METROLOGY SERVICE

Director
Metrology service Ltd.

Bozhko Nataliia
March 29th 2018

PROFICIENCY TESTING PT.UA.1.3.2016
ANIMAL FEEDING STUFFS(QUALITY)
PROFICIENCY TESTING REPORT
ROUND 2 MARCH 2018(ENG)

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1. TABLE OF CONTENTS

2. SUMMARY

2.1. The purpose of proficiency testing in animal feeding stuffs is to determine the characteristics of the operation (as described in ISO\IEC 17043[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.

2.3. This is the final report on the PT.UA.1.3.2016 Round 2 held in March 2018. This report is issued according to ISO\IEC 17043 [1] and PT.UA.1.3.2016 Round 2 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 19 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.

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 17043:2010[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 a validated 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.1.3.2016 Round 2. 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 [2-8]. 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.

3.3. DISPATCH AND RECEIPT OF SAMPLES

3.3.1. Samples of test material – **Soybeans meal** were dispatched 26.02.2018 according to schedule of proficiency testing programme PT.UA.1.3.2016 Round 2.

3.3.2. Each produced and identified sample was hermetically sealed.

3.3.3. A total of 19 participants in 2 countries received one sample. Results were returned from 19 participants.

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 e-mail 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 [2,3]

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), 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 $|z| \geq 3$, the results were considered to be unsatisfactory (marked red in tables). The calculations were made according to [1,3,5].

3.5.5. Only 2.0% of all results in this round are considered to be unsatisfactory. 6.3% of all results were deemed unsatisfactory in Round 1.

3.5.6. Participant number 17 stated "Використано при аналізі ГОСТ Р 52839-2007 "Корма. Методы определения содержания сырой клетчатки с применением промежуточной фильрации" п.7 Метод определения содержания сырой клетчатки с использованием полуавтоматических систем (типа Фибертек)" instead of ГОСТ 13496.2-91.

4. HOMOGENITY AND STABILITY ASSESMENT

4.1. Samples were assessed for homogeneity and stability after blending and packing by selecting ten samples of material at random from all those produced. Six of these samples were tested in duplicate under repeatability conditions as only 40 samples were produced according to [7]. Four other samples for stability tests were stored in appropriate conditions for the period of preparation and test submission for this round. They were also tested in duplicate.

4.2. 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 [3,4].

4.3. 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.

ISO 6496:1999/ДСТУ	Moisture content, %								
ISO 6496:1999/ДСТУ	Вміст вологи, %								
Дослідження гомогенності/Homogenity test									
Аналіз викидів за тестом Кохрана(С -тест)/Cohran's C test for outliers					Аналіз на 'достатню однорідність'/Test for 'sufficient homogenity'				
Номер зразку/ Sample number	Результат/ Result A	Результат/ Result B	Average	SD²		Номер зразку/ Sample number	Результат/ Result A	Результат/ Result B	SUM	Difference²
1	10,27	10,27	10,27	0,0000	0,00	1	10,27	10,27	20,54	0,0000
2	10,31	10,24	10,28	0,0025	0,00	2	10,31	10,24	20,55	0,0049
3	10,23	10,29	10,26	0,0018	0,00	3	10,23	10,29	20,52	0,0036
4	10,26	10,21	10,24	0,0012	0,00	4	10,26	10,21	20,47	0,0025
5	10,23	10,26	10,25	0,0004	0,00	5	10,23	10,26	20,49	0,0009
6	10,26	10,31	10,29	0,0013	0,00	6	10,26	10,31	20,57	0,0025
7	10,27	10,16	10,22	0,0060	0,00	7	10,27	10,16	20,43	0,0121
8	10,28	10,22	10,25	0,0018	0,00	8	10,28	10,22	20,50	0,0036
9	10,2	10,27	10,24	0,0025	0,00	9	10,20	10,27	20,47	0,0049
10	10,31	10,29	10,30	0,0002	0,00	10	10,31	10,29	20,60	0,0004
										0,0354
Mean	10,257		Worst pair	0,00605		Mean	10,257			
Max	10,31		SUM of SD²	0,0177		Max	10,31			
Min	10,16		C	0,3418		Min	10,16			
			Ccr, 5%	0,602						
			Ccr, 1%	0,718		Analytical variance S²an	0,0018	SD	0,0396	
			Conclusion			Sanal	0,0421	RSDR	0,3862	
			5%	PASS		Ssums	0,0027			
			1%	PASS		MSb	0,0013			
					Between sample variance S²sam		0,0000			
Remarks										
1. Cohran's C test is described in ISO 5727-2 and FAPAS protocol, sixth edition, 2002										
2. Test for 'sufficient homogenity' is performed according to FAPAS protocol, sixth edition, 2002										

Source of σp value to use		
Use(write '1')	Source	σp
	C>13.8%, HORWITZ	0,3203
1	120ppb<C<13.8%, HORWITZ	0,2890
	C<120 ppb	2,256540
MASS NEGATIVE POWER FOR HORWITZ EQUATION(%=2, ppb=9,ppm=6)		2
	SD	0,1800
	Trial SD	3,9800
	Target SD chosen	0,2890
	σ²all	0,007517
	Replicates	10
	F1	1,88
	F2	1,01
	Critical value	0,0159
	Between sample variance S²sam	0,0000
	Sufficient homogenity test	PASS

4.5. Data for all analytes

Method(Метод)	ISO 6496:1999/ ДСТУ ISO 6496:2005	ISO 5983-1:2005/ ДСТУ ISO 5983-1:2014	ISO 6865:2000/ ДСТУ ISO 6865:2004	ISO 6492:1999/ДСТУ ISO 6492:2003	ISO 5984:2002/ДСТУ ISO 5984:2004	ISO 5985:2002/ДСТУ ISO 5985:2004
	Moisture content, %	Crude protein content, %	Crude fibre content,%	Fat content,%	Crude ash, %	Ash insoluble in hydrochloric acid,%
Homogenity and stability(Гомогенність та стабільність)						
Cohran's 'C' test(С-тест "Кохрана")						
Crtitical value(5%,10pairs)=0,602	0,3418	0,4100	0,3034	0,5141	0,5889	0,2353
Mean Result	10,2570	46,3165	3,8115	1,4300	5,8315	0,1005
Conclusion(Висновок)	PASS	PASS	PASS	PASS	PASS	PASS
Analytical variance test(тест аналітичної дисперсії)						
S^2anal	0,0018	0,0515	0,0028	0,0025	0,0014	0,0001
Sanal	0,0421	0,2270	0,0528	0,0499	0,0379	0,0092
S^2sample	0,0000	0,0014	0,0003	0,0001	0,0011	0,0001
σ_p	0,2890	0,6806	0,1246	0,0542	0,1789	0,0057
σ_p source	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz
σ^2all	0,0075	0,0417	0,0014	0,0003	0,0029	0,000003
Critical value	0,0159	0,1304	0,0054	0,0030	0,0069	0,0001
Conclusion(Висновок)	PASS	PASS	PASS	PASS	PASS	PASS

5. DATA SUMMARY

Method	ISO 6496:1999/ ДСТУ ISO 6496:2005	ISO 12099:2017	ISO 5983-1:2005/ ДСТУ ISO 5983-1:2014	ISO 5983-2:2009/ДСТУ ISO 5983-2:2014	ISO 12099:2017	ISO 5984:2002/ ДСТУ ISO 5984:2004	ISO 5985:2002/ ДСТУ ISO 5985:2004	ISO 6492:1999/ ДСТУ ISO 6492:2003	ISO 12099:2017	ISO 6865:2000/ ДСТУ ISO 6865:2004	ISO 12099:2017	ДСТУ 7621:2014	ГОСТ 27548-97	ДСТУ 7491:2013	ДСТУ 7169:2010	ДСТУ 4924:2008	ДСТУ 7491:2013	ГОСТ 26226-95	ГОСТ 13979.6-69	ГОСТ 13496.14-87	ГОСТ 13979.6-69	ГОСТ 13496.15-97	ДСТУ 7491:2013	ДСТУ 7458:2013	ГОСТ 13496.2-91	ДСТУ 7491:2013
	Moisture content, %	Moisture content, %	Crude protein content, %	Crude protein content, %	Crude protein content, %	Crude ash, %	Ash insoluble in hydrochloric acid,%	Fat content,%	Fat content,%	Crude fibre content,%	Crude fibre content,%	Moisture content, %	Moisture content, %	Moisture content, %	Protein content, %	Mass fraction of crude protein, %	Mass fraction of crude protein, %	Mass fraction of crude ash, %	Mass fraction of crude ash, %	Mass fraction of ash insoluble in hydrochloric acid, %	Mass fraction of ash insoluble in hydrochloric acid, %	Mass fraction of crude fat, %	Mass fraction of crude fat, %	Mass fraction of crude fat, %	Mass fraction of crude fibre, %	Mass fraction of crude fibre, %
No of Results	11	3	7	8	3	11	11	10	2	9	2	13	4	4	13	5	4	9	10	6	10	11	4	11	14	4
No of Results|z|>3	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
No of Results|z|>3, %	0,000	0,000	0,000	0,000	0,000	9,091	18,182	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	7,143	0,000
Mean	10,196	10,203	46,143	46,161	46,230	6,187	0,135	1,711	1,495	4,593	4,670	10,090	10,103	10,173	45,789	46,186	45,620	6,077	6,050	0,122	0,138	1,481	1,700	1,518	4,660	5,010
Min	9,900	10,000	45,320	45,690	46,170	5,800	0,070	1,320	1,290	3,950	4,560	9,430	9,780	10,030	43,850	46,100	44,670	5,820	5,850	0,070	0,060	1,260	1,220	1,200	3,870	4,040
Max	10,400	10,400	46,420	46,500	46,300	7,100	0,260	2,050	1,700	4,970	4,780	10,650	10,250	10,300	46,600	46,310	46,220	6,336	6,210	0,230	0,220	1,700	2,390	1,780	6,720	6,010
SD	0,129	0,200	0,380	0,248	0,066	0,347	0,067	0,219	0,290	0,297	0,156	0,299	0,221	0,137	0,797	0,083	0,707	0,171	0,122	0,062	0,058	0,188	0,493	0,179	0,702	0,842
Median	10,200	10,210	46,260	46,205	46,220	6,130	0,100	1,710	1,495	4,600	4,670	10,130	10,190	10,180	46,170	46,190	45,795	6,000	6,070	0,100	0,145	1,396	1,595	1,520	4,586	4,995
Robust mean(assigned	10,210	10,200	46,246	46,142	46,260	6,166	0,120	1,715	1,715	4,634	4,634	10,089	10,089	10,137	45,814	46,185	45,463	6,109	6,054	0,095	0,136	1,507	1,595	1,533	4,532	5,010
Robust SD	0,081	0,200	0,165	0,196	0,066	0,188	0,054	0,191	0,290	0,205	0,156	0,201	0,221	0,137	0,592	0,083	0,707	0,170	0,118	0,050	0,058	0,188	0,493	0,165	0,336	0,842
SD from method(Tr.SD)	1,000	N/A	0,900	0,500	N/A	0,110	0,034	0,296	N/A	0,459	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SD from Horwitz eq.	0,288	0,288	0,680	0,679	0,680	0,188	0,007	0,063	0,063	0,147	0,147	0,285	0,285	0,286	0,677	0,680	0,674	0,186	0,185	0,005	0,007	0,057	0,059	0,058	0,144	0,157
Target SD	0,288	0,288	0,680	0,500	0,680	0,188	0,034	0,219	0,219	0,463	0,159	0,285	0,285	0,286	0,677	0,680	0,674	0,186	0,185	0,061	0,061	0,132	0,266	0,266	0,511	0,511
Source of target SD of PT	Horwitz	Horwitz	Horwitz	Method Tr S	Horwitz	Horwitz	Method Tr S	Trial SD	Trial SD	Method Tr S	Trial SD	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Horwitz	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD	Trial SD

6. RAW DATA

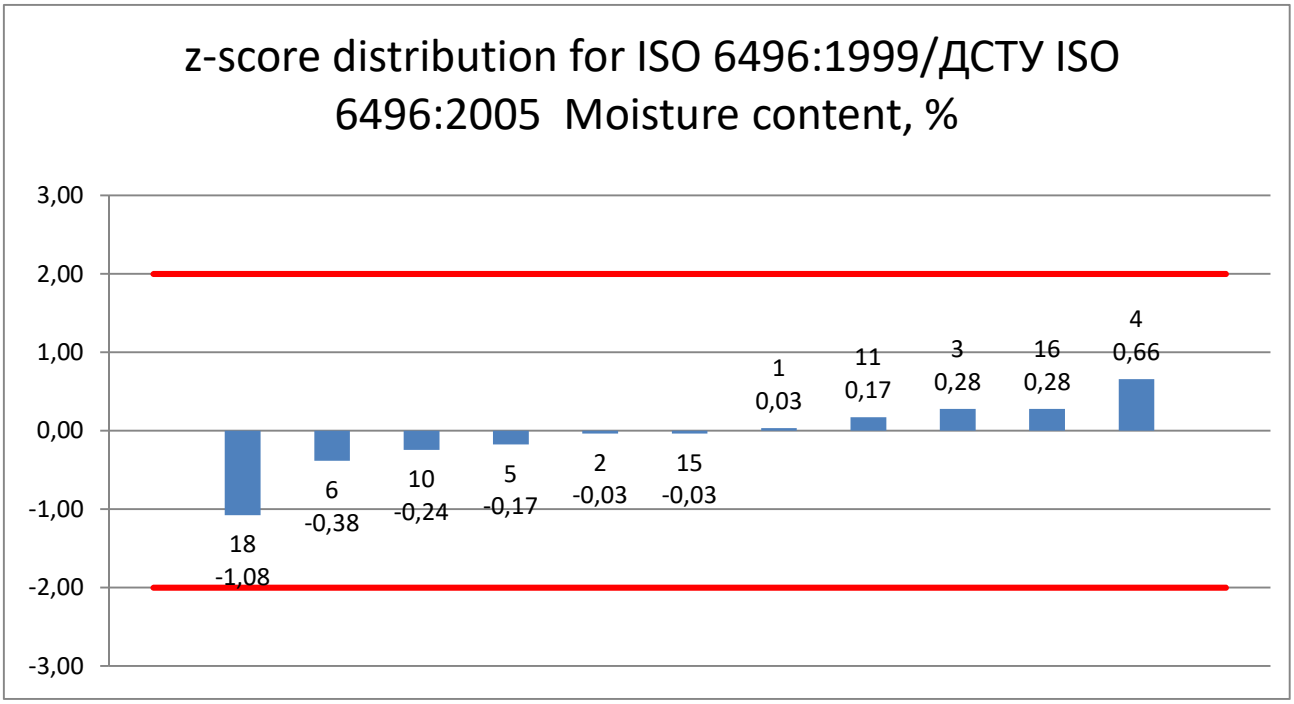
Method	ISO 6496:1999/ ДСТУ ISO 6496:2005	ISO 12099:2017	ISO 5983-1:2005/ ДСТУ ISO 5983-1:2014	ISO 5983-2:2009/ДСТУ ISO 5983-2:2014	ISO 12099:2017	ISO 5984:2002/ ДСТУ ISO 5984:2004	ISO 5985:2002/ ДСТУ ISO 5985:2004	ISO 6492:1999/ ДСТУ ISO 6492:2003	ISO 12099:2017	ISO 6865:2000/ ДСТУ ISO 6865:2004	ISO 12099:2017	ДСТУ 7621:2014	ГОСТ 27548-97	ДСТУ 7491:2013	ДСТУ 7169:2010	ДСТУ 4924:2008	ДСТУ 7491:2013	ГОСТ 26226-95	ГОСТ 13979.6-69	ГОСТ 13496.14-87	ГОСТ 13979.6-69	ГОСТ 13496.15-97	ДСТУ 7491:2013	ДСТУ 7458:2013	ГОСТ 13496.2-91	ДСТУ 7491:2013
Laboratory number	Moisture content, %	Moisture content, %	Crude protein content, %	Crude protein content, %	Crude protein content, %	Crude ash, %	Ash insoluble in hydrochloric acid,%	Fat content,%	Fat content,%	Crude fibre content,%	Crude fibre content,%	Moisture content, %	Moisture content, %	Moisture content, %	Protein content, %	Mass fraction of crude protein, %	Mass fraction of crude protein, %	Mass fraction of crude ash, %	Mass fraction of crude ash, %	Mass fraction of ash insoluble in hydrochloric acid, %	Mass fraction of ash insoluble in hydrochloric acid, %	Mass fraction of crude fat, %	Mass fraction of crude fat, %	Mass fraction of crude fat, %	Mass fraction of crude fibre, %	Mass fraction of crude fibre, %
1	10,22		46,41			5,83	0,10	1,49		3,95		10,24												1,51		
2	10,20					6,10	0,11											6,00	5,90	0,10	0,08	1,26		1,20	4,80	
3	10,29	10,40	46,10	46,15	46,30	6,13	0,10	1,61	1,70	4,60	4,78	10,31				46,21		6,24		0,10		1,69			5,37	
4	10,40			45,69		6,20	0,18	1,60		4,50								6,20	6,21		0,18	1,63				
5	10,16		46,30	46,30		6,07	0,08	1,72		4,97		10,08			46,33	46,12		5,99	6,01	0,07	0,06	1,70		1,68	3,87	
6	10,10	10,00	46,26	46,26	46,22	6,02	0,07	1,70		4,90		10,16		10,08	46,30	46,10	46,22	5,94	5,99	0,07	0,06	1,70	1,60	1,65	3,90	4,04
7												10,65		10,30	44,88		45,50		6,17		0,22		1,59	1,41	4,68	5,30
8												10,10				46,31			6,13		0,19			1,78	4,63	
9												10,15			45,571			6,336			0,105	1,396			4,552	
10	10,14		45,32	46,30		6,38	0,09	1,96		4,53		9,75		10,03	45,57		44,67						2,39			6,01
11	10,26			45,95		6,26	0,24	1,82		4,50			10,24					6,20		0,23		1,29			4,32	
12						7,10	0,26					9,81			43,85									1,52	6,72	
13															45,40			5,97						1,30	4,39	
14												9,43			46,60				5,97		0,19	1,39			4,32	
15	10,20		46,42			6,17	0,08	1,84		4,78		10,13			46,56									1,68		
16	10,29	10,21	46,19	46,14	46,17	5,80	0,17	1,32	1,29	4,61	4,56	10,31	10,25	10,28	46,17	46,19	46,09	5,82	5,85	0,16	0,15	1,33	1,22	1,39	4,62	4,69
17												10,05	10,14		46,39				6,14		0,14			1,58	4,33	
18	9,90			46,50				2,05							46,31							1,27				
19													9,78		45,33				6,13			1,63			4,74	

