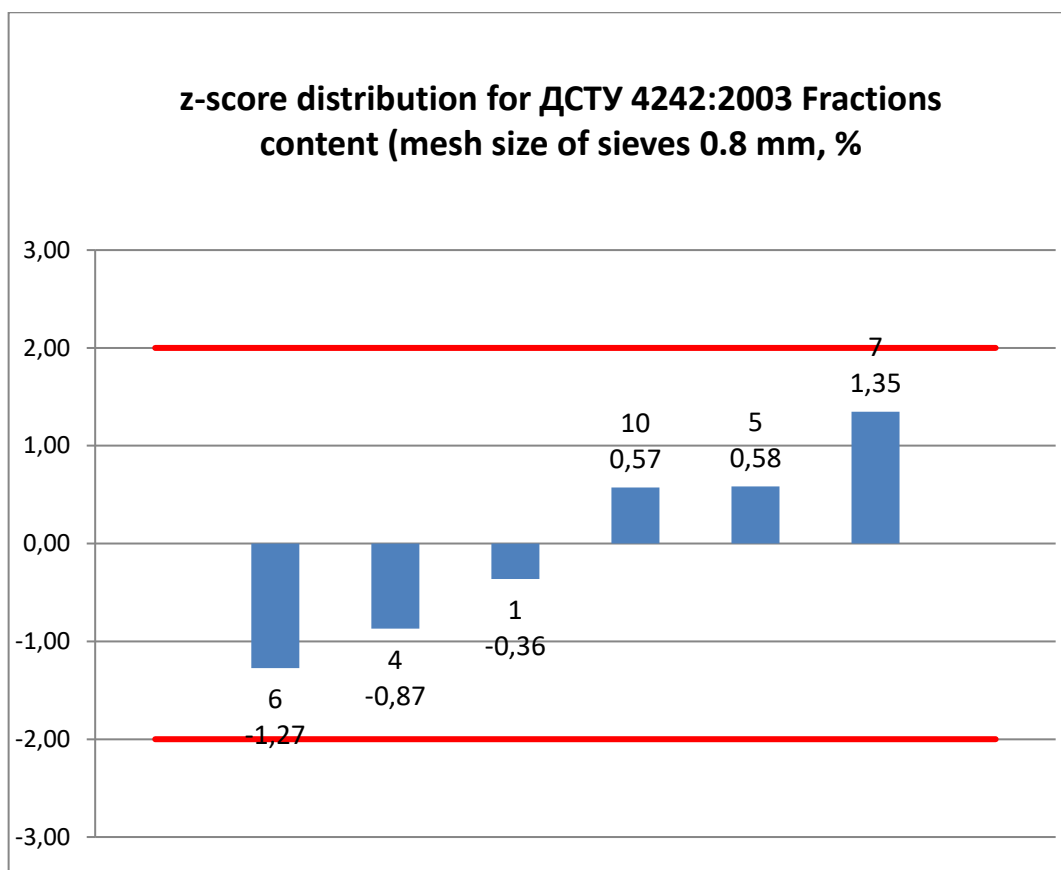
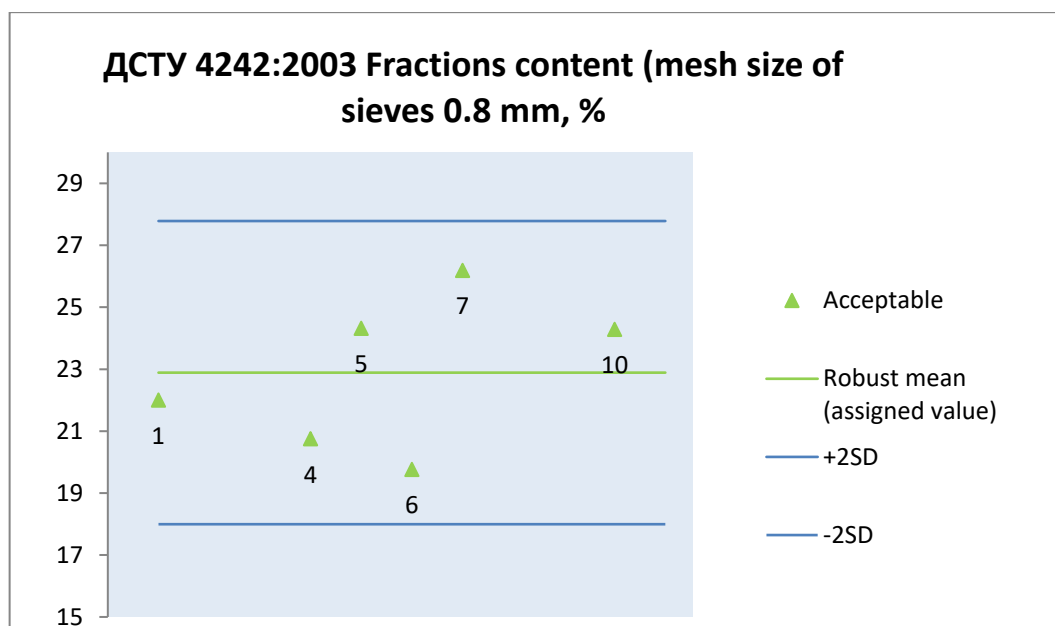
8.10.1. ДСТУ 4242:2003 Fractions content (mesh size of sieves 2.5 mm), %