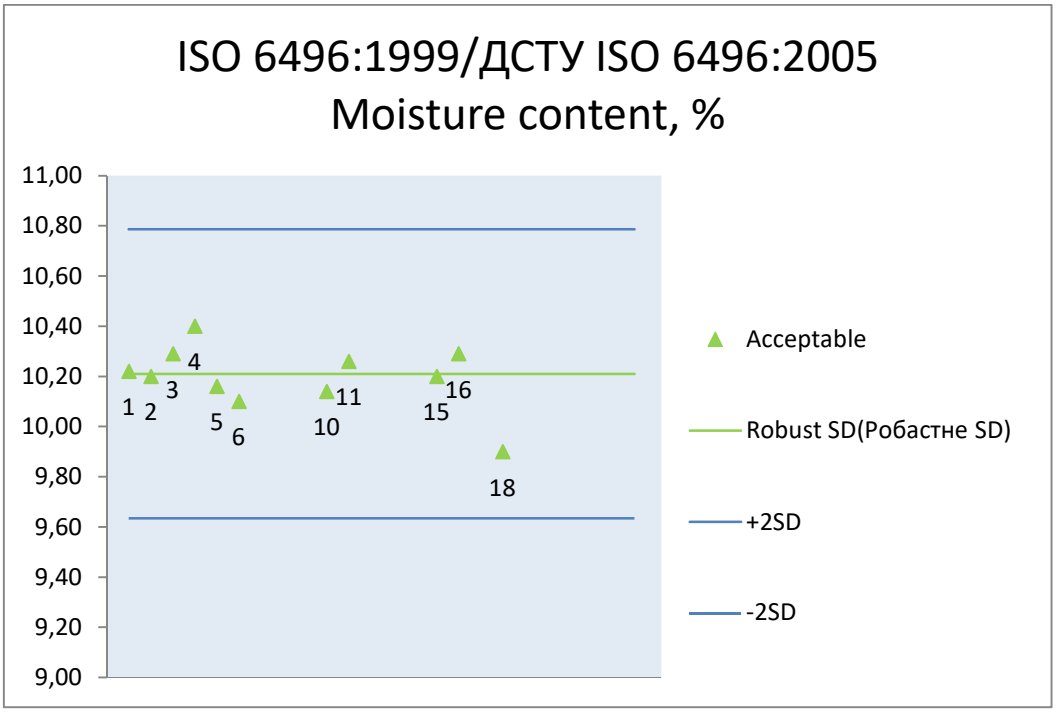
7. Z SCORES

Method	ISO 6496:1999/ ДСТУ ISO 6496:2005	ISO 12099:2017	ISO 5983-1:2005/ ДСТУ ISO 5983-1:2014	ISO 5983-2:2009/ДСТУ ISO 5983-2:2014	ISO 12099:2017	ISO 5984:2002/ ДСТУ ISO 5984:2004	ISO 5985:2002/ ДСТУ ISO 5985:2004	ISO 6492:1999/ ДСТУ ISO 6492:2003	ISO 12099:2017	ISO 6865:2000/ ДСТУ ISO 6865:2004	ISO 12099:2017	ДСТУ 7621:2014	ГОСТ 27548-97	ДСТУ 7491:2013	ДСТУ 7169:2010	ДСТУ 4924:2008	ДСТУ 7491:2013	ГОСТ 26226-95	ГОСТ 13979.6-69	ГОСТ 13496.14-87	ГОСТ 13979.6-69	ГОСТ 13496.15-97	ДСТУ 7491:2013	ДСТУ 7458:2013	ГОСТ 13496.2-91	ДСТУ 7491:2013
Laboratory number	Moisture content, %	Moisture content, %	Crude protein content, %	Crude protein content, %	Crude protein content, %	Crude ash, %	Ash insoluble in hydrochloric acid,%	Fat content,%	Fat content,%	Crude fibre content,%	Crude fibre content,%	Moisture content, %	Moisture content, %	Moisture content, %	Protein content, %	Mass fraction of crude protein, %	Mass fraction of crude protein, %	Mass fraction of crude ash, %	Mass fraction of crude ash, %	Mass fraction of ash insoluble in hydrochloric acid, %	Mass fraction of ash insoluble in hydrochloric acid, %	Mass fraction of crude fat, %	Mass fraction of crude fat, %	Mass fraction of crude fat, %	Mass fraction of crude fibre, %	Mass fraction of crude fibre, %
1	0,03		0,24			-1,79	-0,58	-1,03		-1,48		0,53												-0,09		
2	-0,03					-0,35	-0,29											-0,59	-0,83	0,07	-0,91	-1,87		-1,25	0,53	
3	0,28	0,69	-0,22	0,02	0,06	-0,19	-0,58	-0,48	-0,07	-0,07	0,92	0,78				0,04		0,70		0,07		1,39			1,64	
4	0,66			-0,90		0,18	1,77	-0,53		-0,29								0,49	0,84		0,73	0,93				
5	-0,17		0,08	0,32		-0,51	-1,17	0,02		0,73		-0,03			0,76	-0,10		-0,64	-0,24	-0,42	-1,24	1,46		0,55	-1,29	
6	-0,38	-0,69	0,02	0,24	-0,06	-0,78	-1,47	-0,07		0,57		0,25		-0,20	0,72	-0,13	1,12	-0,91	-0,35	-0,42	-1,24	1,46	0,02	0,44	-1,24	-1,90
7												1,97		0,57	-1,38		0,05		0,63		1,38		-0,02	-0,46	0,29	0,57
8												0,04				0,18			0,41		0,89			0,93	0,19	
9												0,21			-0,36			1,22			-0,50	-0,84			0,04	
10	-0,24		-1,36	0,32		1,14	-0,88	1,12		-0,22		-1,19		-0,37	-0,36		-1,18						2,99			1,96
11	0,17			-0,38		0,50	3,53	0,48		-0,29			0,53					0,49		2,21		-1,64			-0,41	
12						4,97	4,12					-0,98			-2,90									-0,05	4,28	
13															-0,61			-0,75						-0,88	-0,28	
14												-2,31			1,16				-0,46		0,89	-0,89			-0,41	
15	-0,03		0,26			0,02	-1,17	0,57		0,32		0,14			1,10									0,55		
16	0,28	0,03	-0,08	0,00	-0,13	-1,95	1,48	-1,80	-1,94	-0,05	-0,47	0,78	0,56	0,50	0,53	0,01	0,93	-1,55	-1,10	1,06	0,24	-1,34	-1,41	-0,54	0,17	-0,63
17												-0,14	0,18		0,85				0,46		0,07			0,18	-0,39	
18	-1,08			0,72				1,53							0,73							-1,80				
19													-1,08		-0,71				0,41			0,93			0,41	

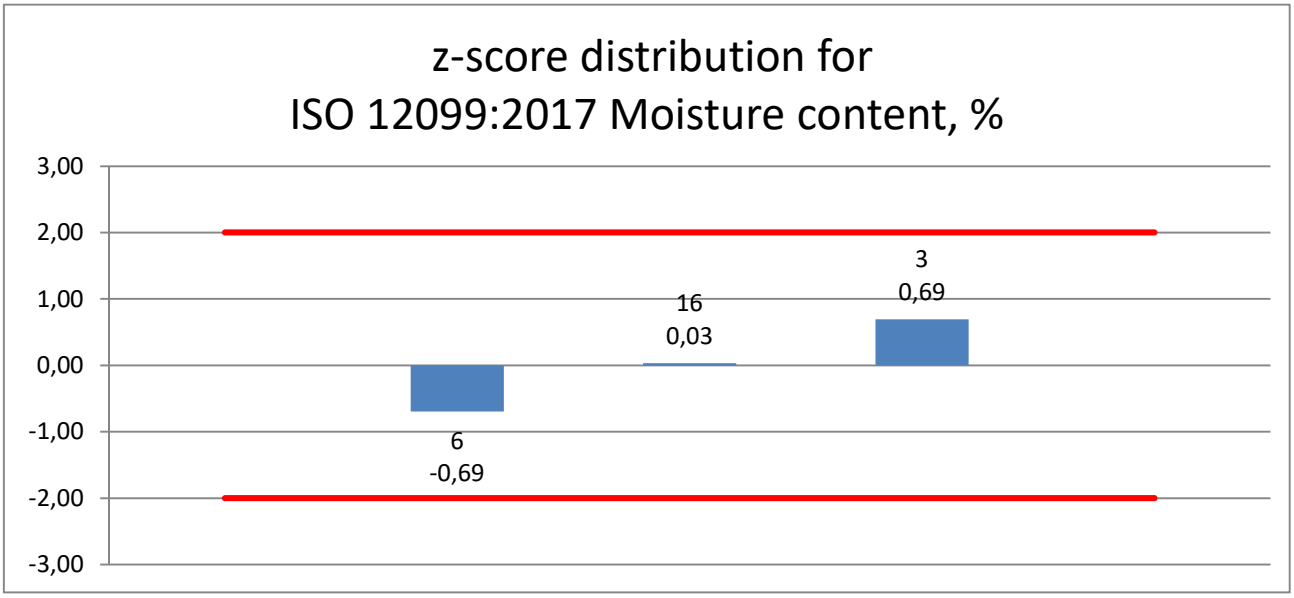
8. Z SCORE PLOTS AND RESULTS CHARTS.

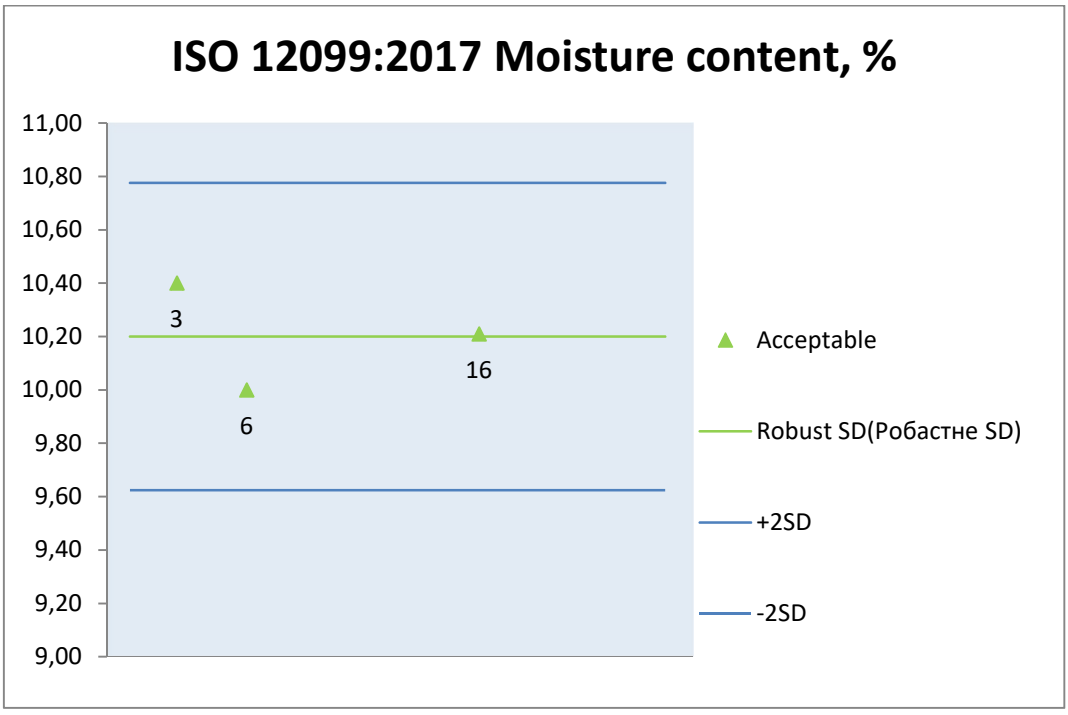
8.1. ISO 6496:1999/ДСТУ ISO 6496:2005 Moisture content, %



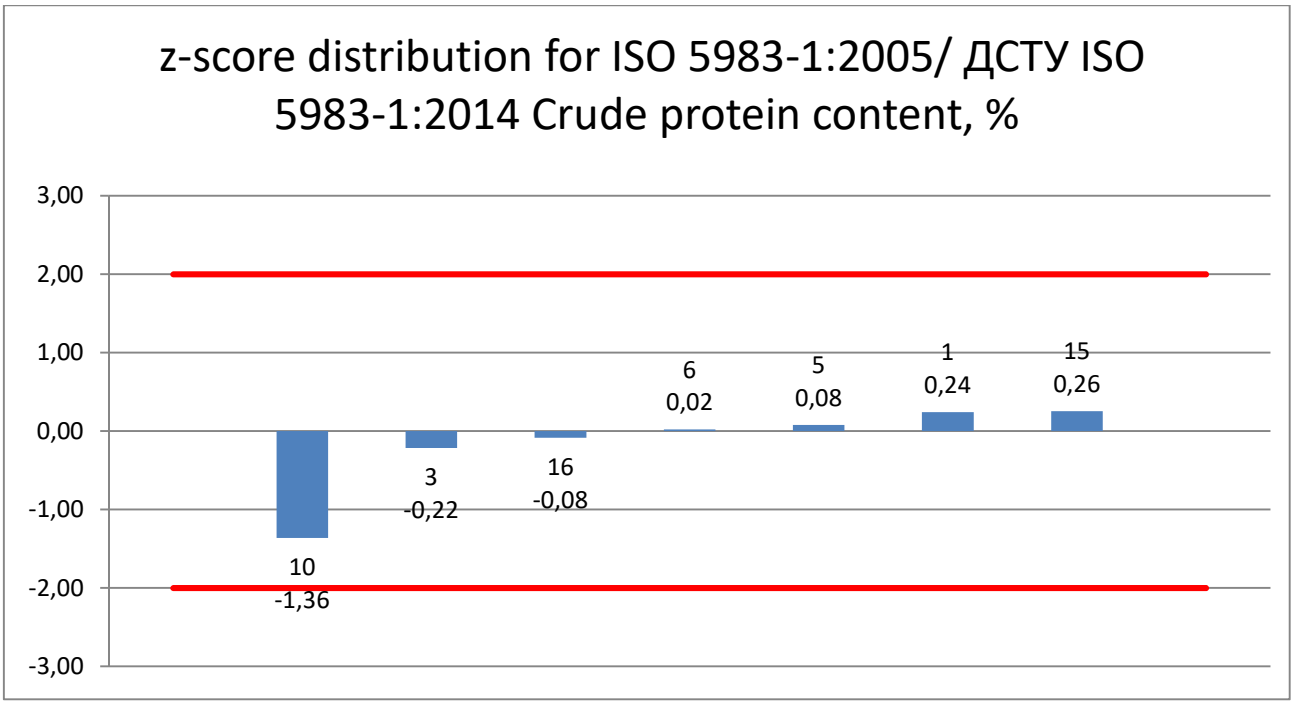


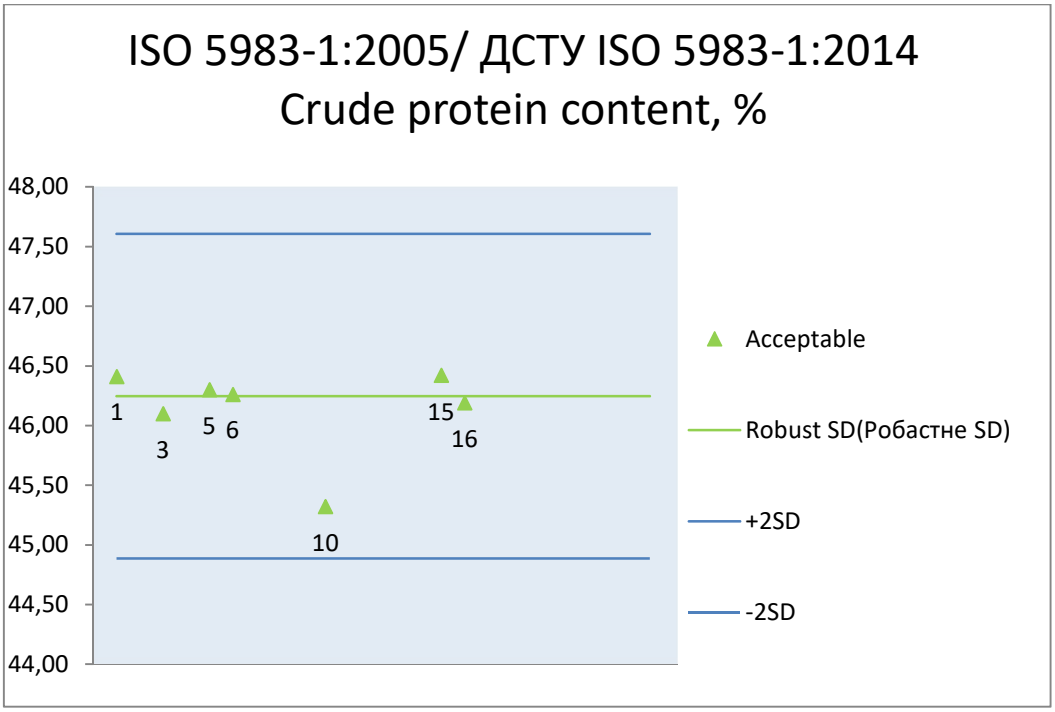
8.2. ISO 12099:2017 Moisture content, %



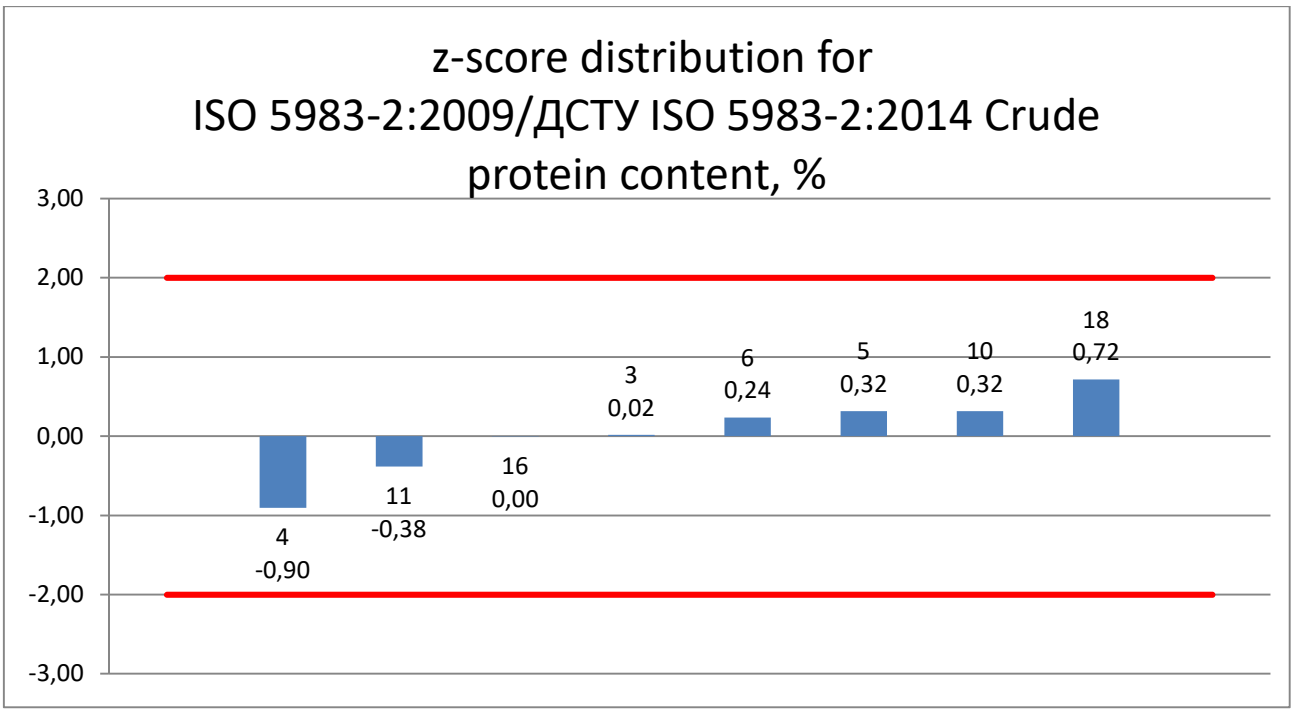


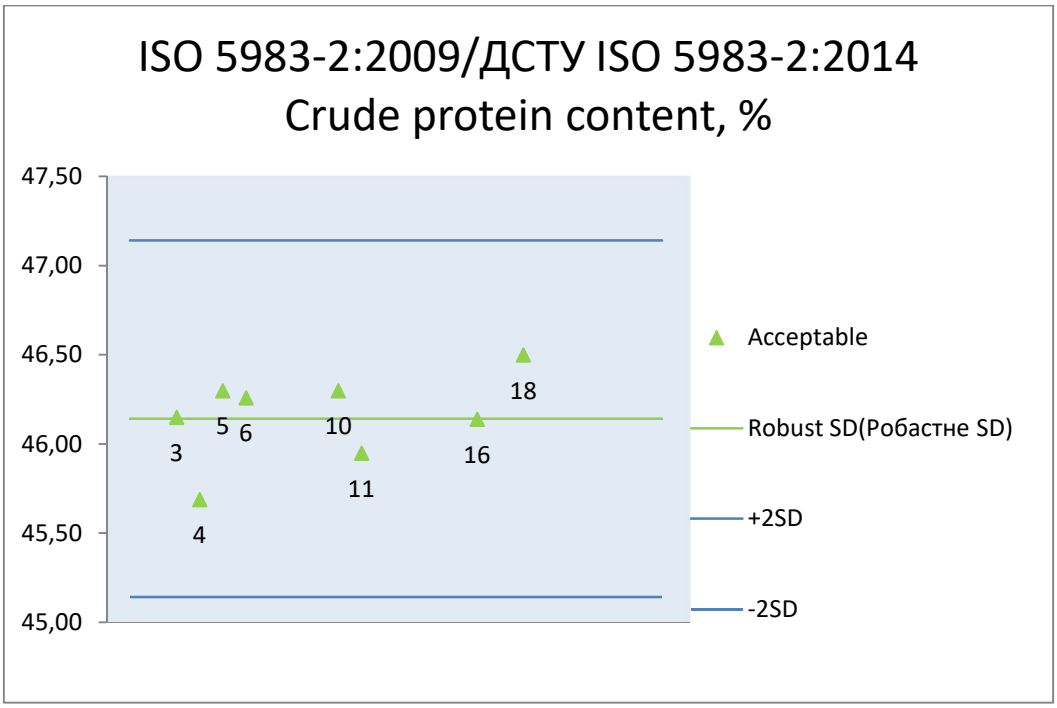
8.3. ISO 5983-1:2005/ ДСТУ ISO 5983-1:2014 Crude protein content, %