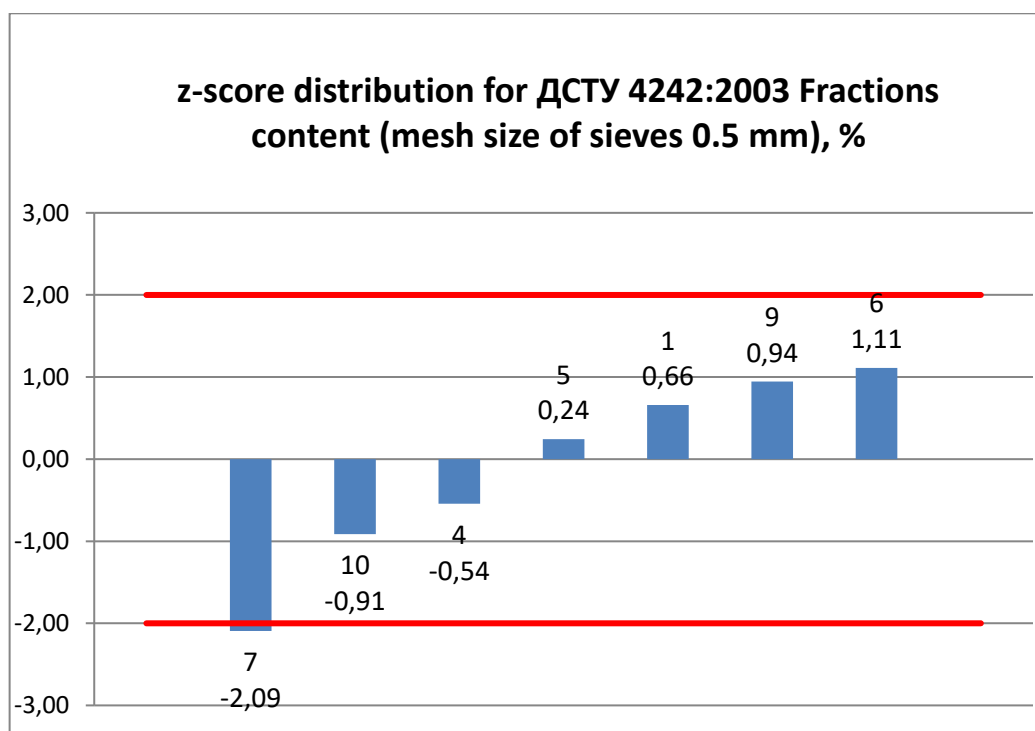
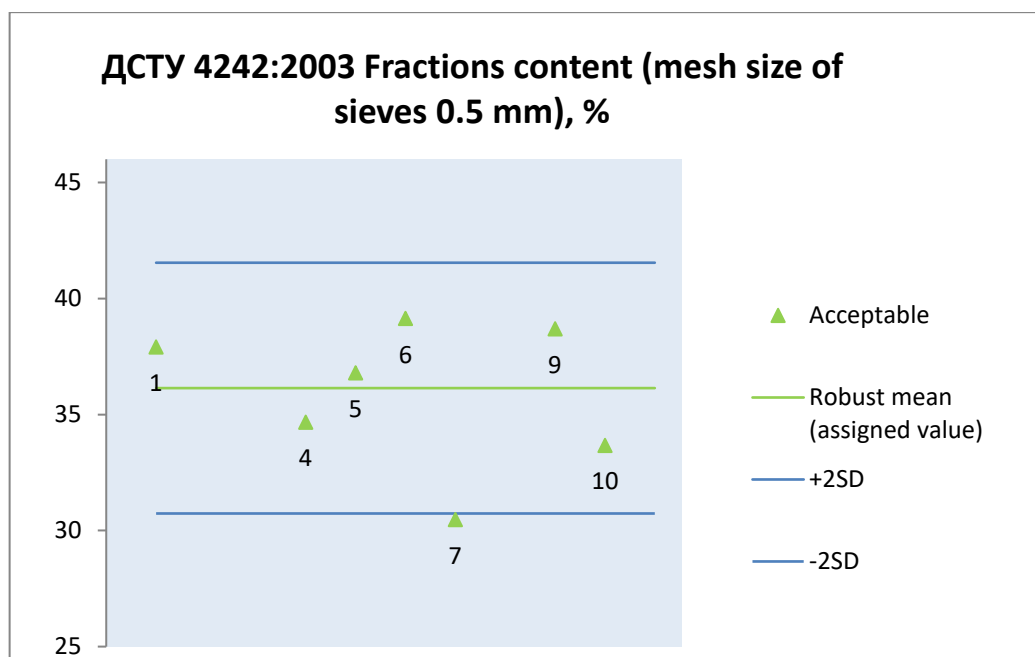
8.10.2. ДСТУ 4242:2003 Fractions content (mesh size of sieves 1.0 mm), %



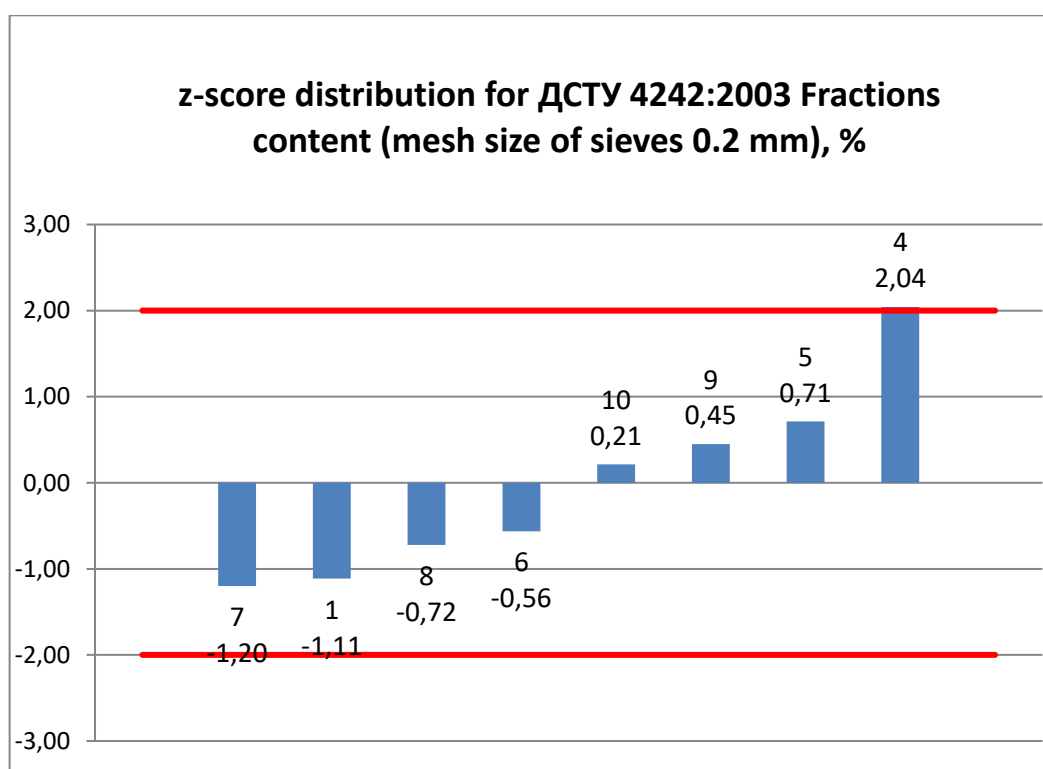
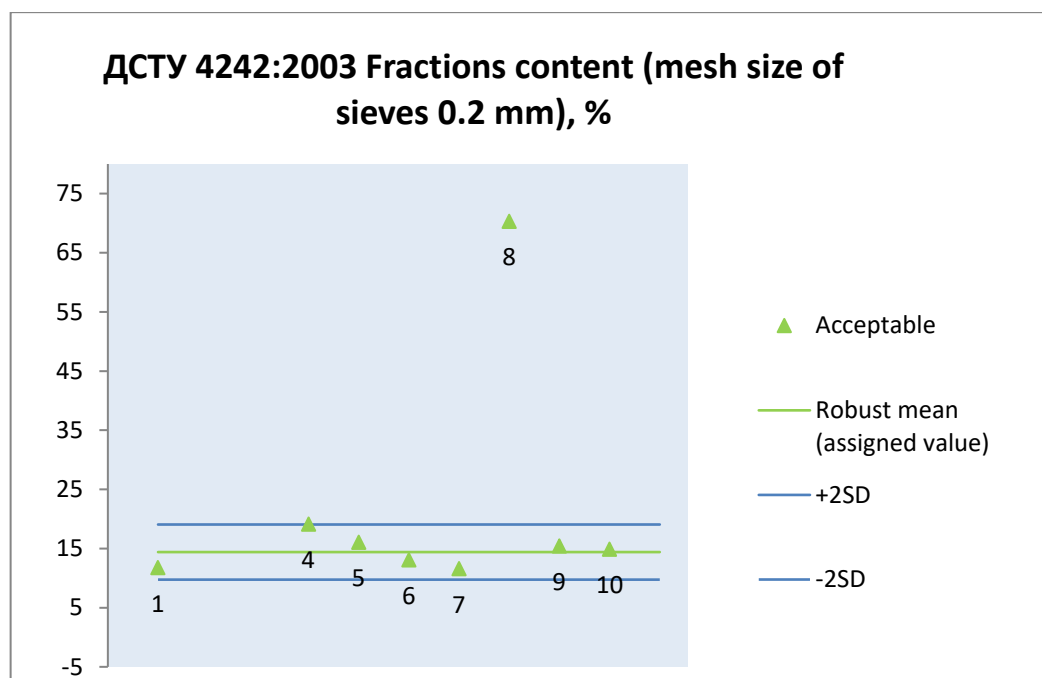
8.10.3. ДСТУ 4242:2003 Fractions content (mesh size of sieves 0.8 mm), %



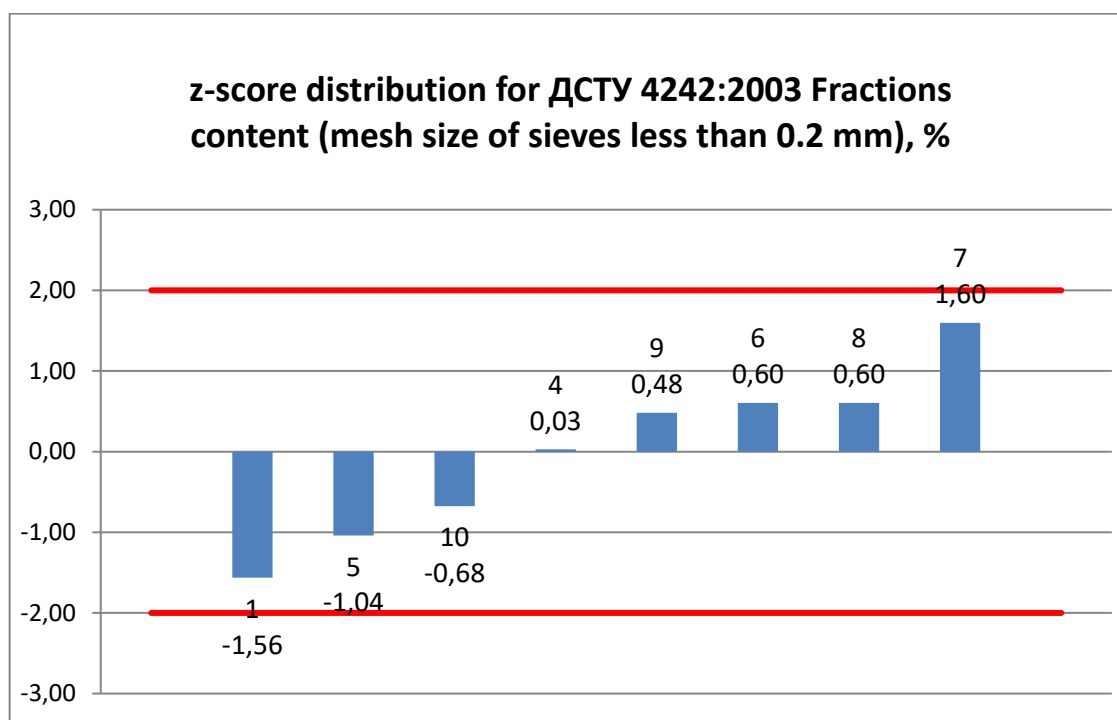
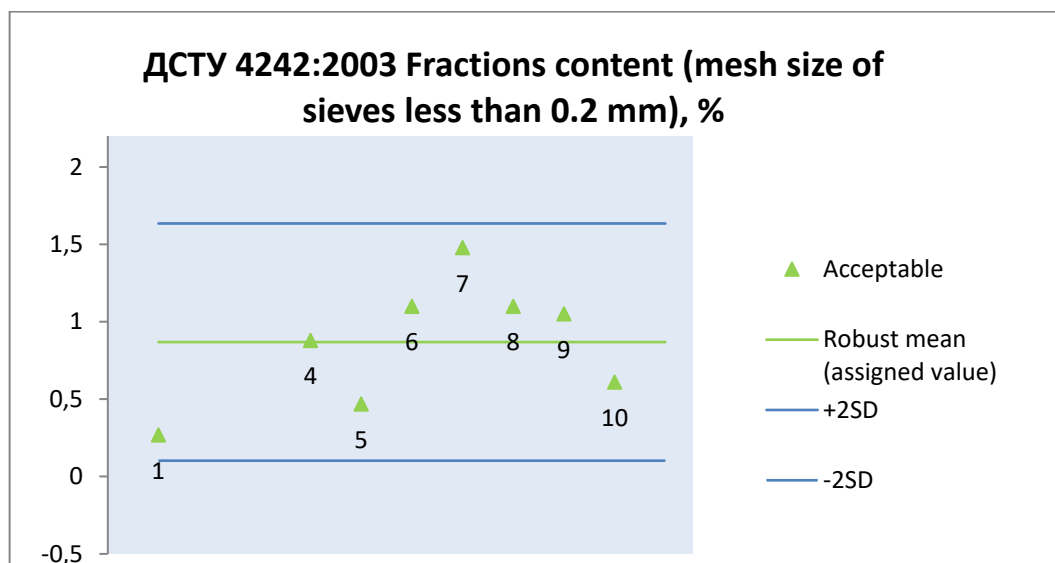
8.10.4. ДСТУ 4242:2003 Fractions content (mesh size of sieves 0.5 mm), %



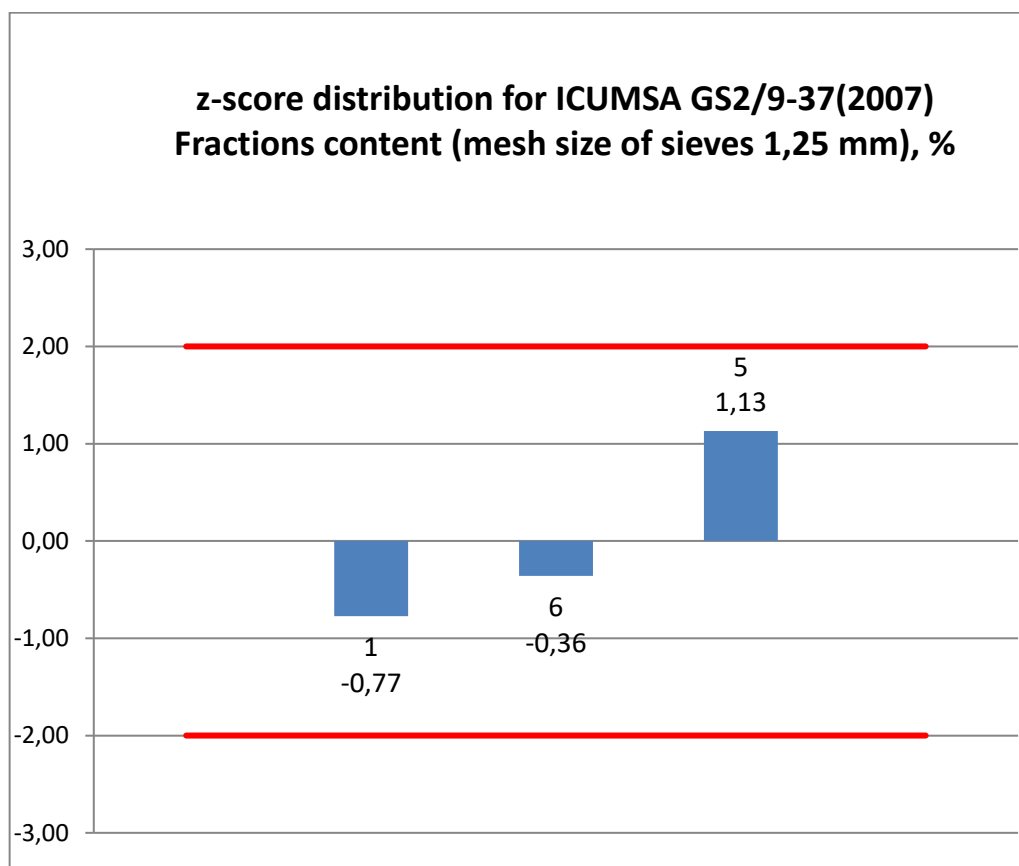
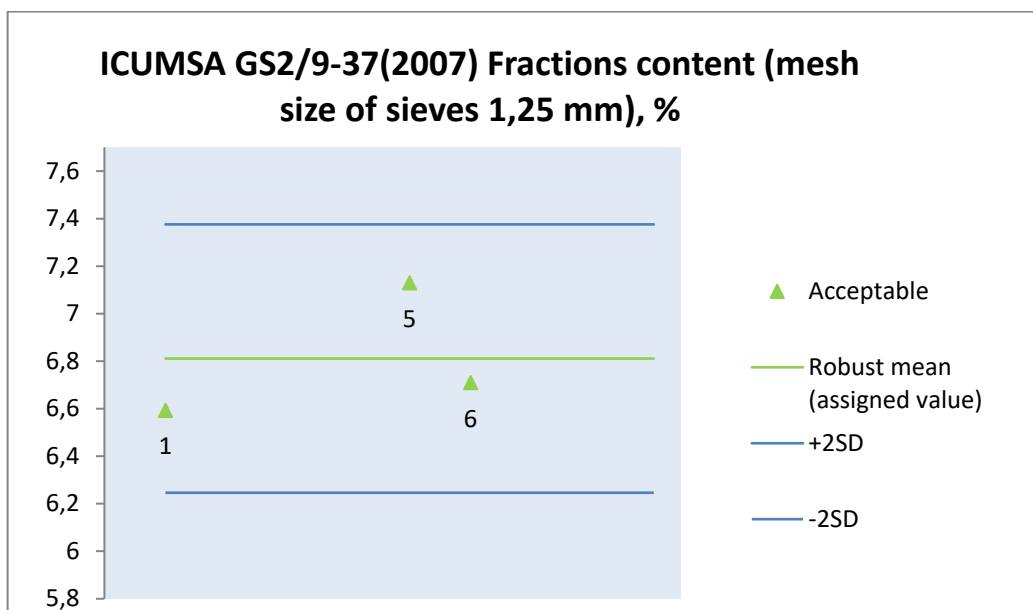
8.10.5. ДСТУ 4242:2003 Fractions content (mesh size of sieves 0.2 mm), %