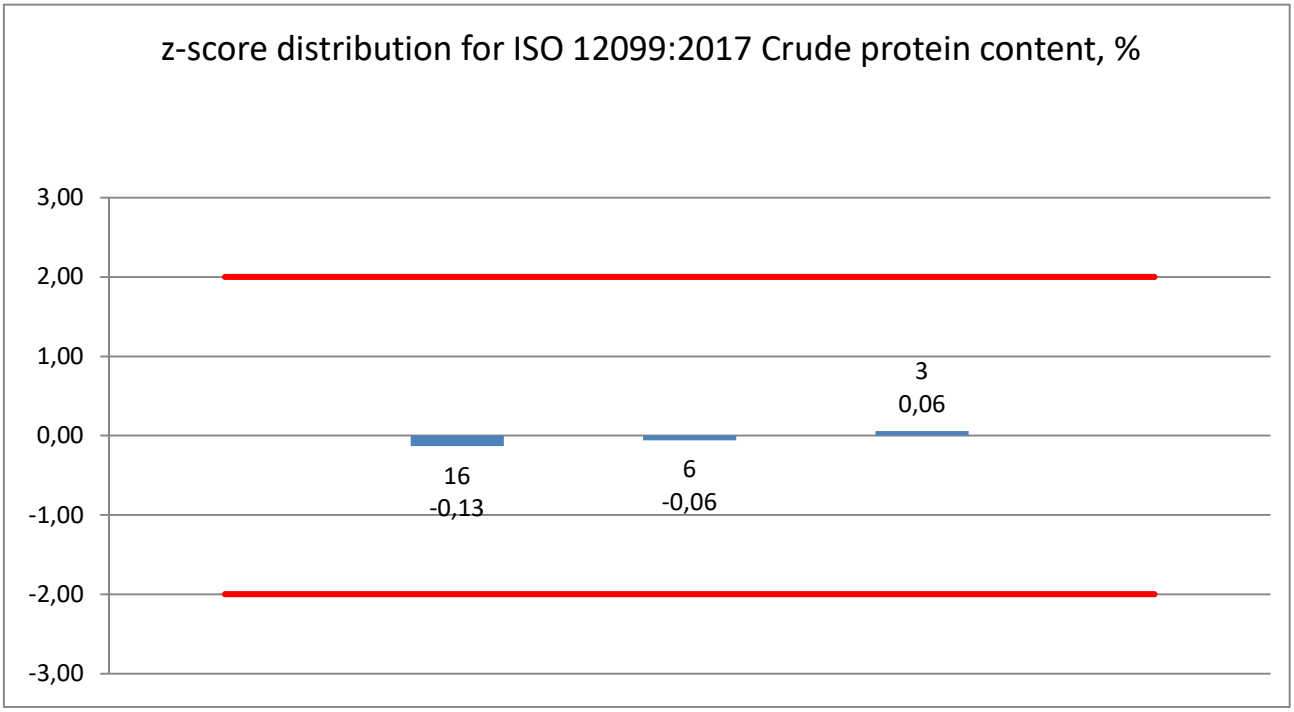


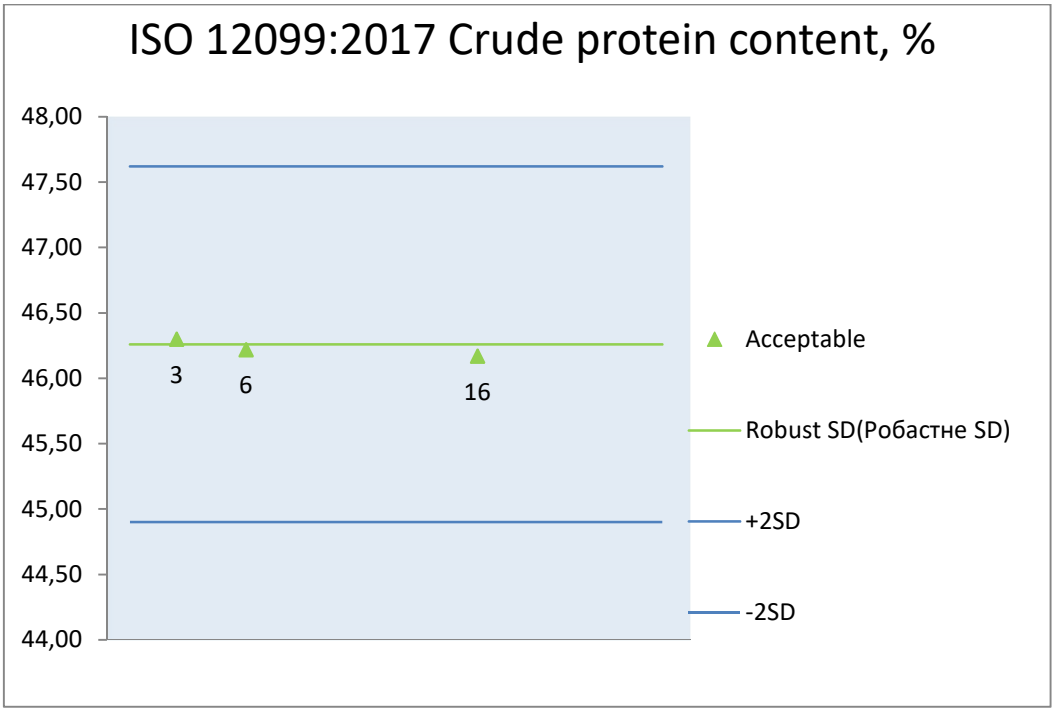
8.4. ISO 5983-2:2009/ДСТУ ISO 5983-2:2014 Crude protein content, %



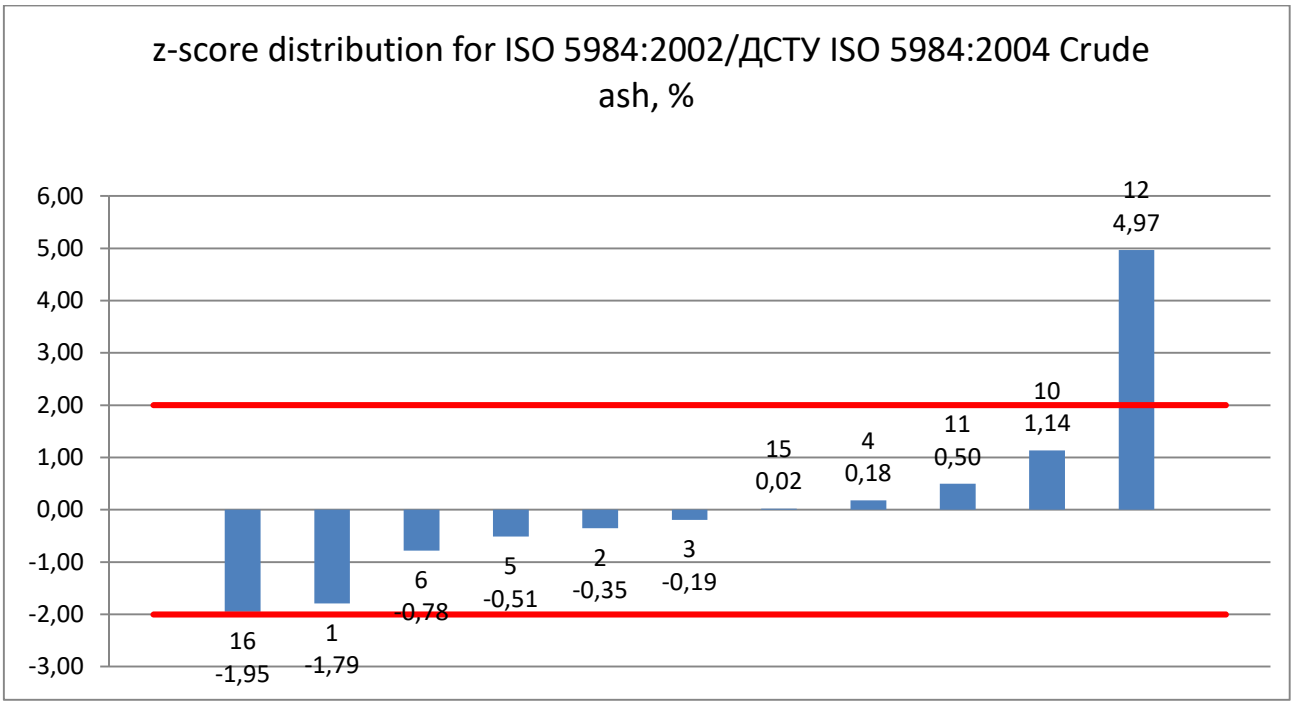


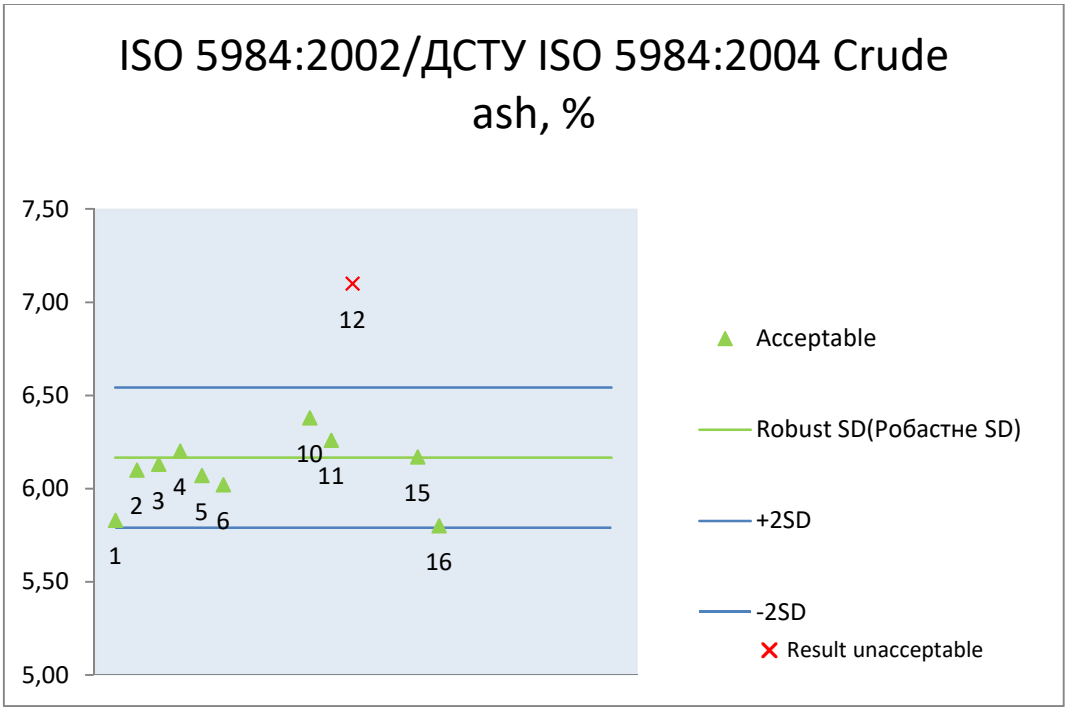
8.5. ISO 12099:2017 Crude protein content, %



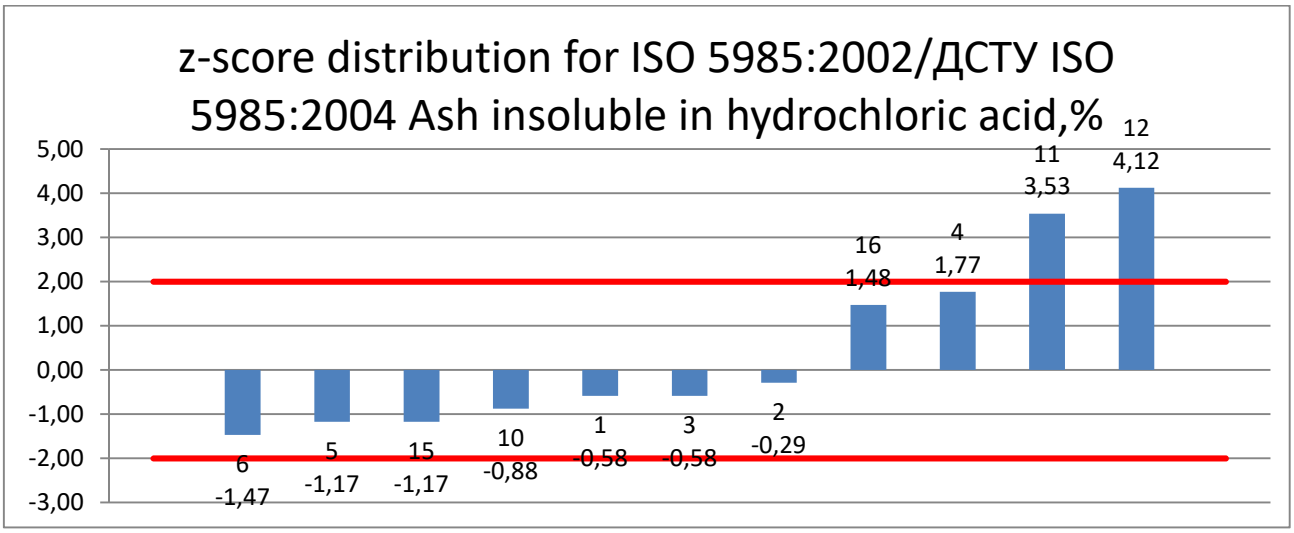


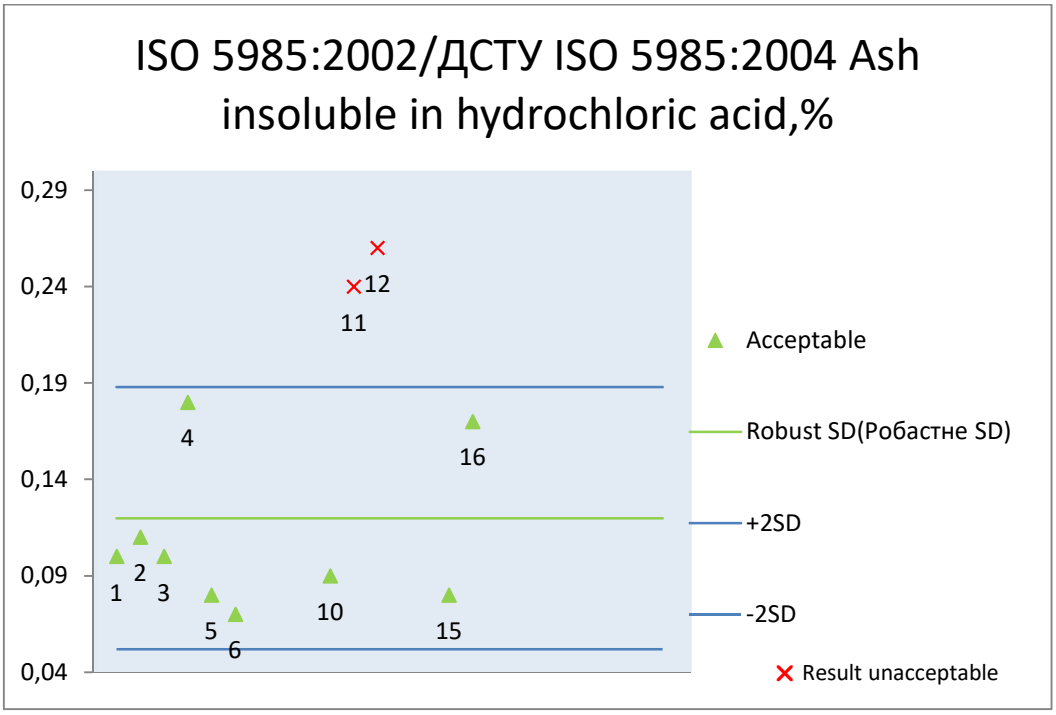
8.6. ISO 5984:2002/ДСТУ ISO 5984:2004 Crude ash, %