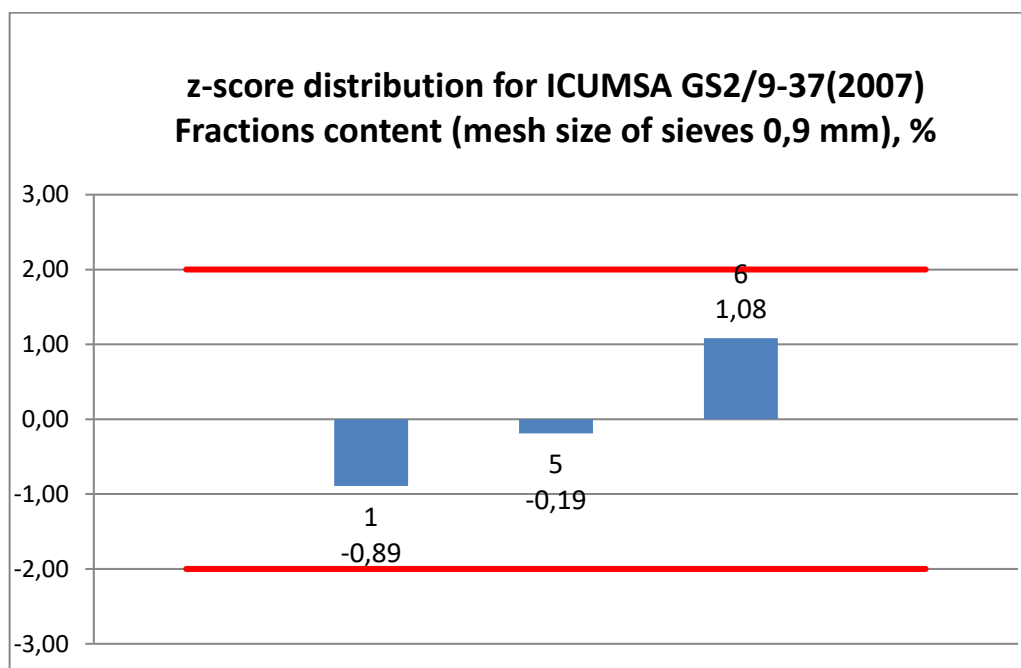
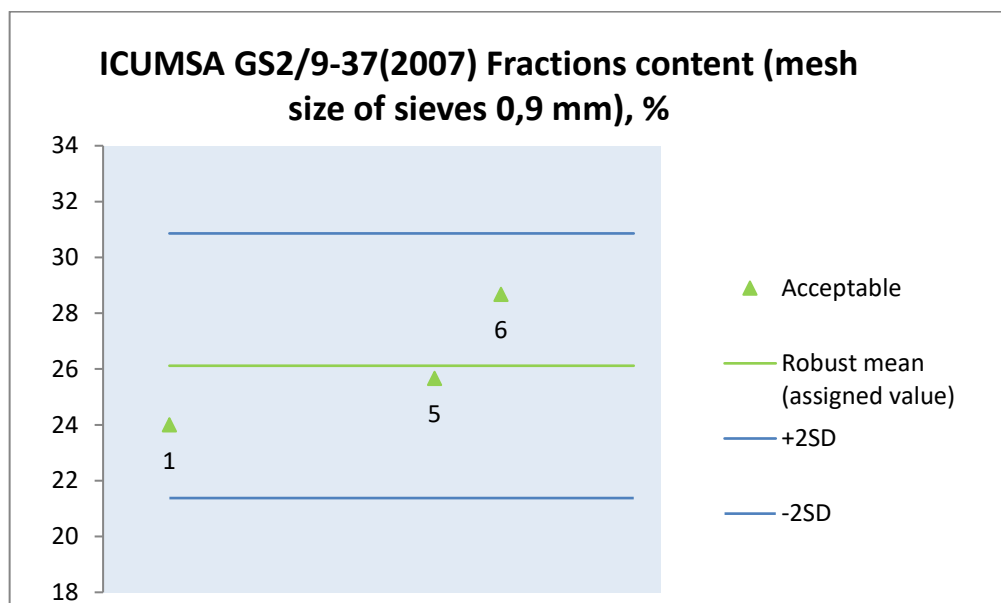
8.10.6. ДСТУ 4242:2003 Fractions content (mesh size of sieves less than 0.2 mm), %