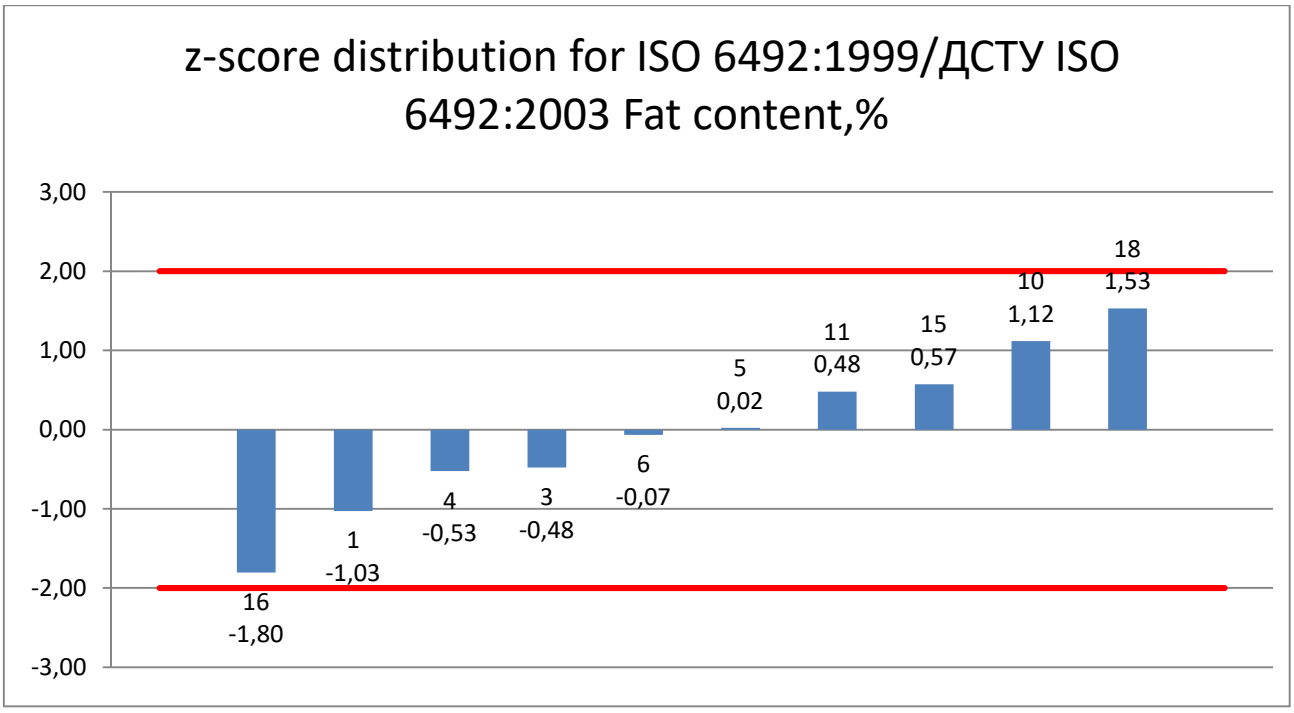


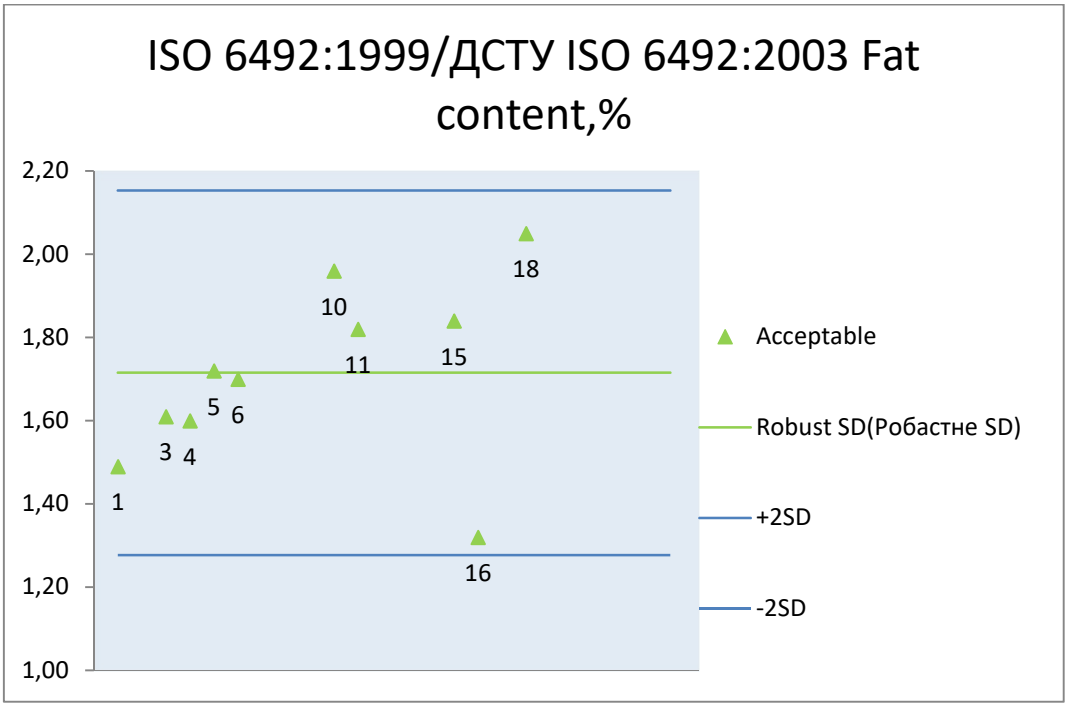
8.7. ISO 5985:2002/ДСТУ ISO 5985:2004 Ash insoluble in hydrochloric acid,%



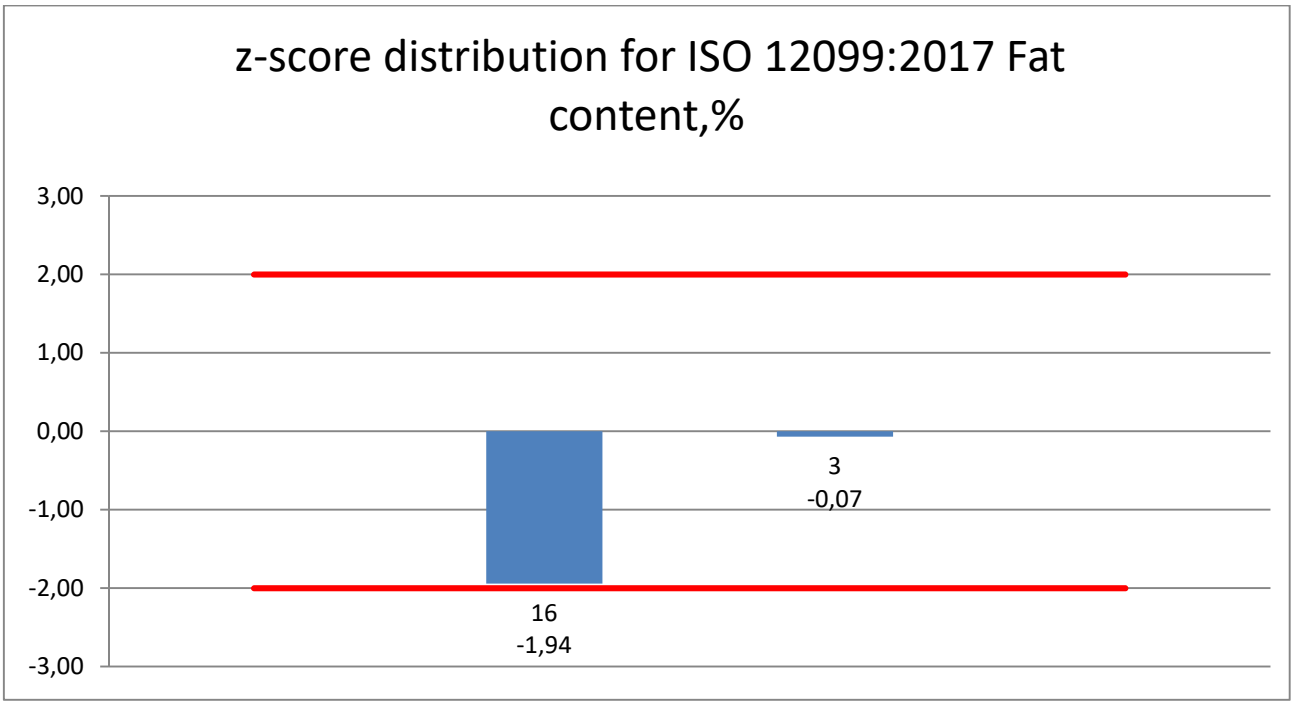


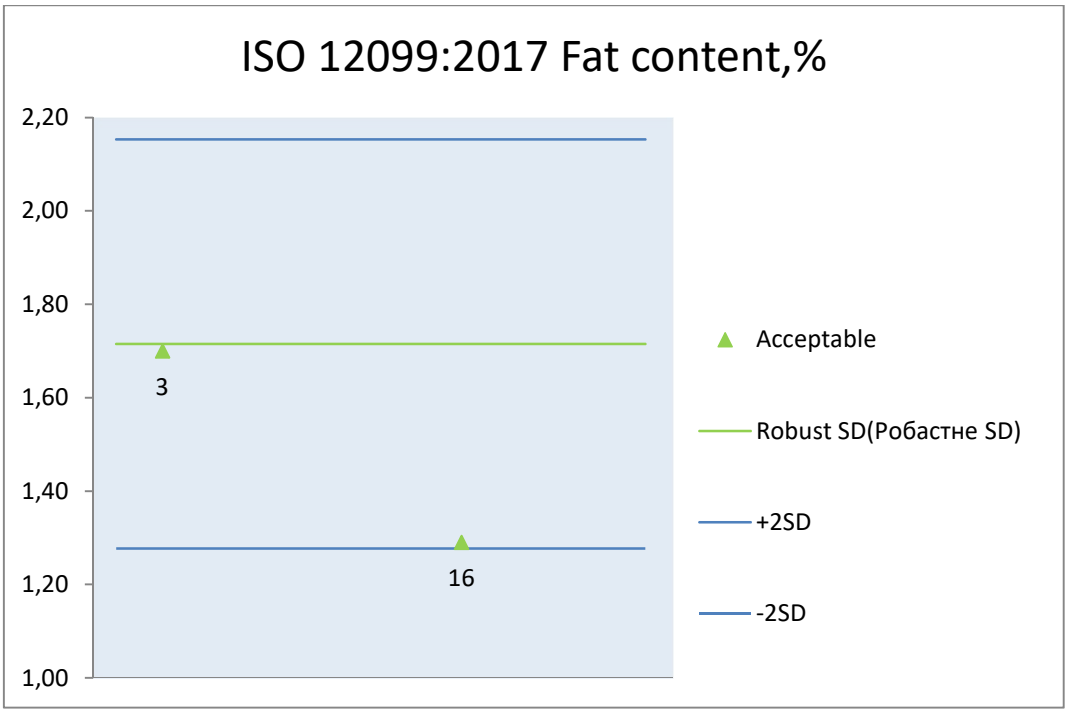
8.8. ISO 6492:1999/ДСТУ ISO 6492:2003 Fat content,%



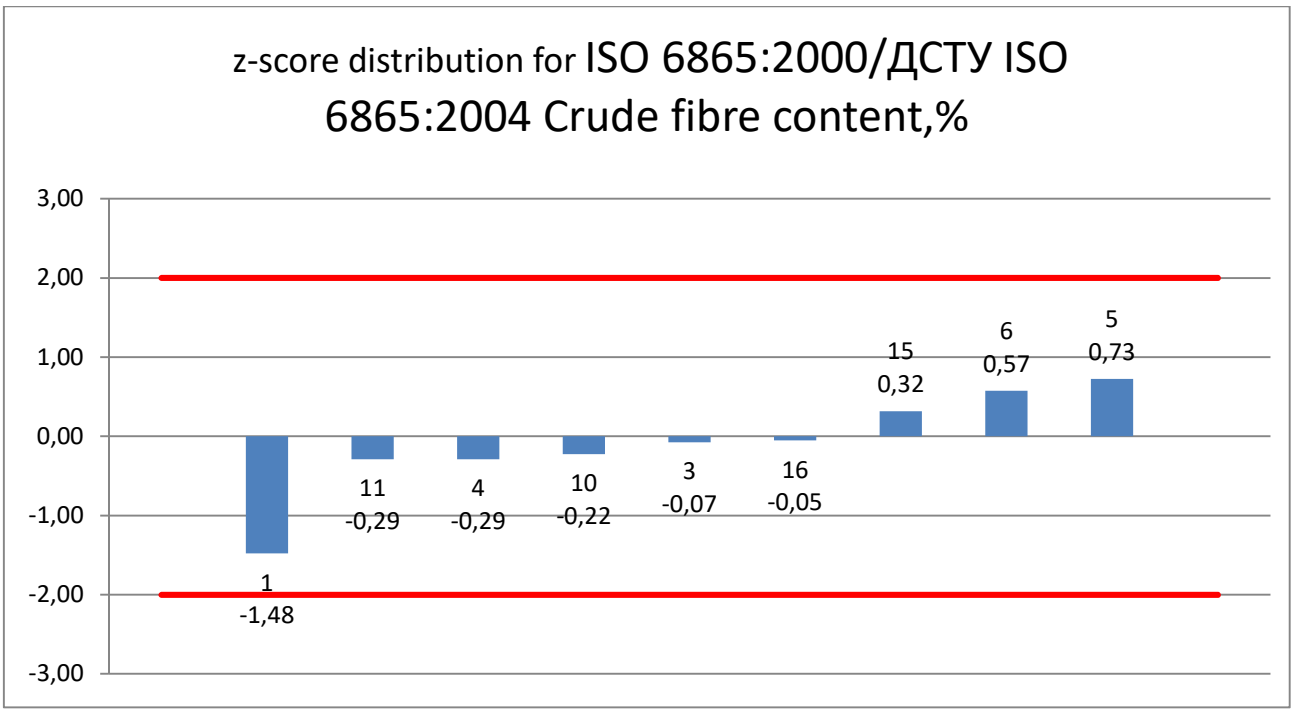


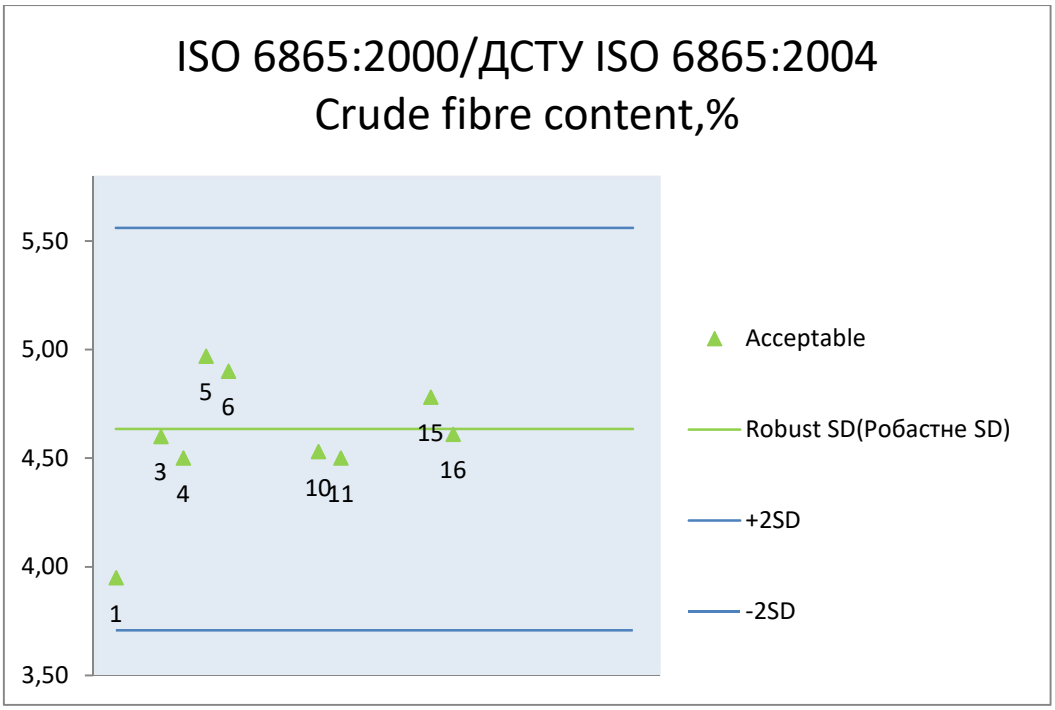
8.9. ISO 12099:2017 Fat content,%



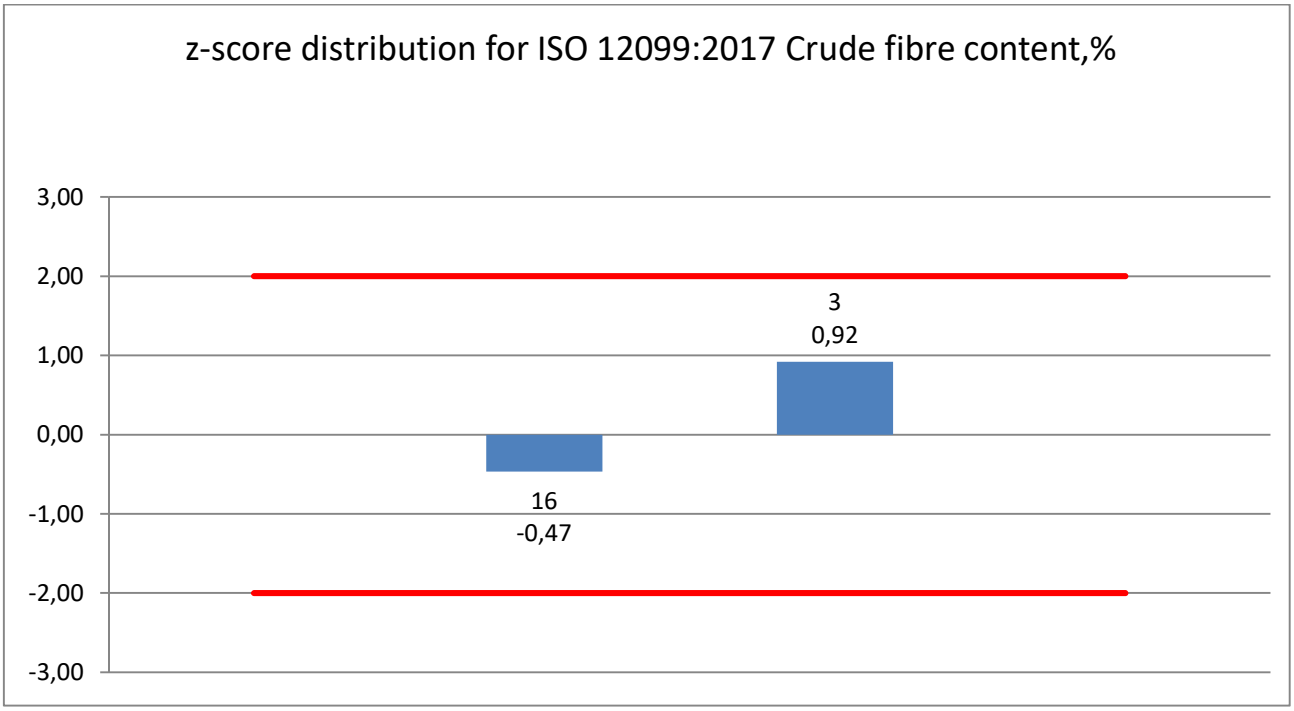


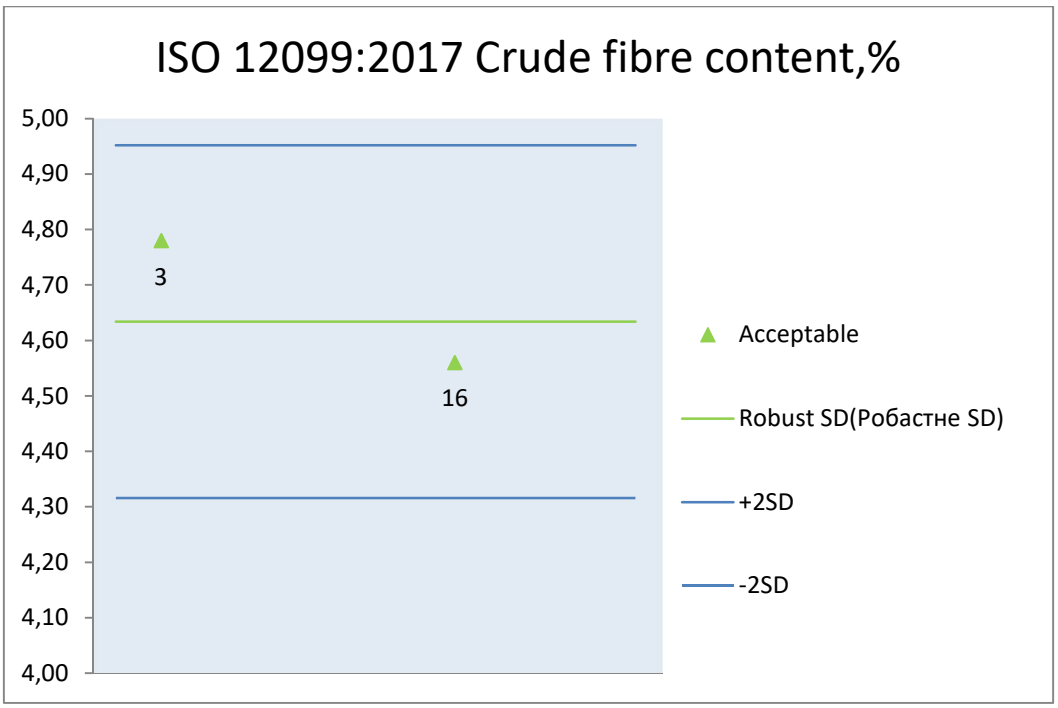
8.10. ISO 6865:2000/ДСТУ ISO 6865:2004 Crude fibre content,%



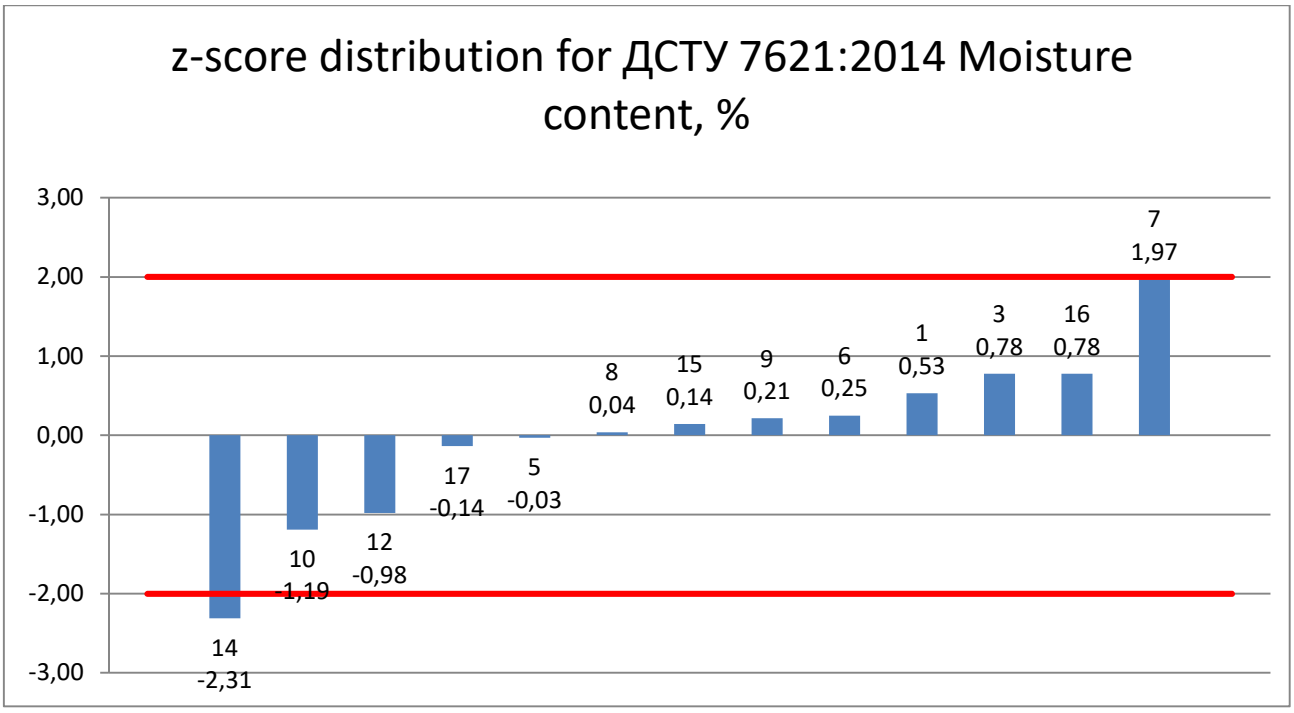


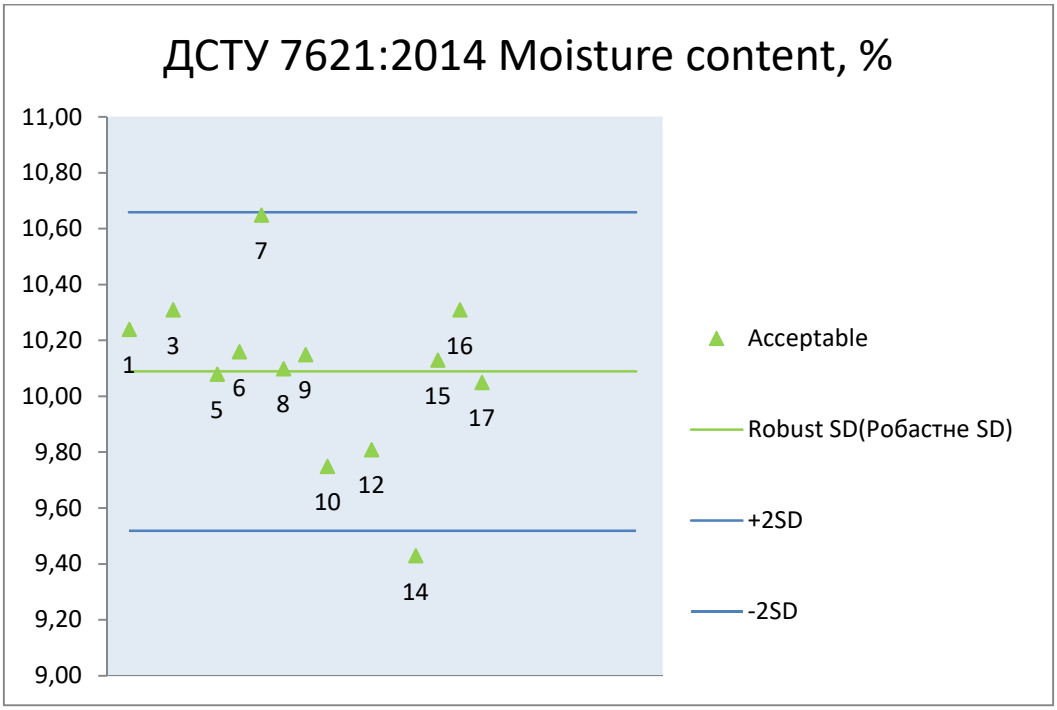
8.11. ISO 12099:2017 Crude fibre content,%



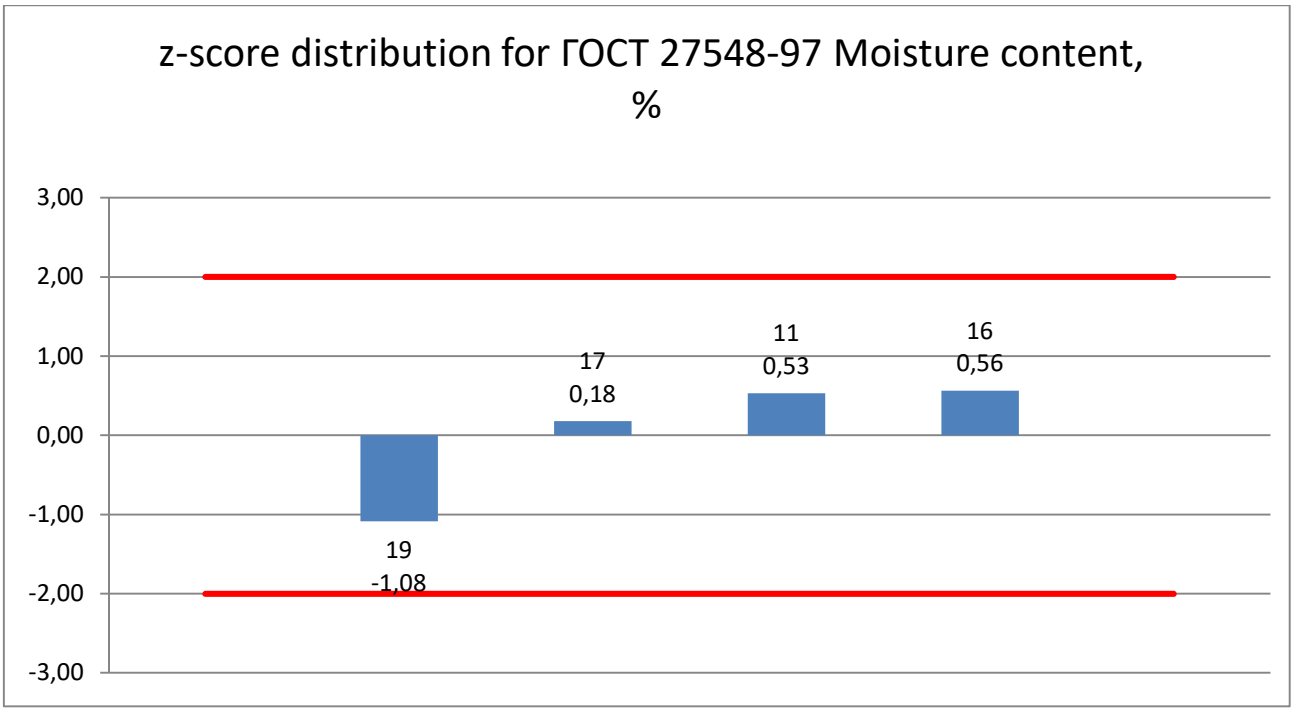


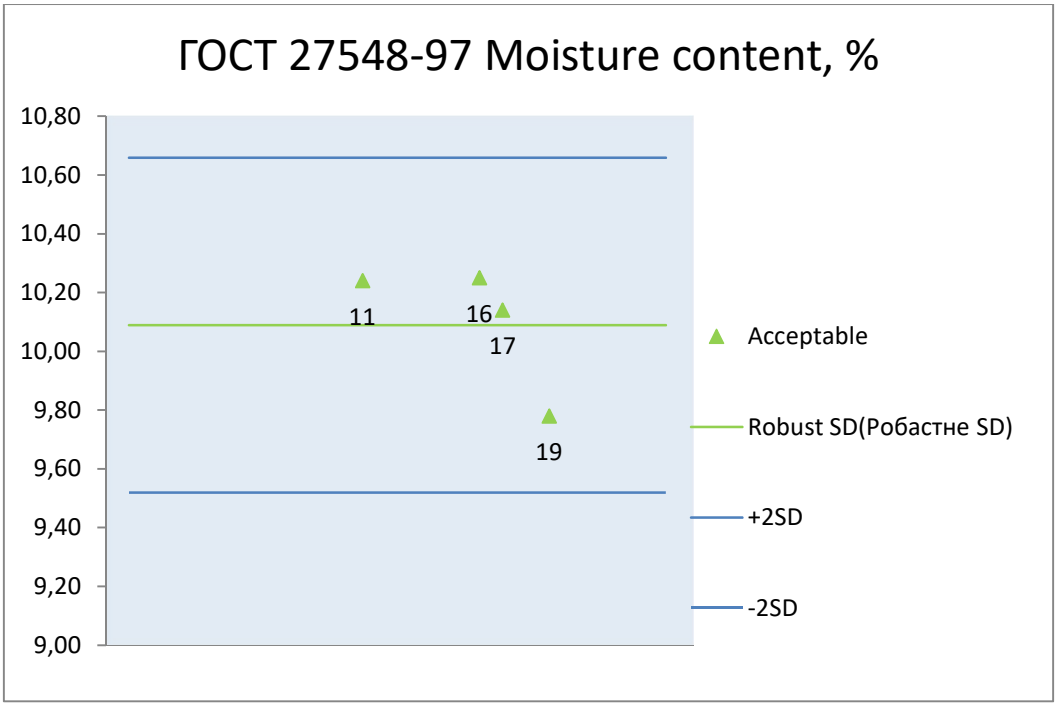
8.12. ДСТУ 7621:2014 Moisture content, %