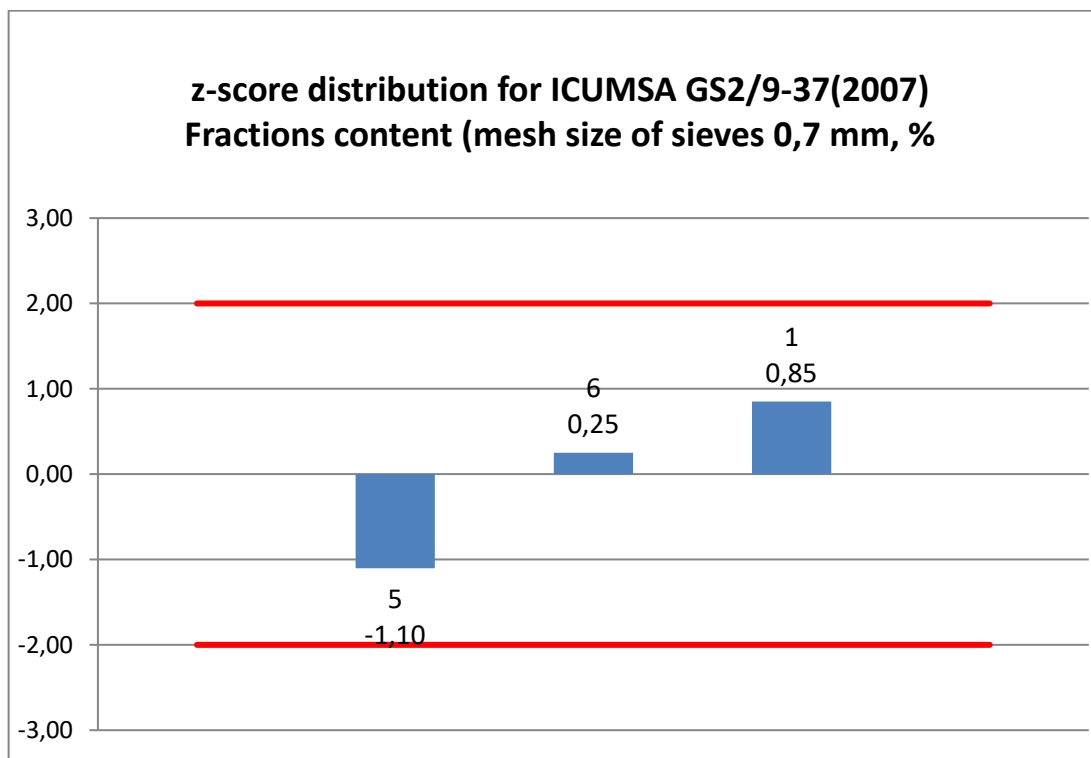
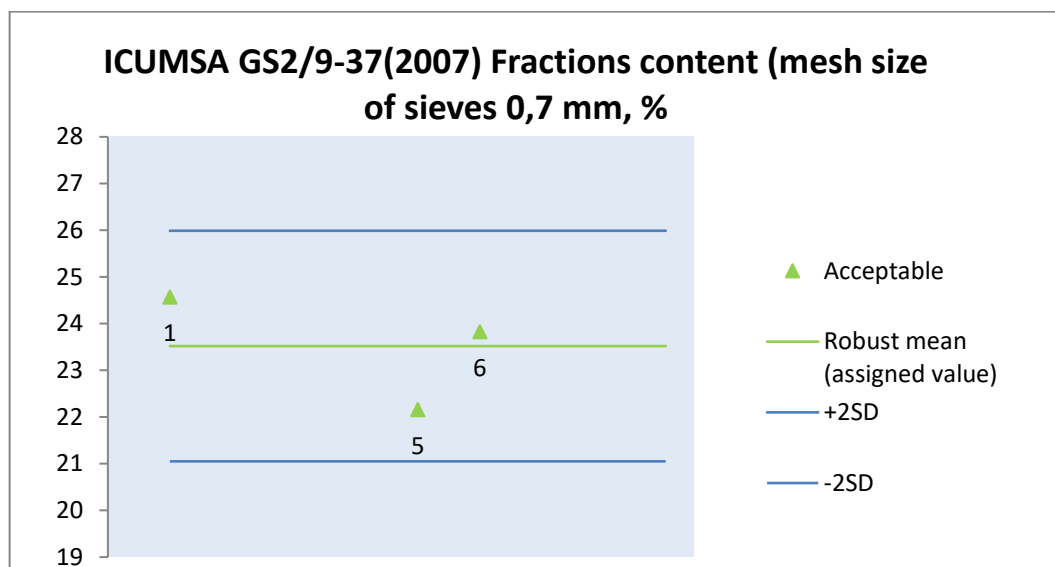
8.11.1. ICUMSA GS2/9-37(2007) Fractions content (mesh size of sieves 1,25 mm), %



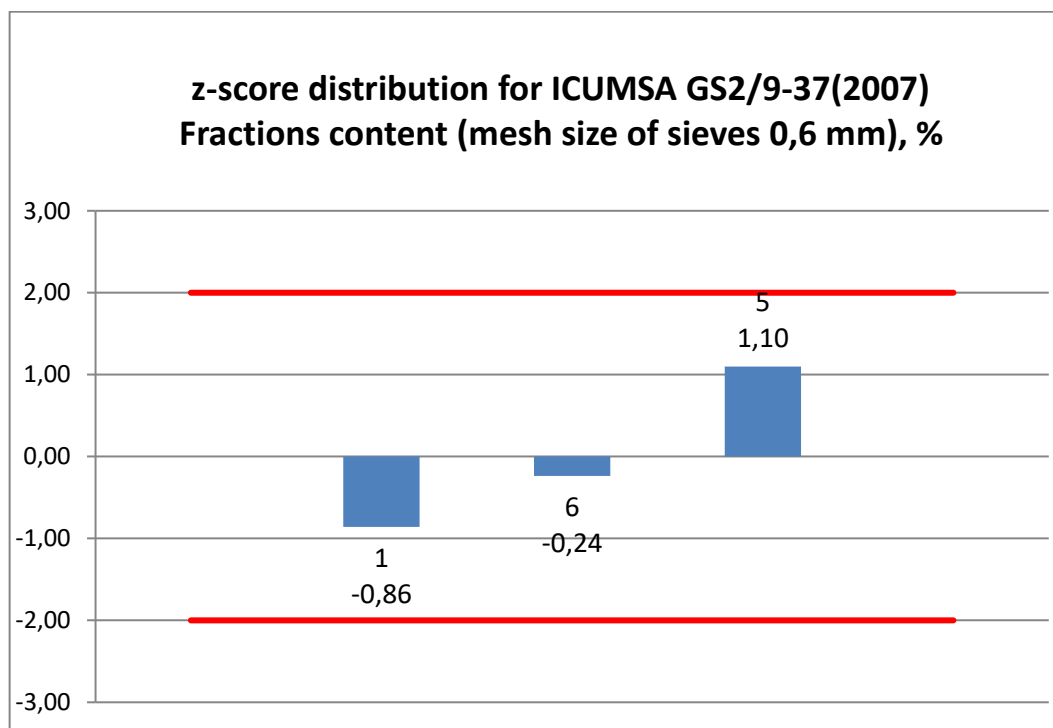
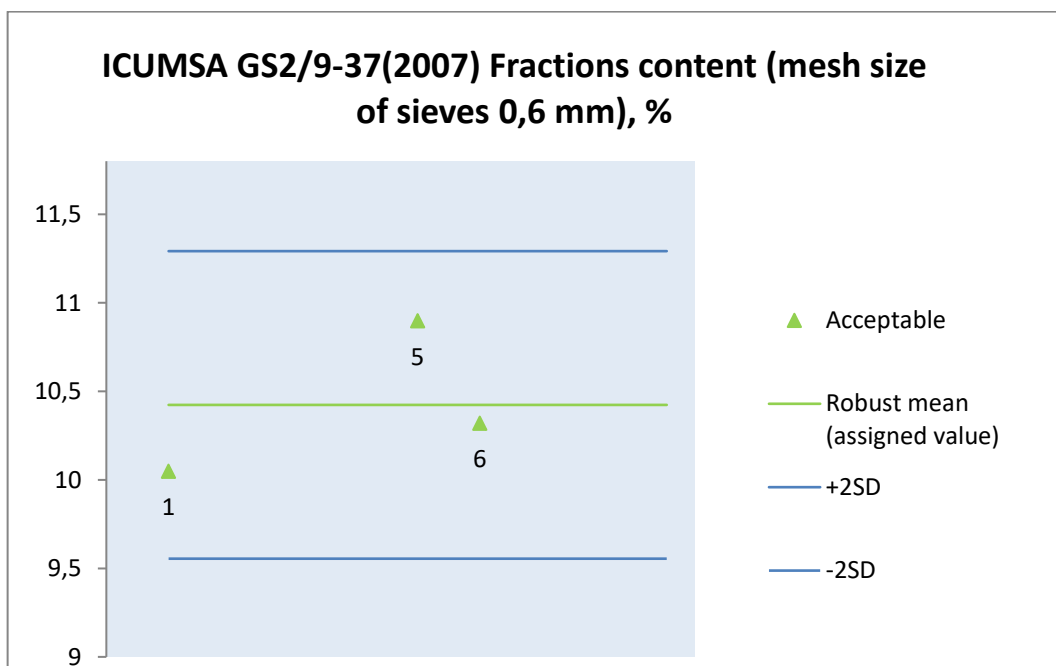
8.11.2. ICUMSA GS2/9-37(2007) Fractions content (mesh size of sieves 0,9 mm), %