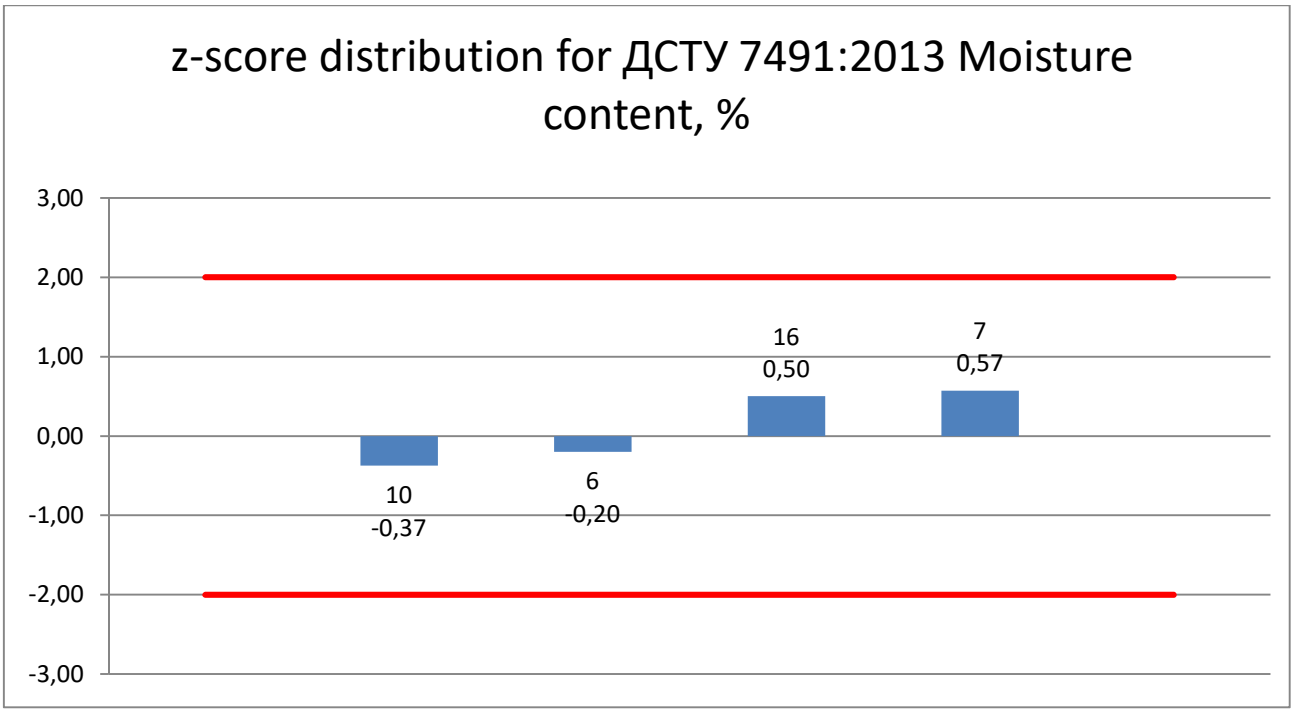


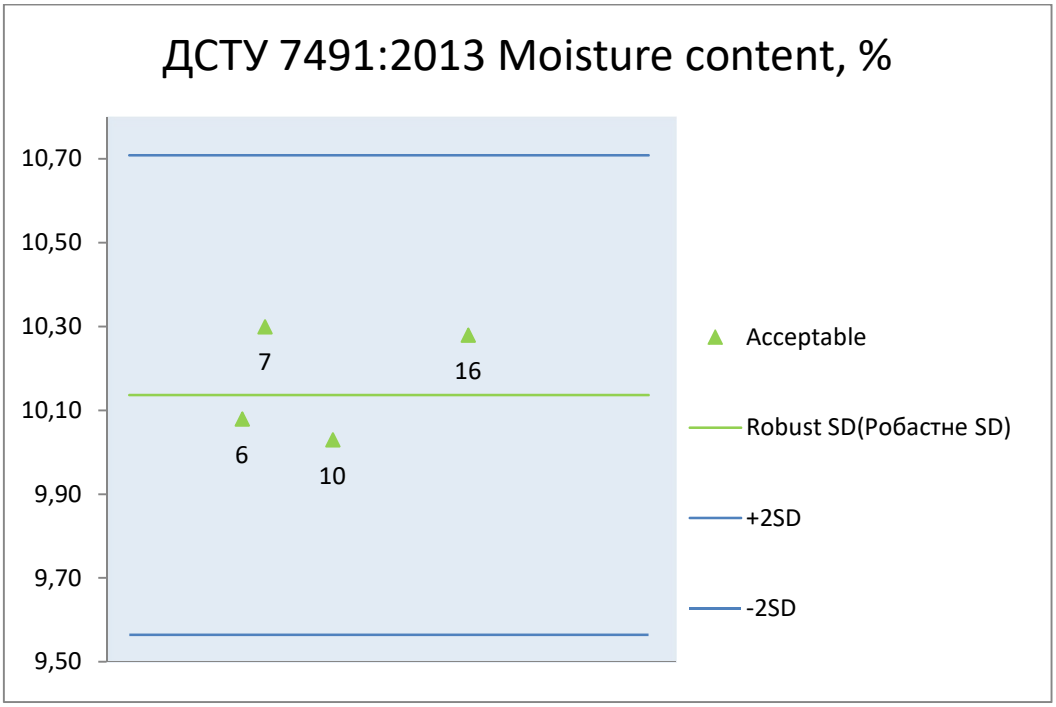
8.13. ГОСТ 27548-97 Moisture content, %



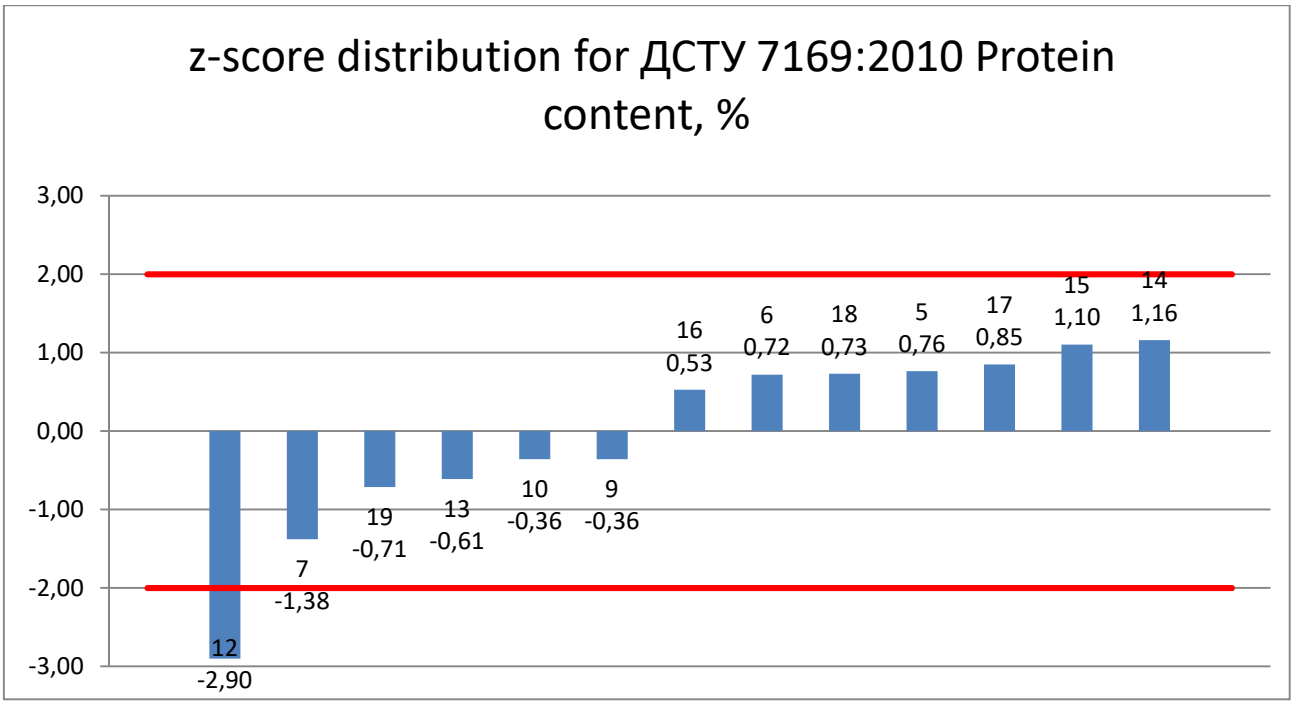


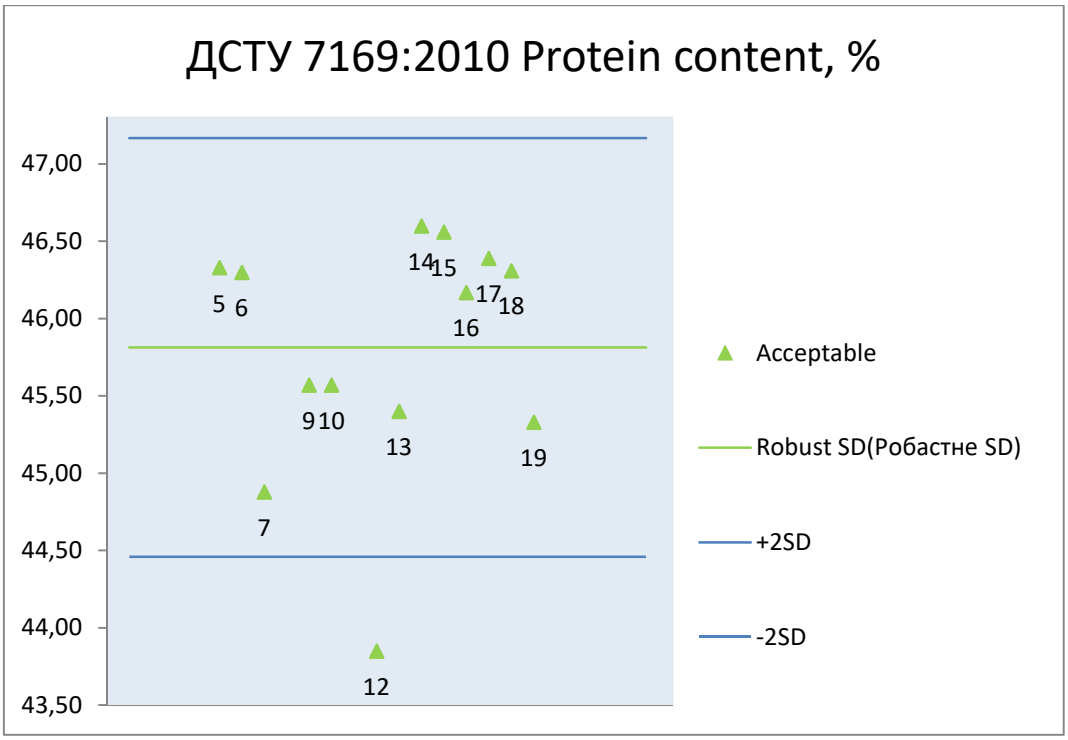
8.14. ДСТУ 7491:2013 Moisture content, %



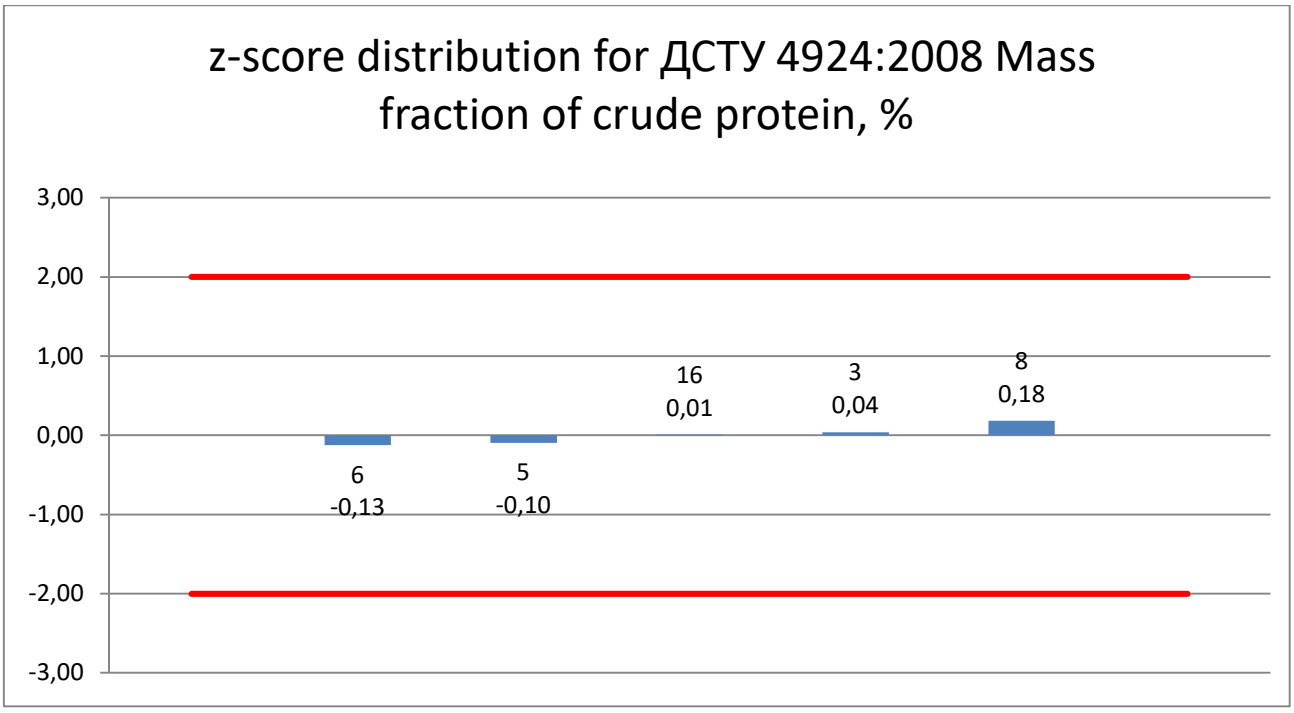


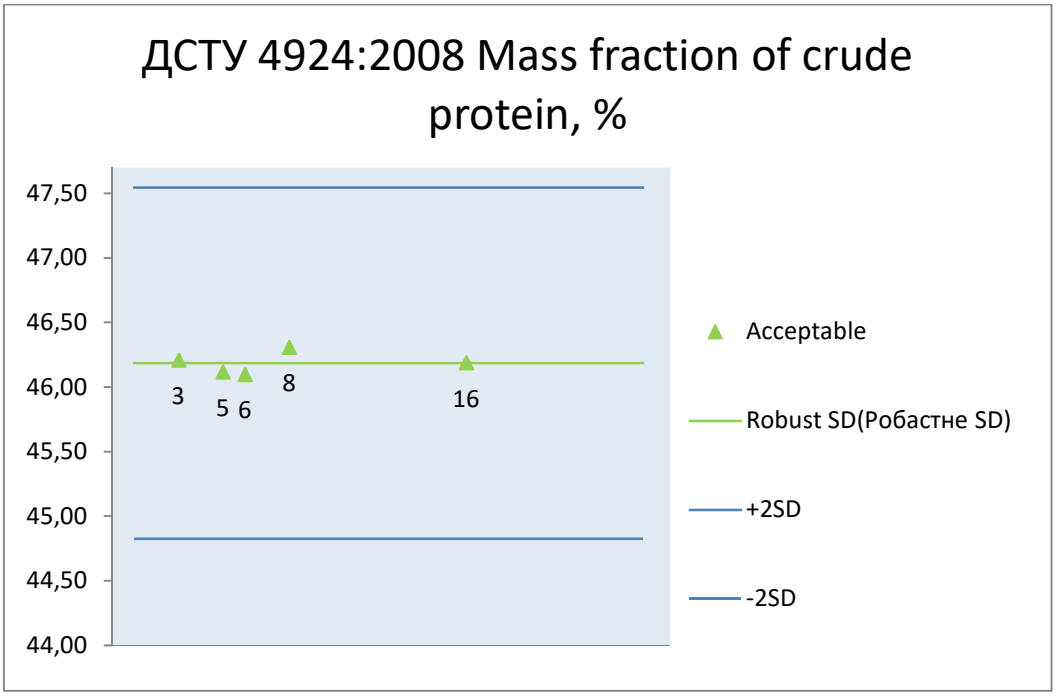
8.15. ДСТУ 7169:2010 Protein content, %



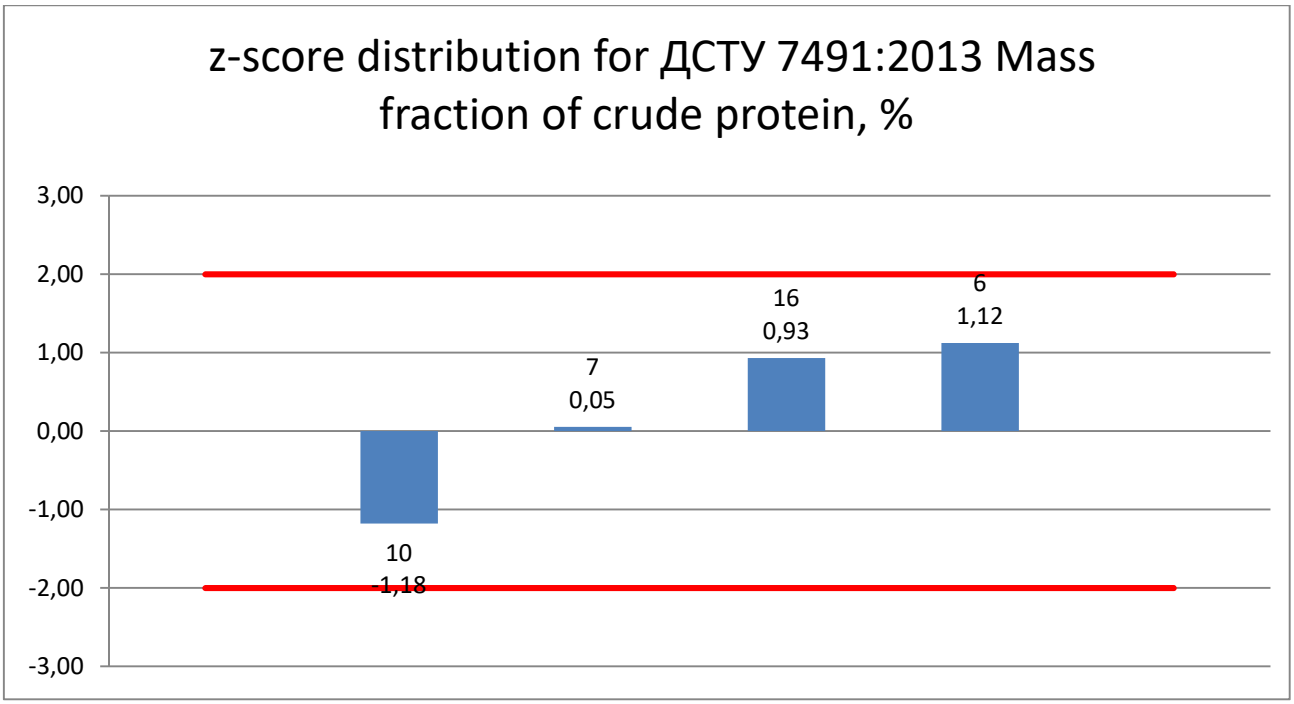


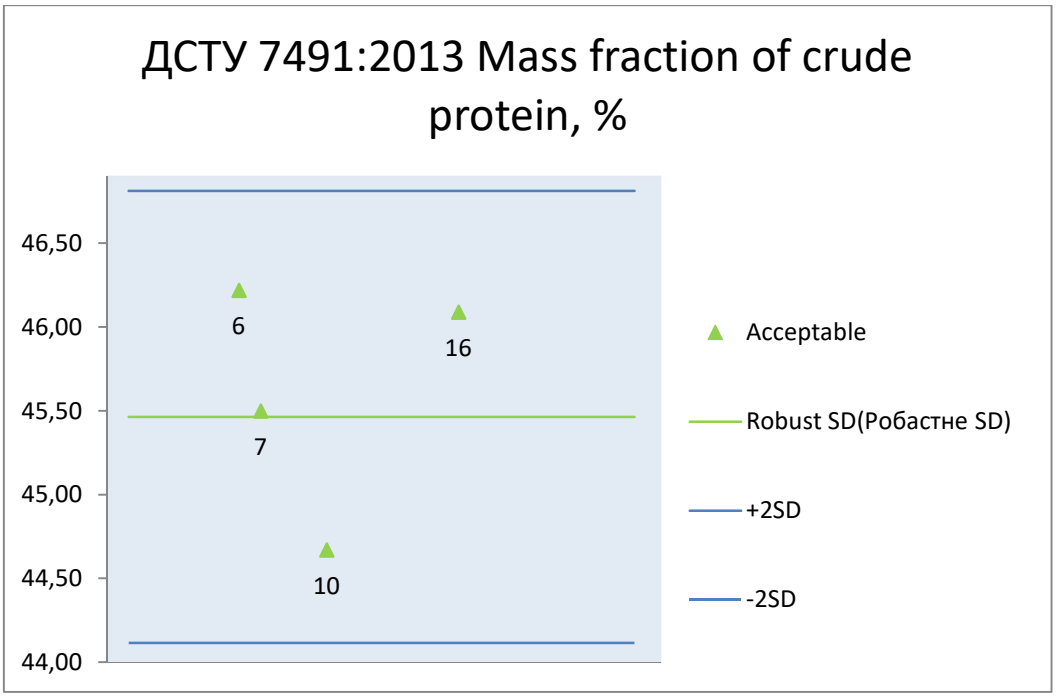
8.16. ДСТУ 4924:2008 Mass fraction of crude protein, %



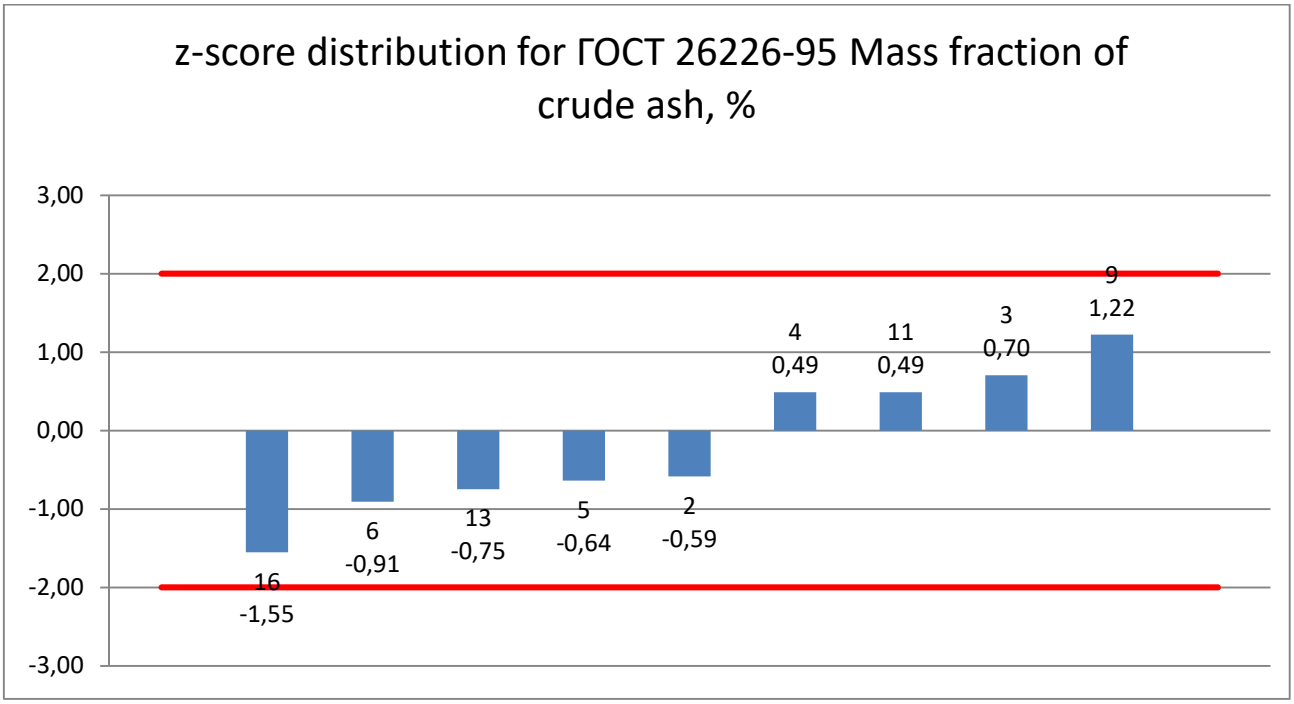


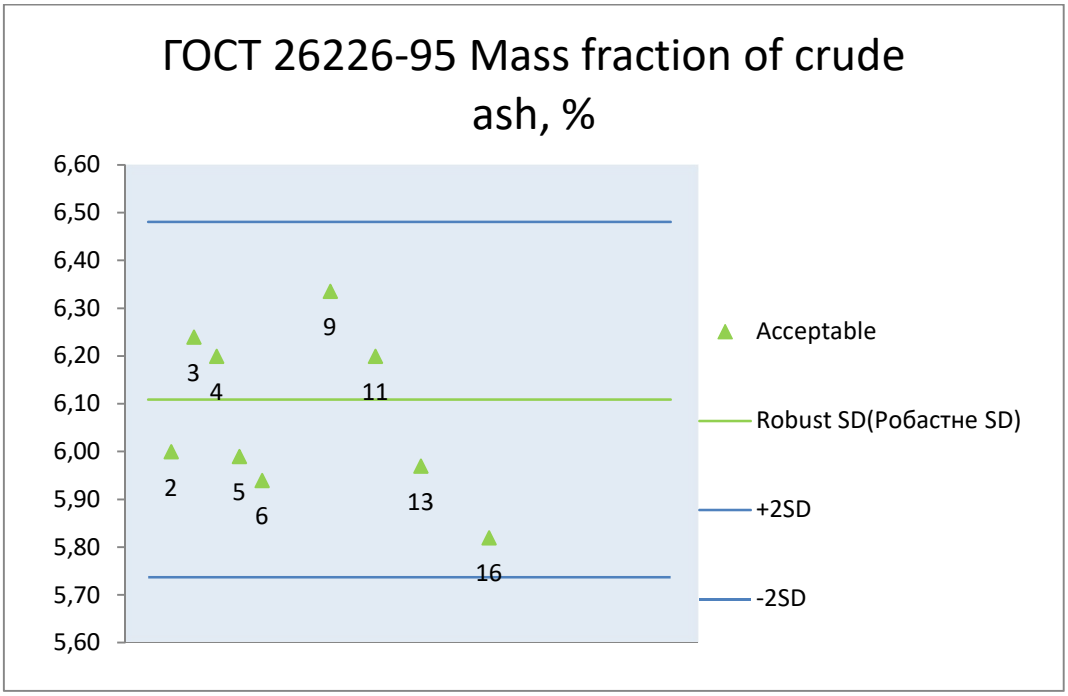
8.17. ДСТУ 7491:2013 Mass fraction of crude protein, %



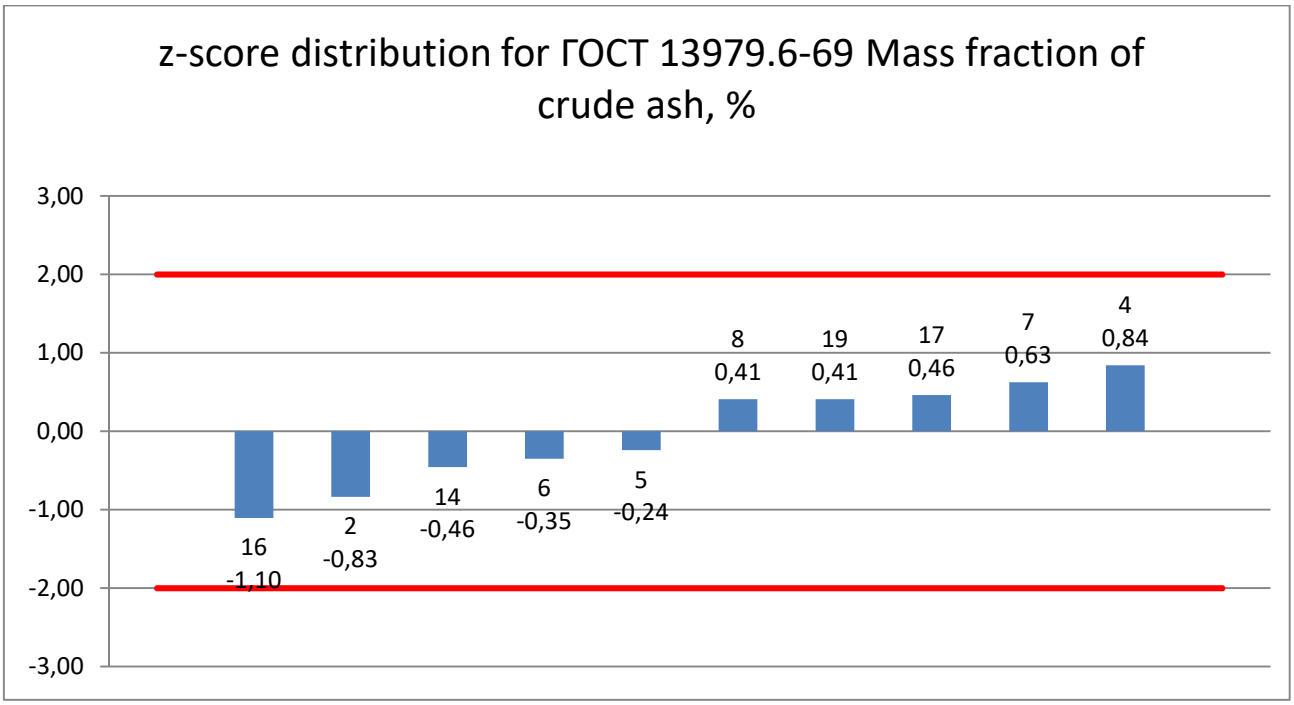


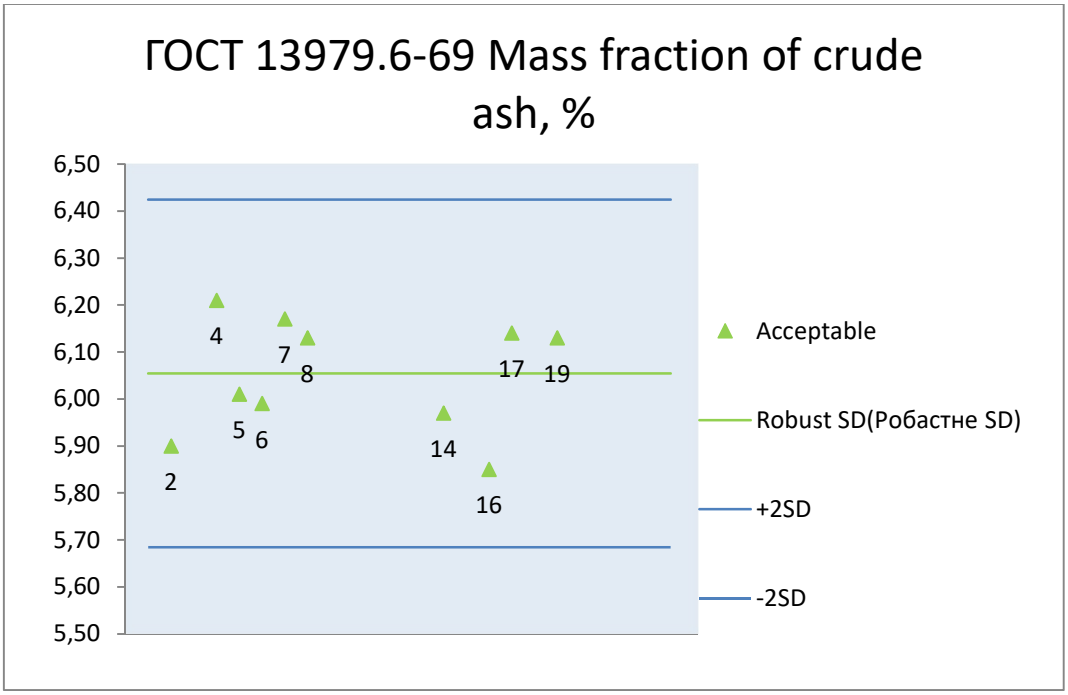
8.18. ГОСТ 26226-95 Mass fraction of crude ash, %



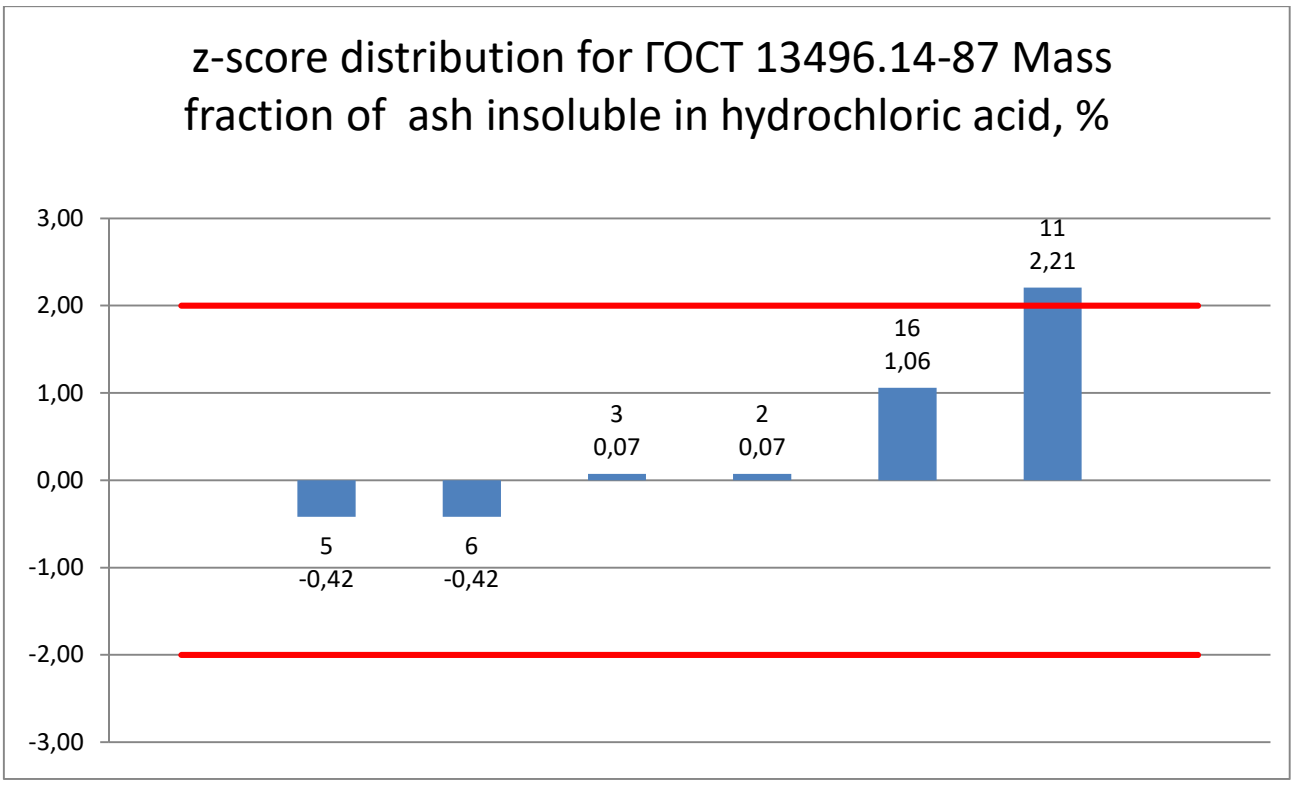


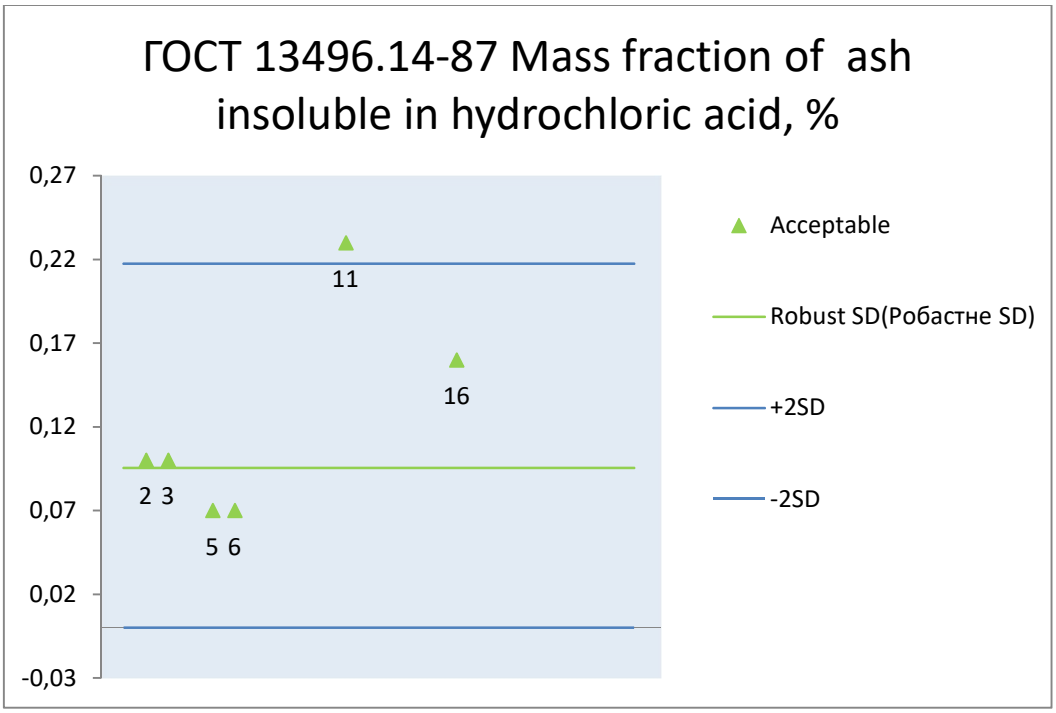
8.19. ГОСТ 13979.6-69 Mass fraction of crude ash, %



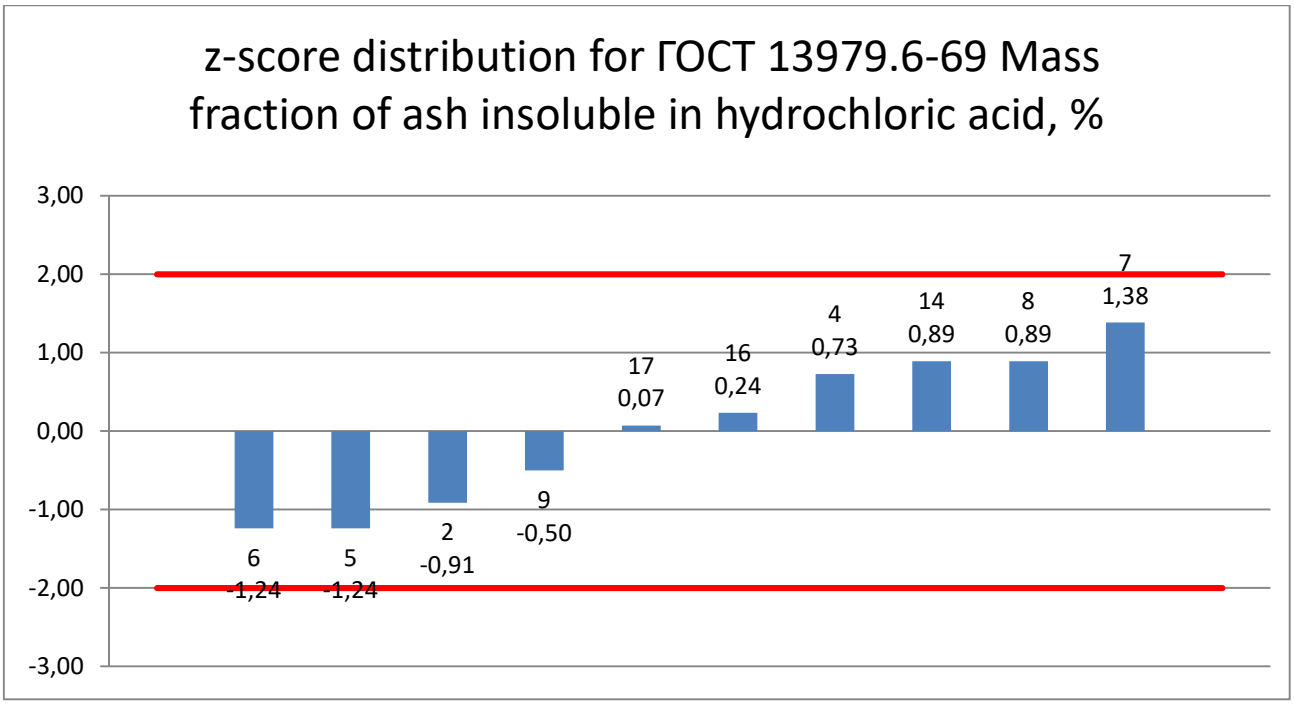


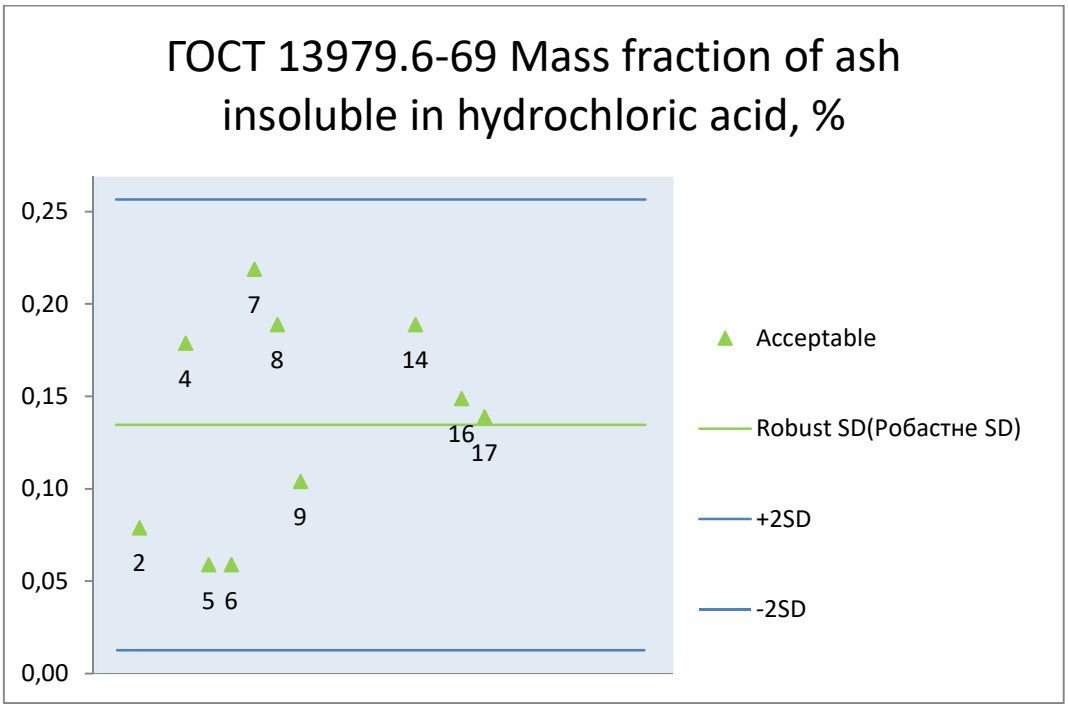
8.20. ГОСТ 13496.14-87 Mass fraction of ash insoluble in hydrochloric acid, %