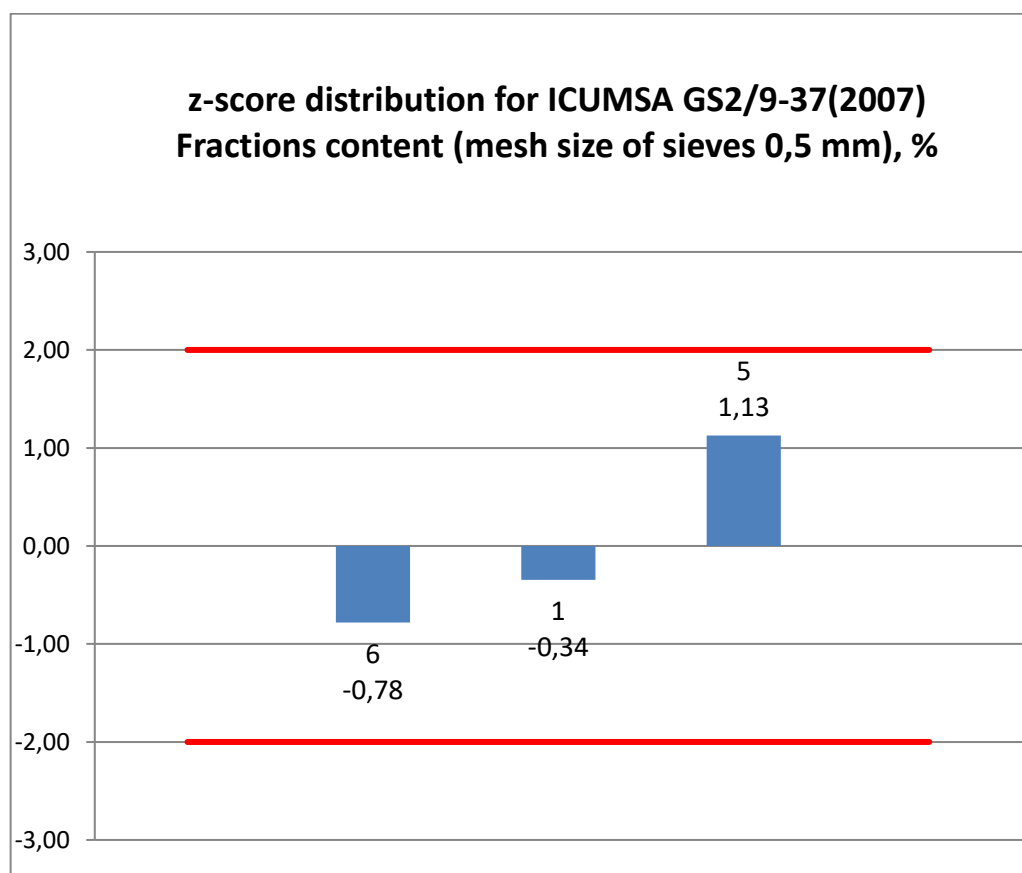
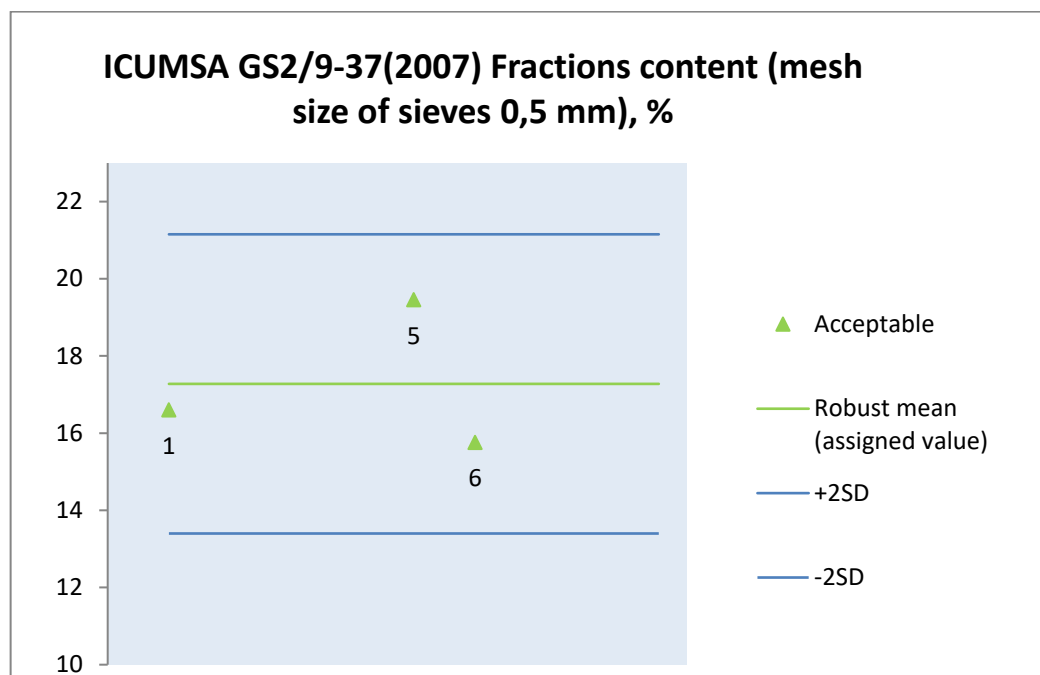
8.11.3. ICUMSA GS2/9-37(2007) Fractions content (mesh size of sieves 0,7 mm, %



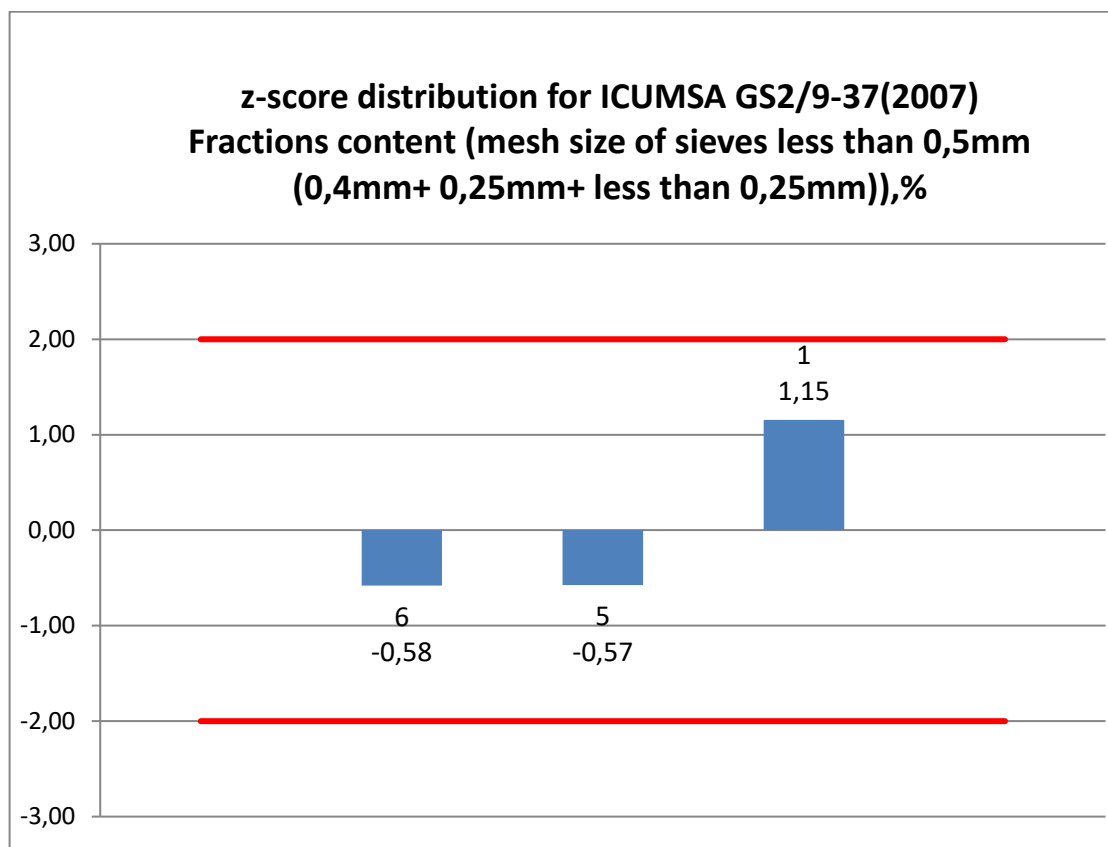
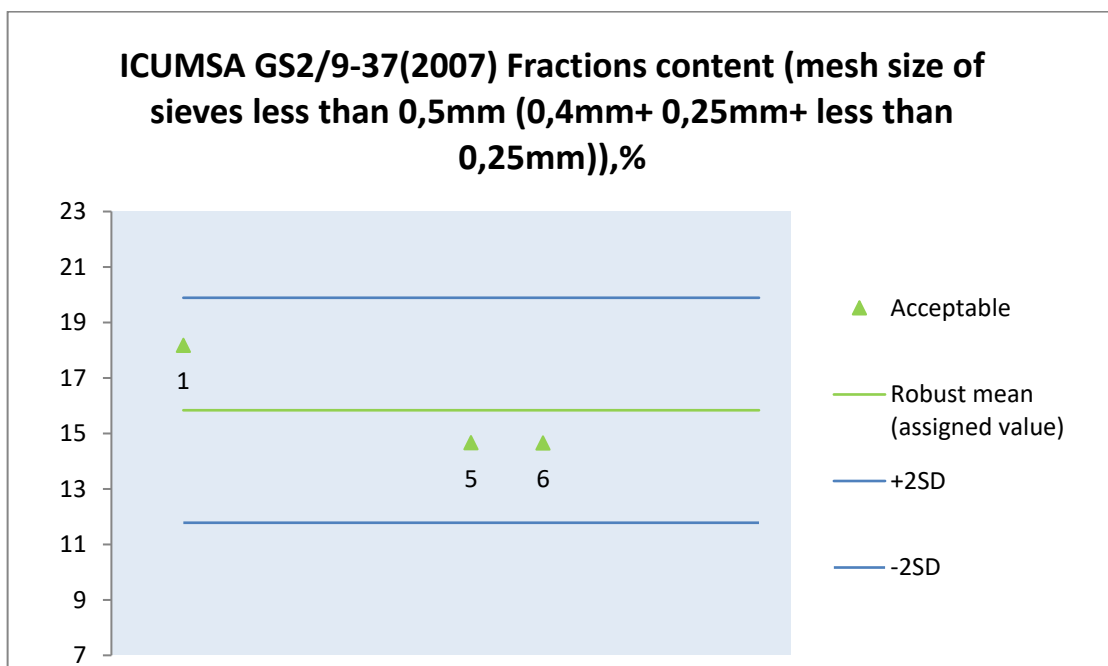
8.11.4. ICUMSA GS2/9-37(2007) Fractions content (mesh size of sieves 0,6 mm), %



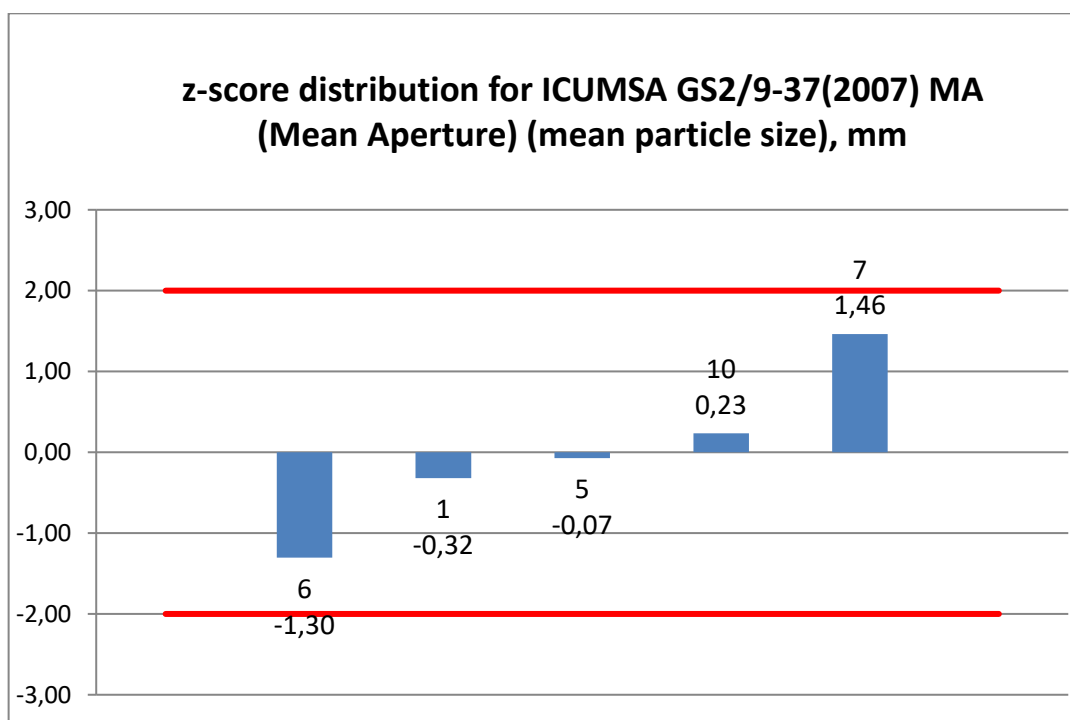
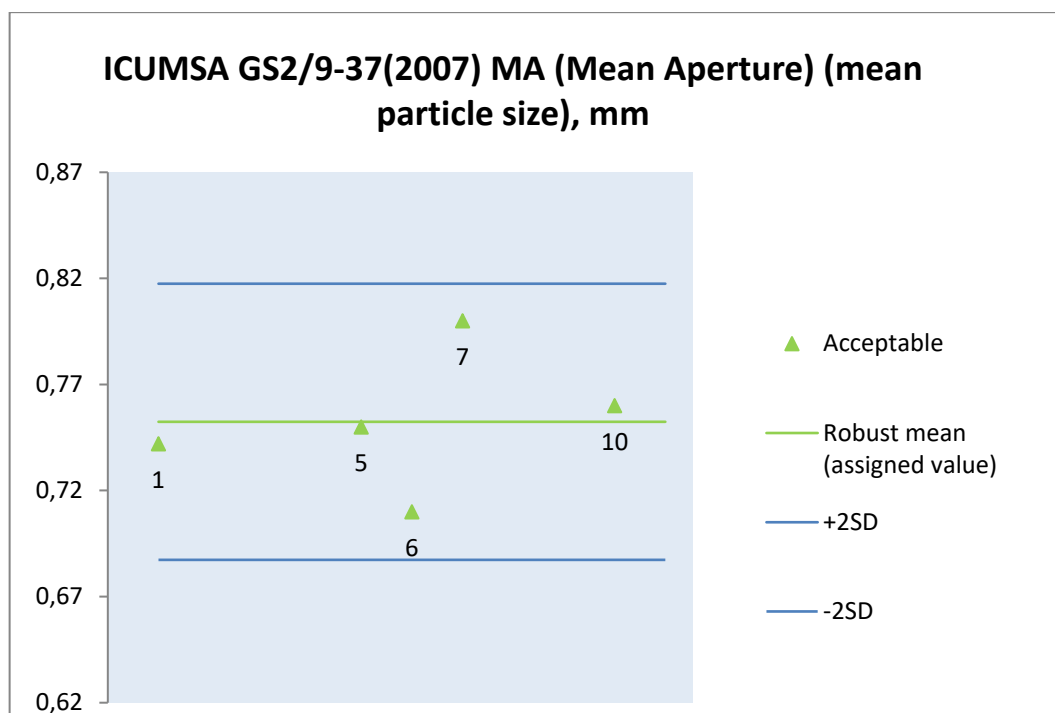
8.11.5. ICUMSA GS2/9-37(2007) Fractions content (mesh size of sieves 0,5 mm), %



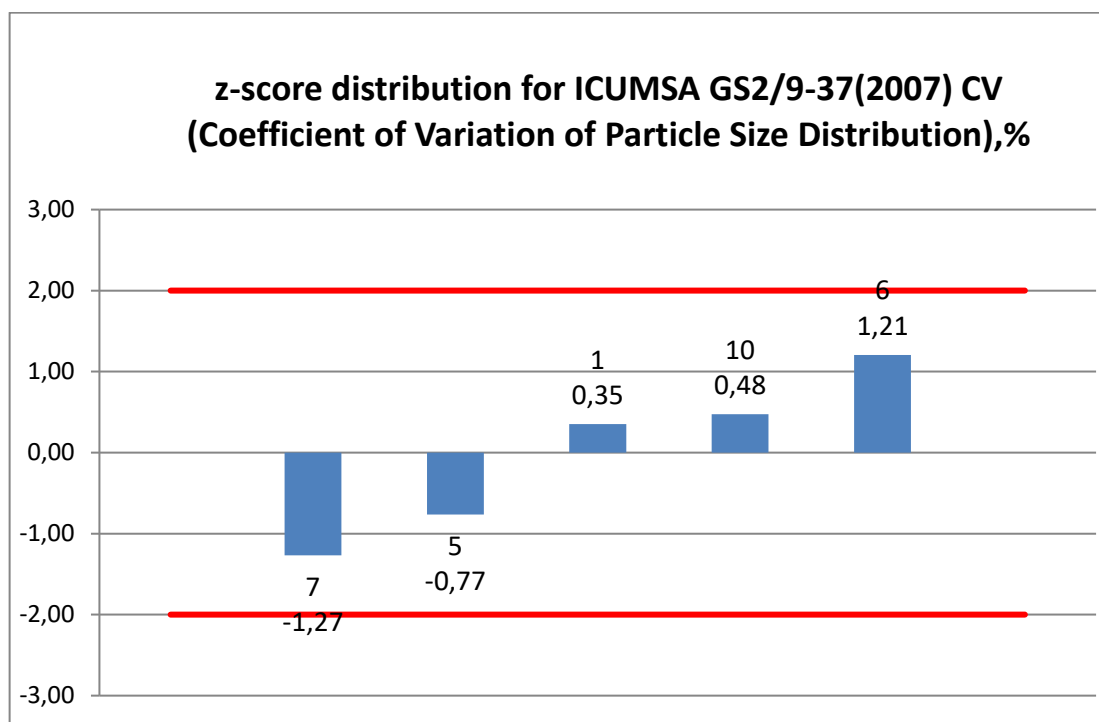
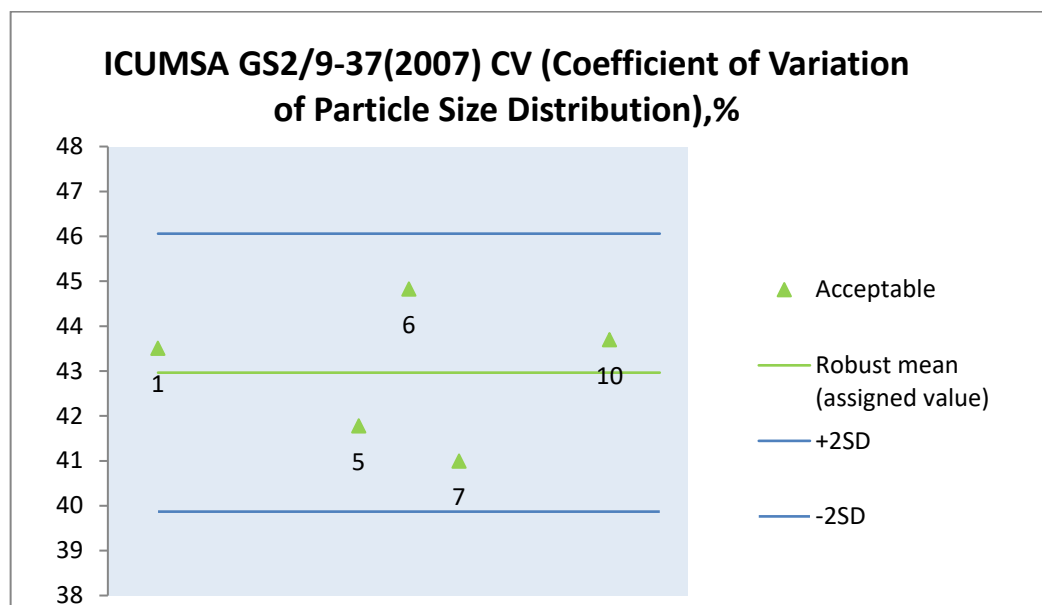
8.11.6. ICUMSA GS2/9-37(2007) Fractions content (mesh size of sieves less than 0,5mm (0,4mm+ 0,25mm+ less than 0,25mm)),%



8.12. ICUMSA GS2/9-37(2007) MA (Mean Aperture) (mean particle size), mm



8.13. ICUMSA GS2/9-37(2007) CV (Coefficient of Variation of Particle Size Distribution),%



9. NORMATIVE REFERENCE

1. ISO/IEC 17043:2023 Conformity assessment – General requirements for the competence of proficiency testing providers.
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3. Fearn, T. and Thompson, M, A new test for ‘sufficient homogeneity’, Analyst, 2001, 126, 1414-1417.
4. ISO 13528:2022 Statistical methods for use in proficiency testing by interlaboratory comparison.
5. ISO 33405:2024 Reference materials — Approaches for characterization and assessment of homogeneity and stability.
6. ILAC Discussion Paper on Homogeneity and Stability Testing, April 2008.