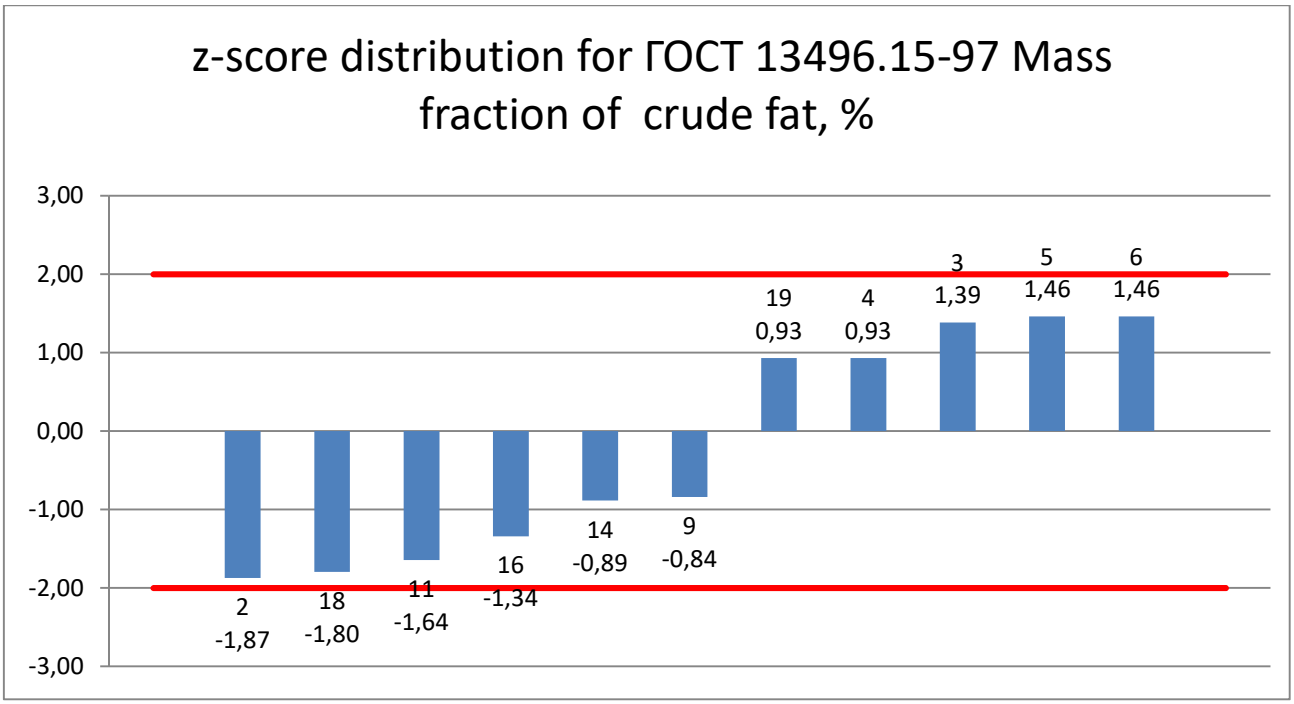


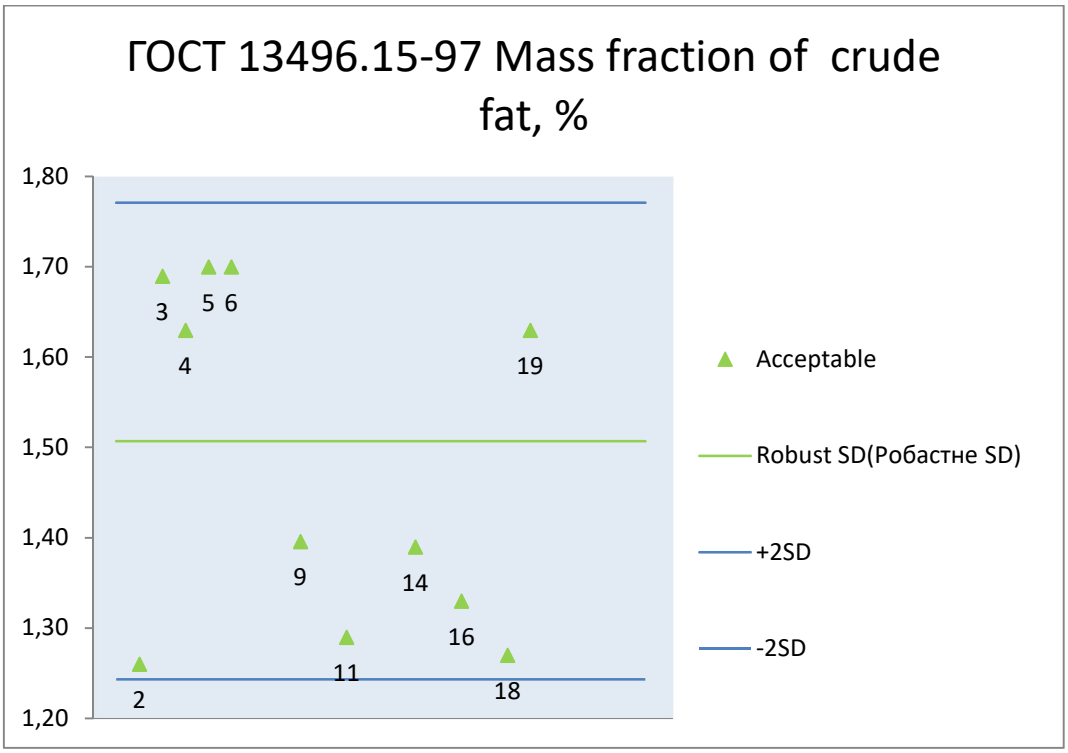
8.21. ГОСТ 13979.6-69 Mass fraction of ash insoluble in hydrochloric acid, %



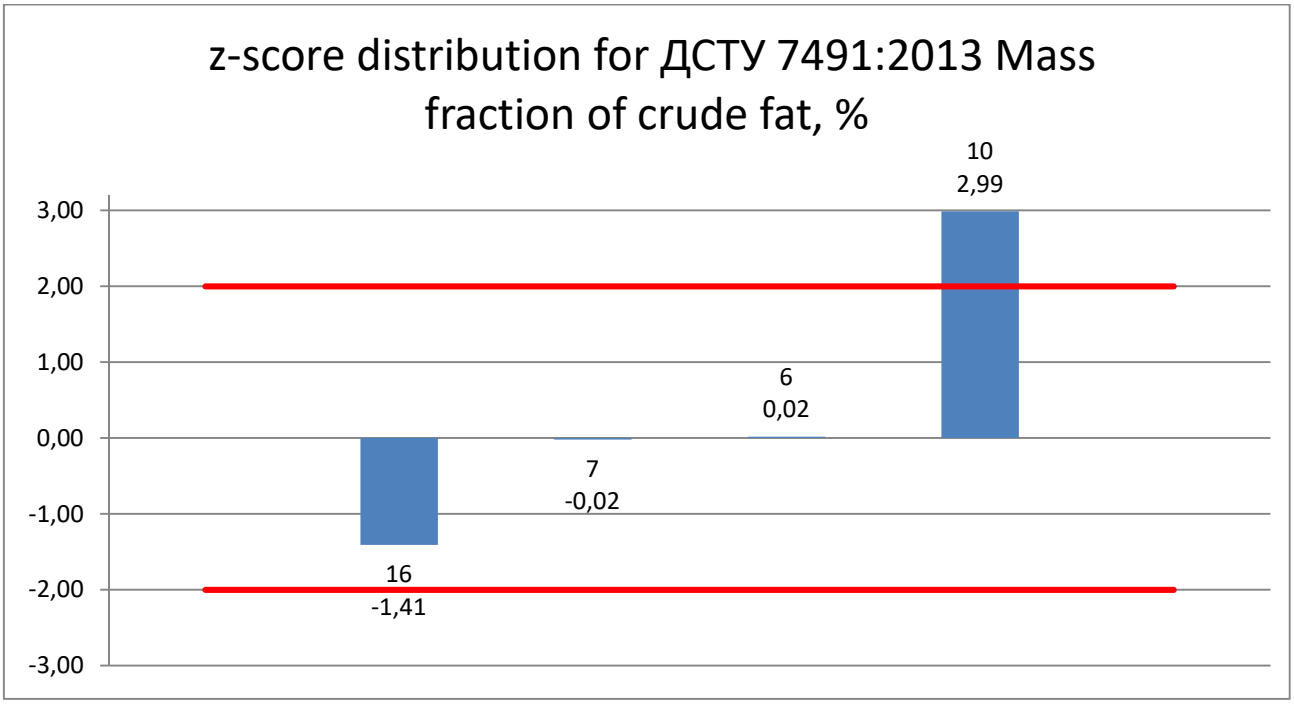


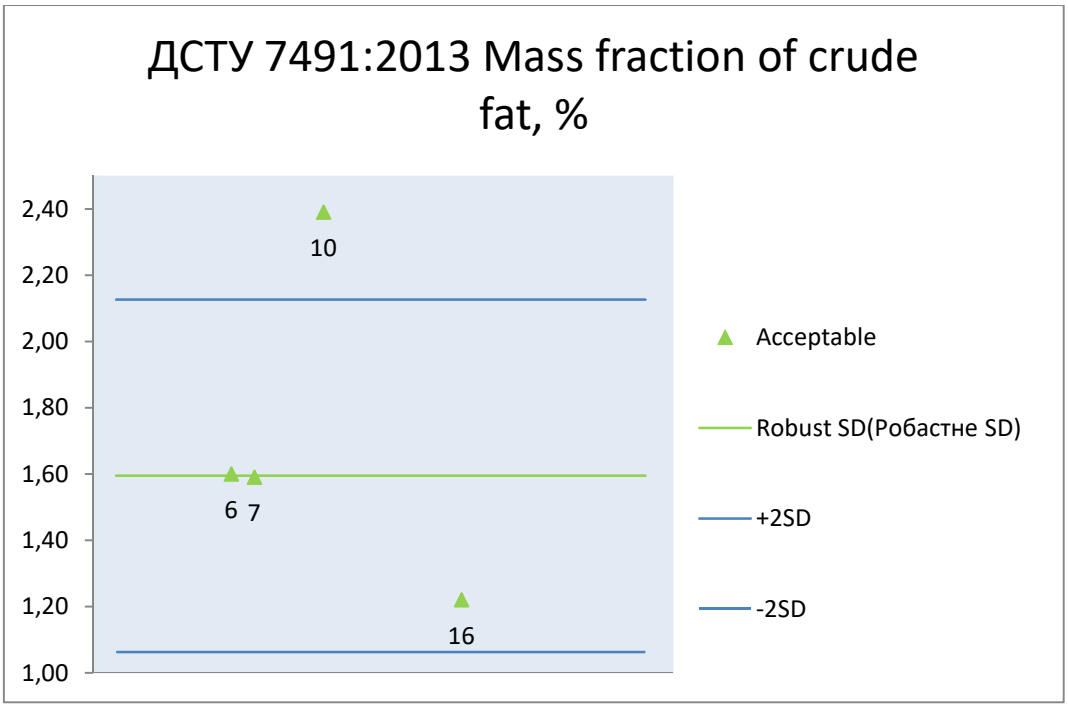
8.22. ГОСТ 13496.15-97 Mass fraction of crude fat, %



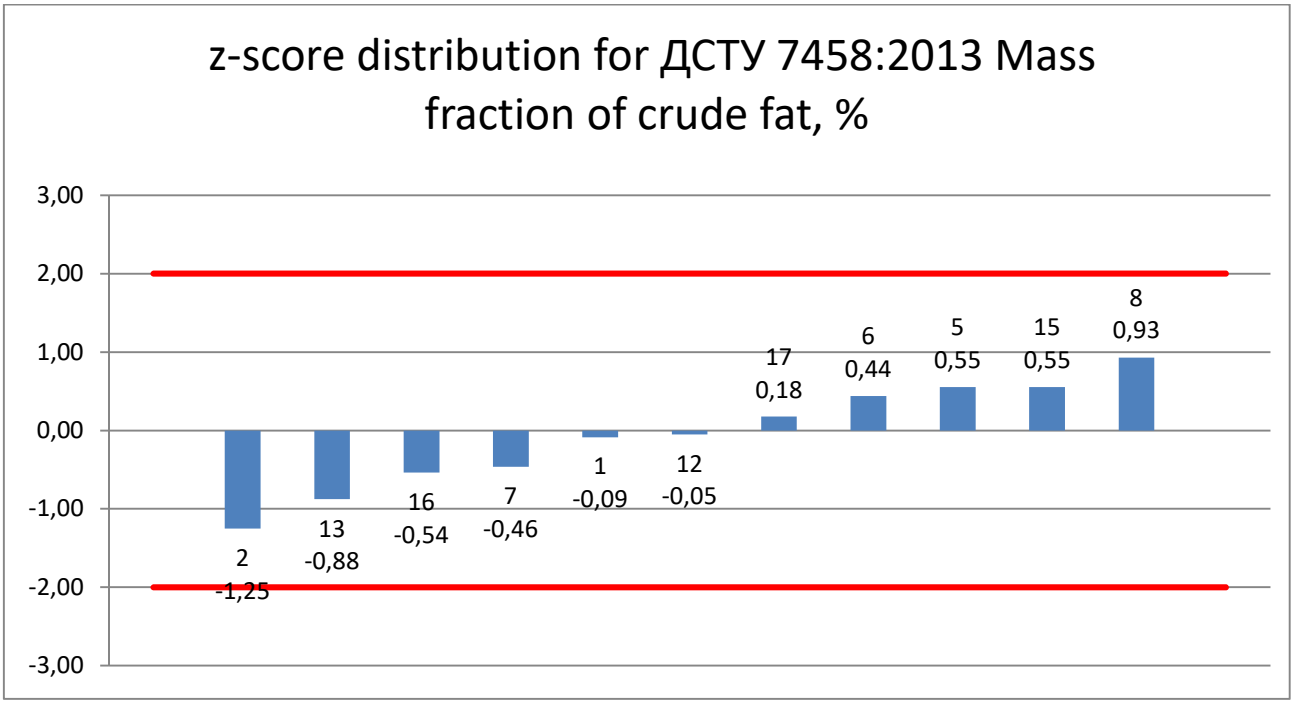


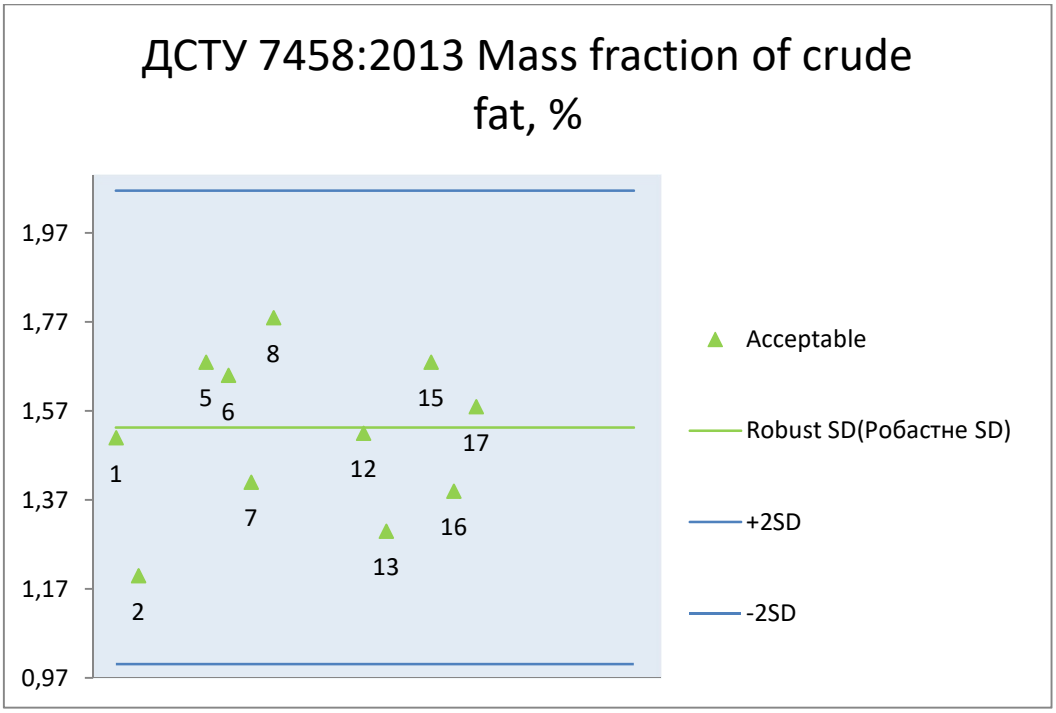
8.23. ДСТУ 7491:2013 Mass fraction of crude fat, %



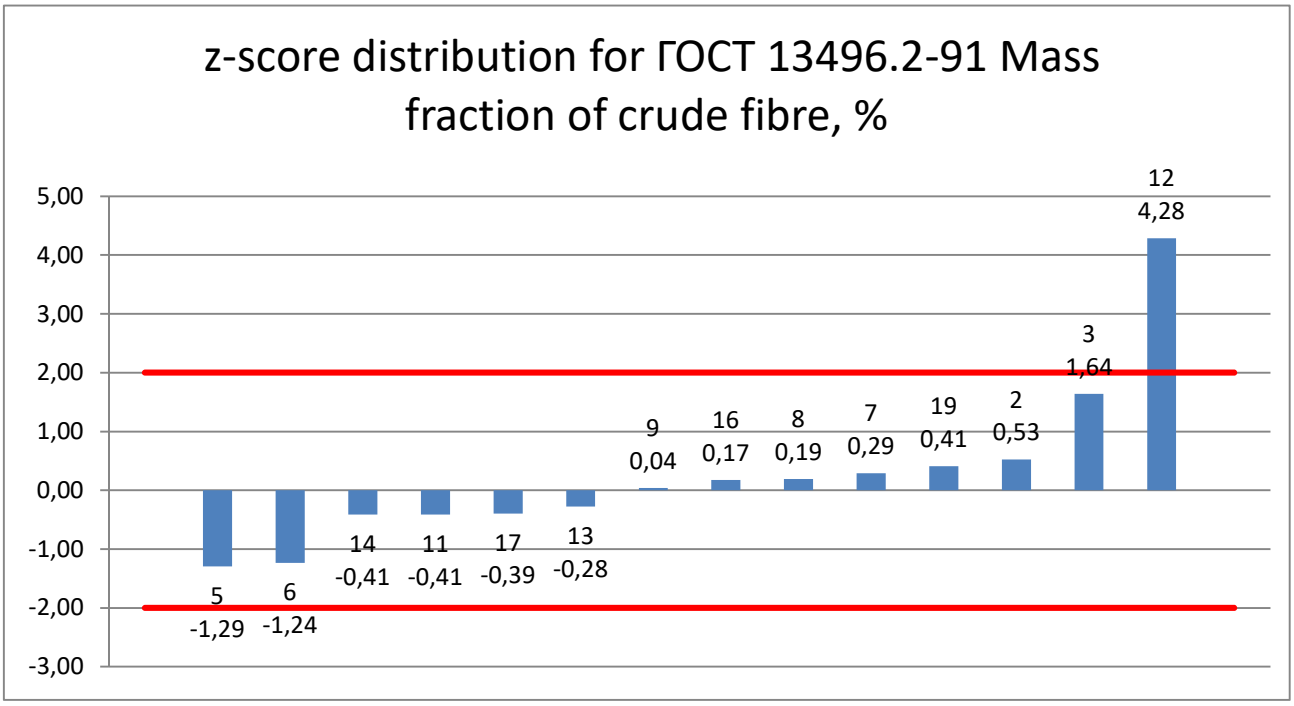


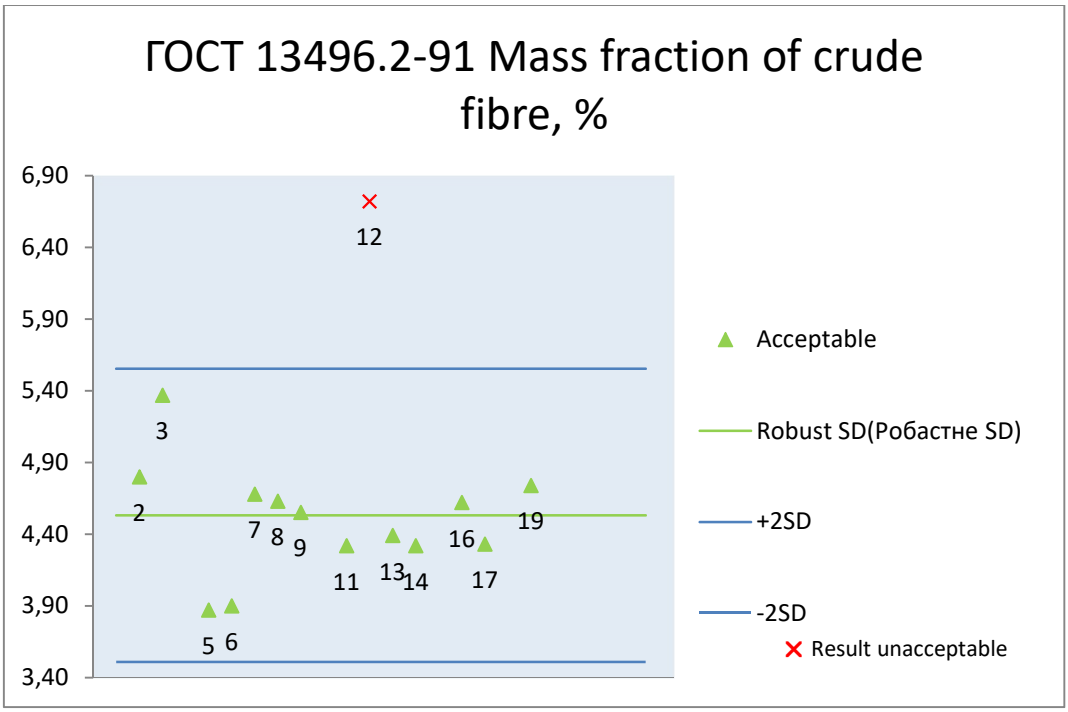
8.24. ДСТУ 7458:2013 Mass fraction of crude fat, %



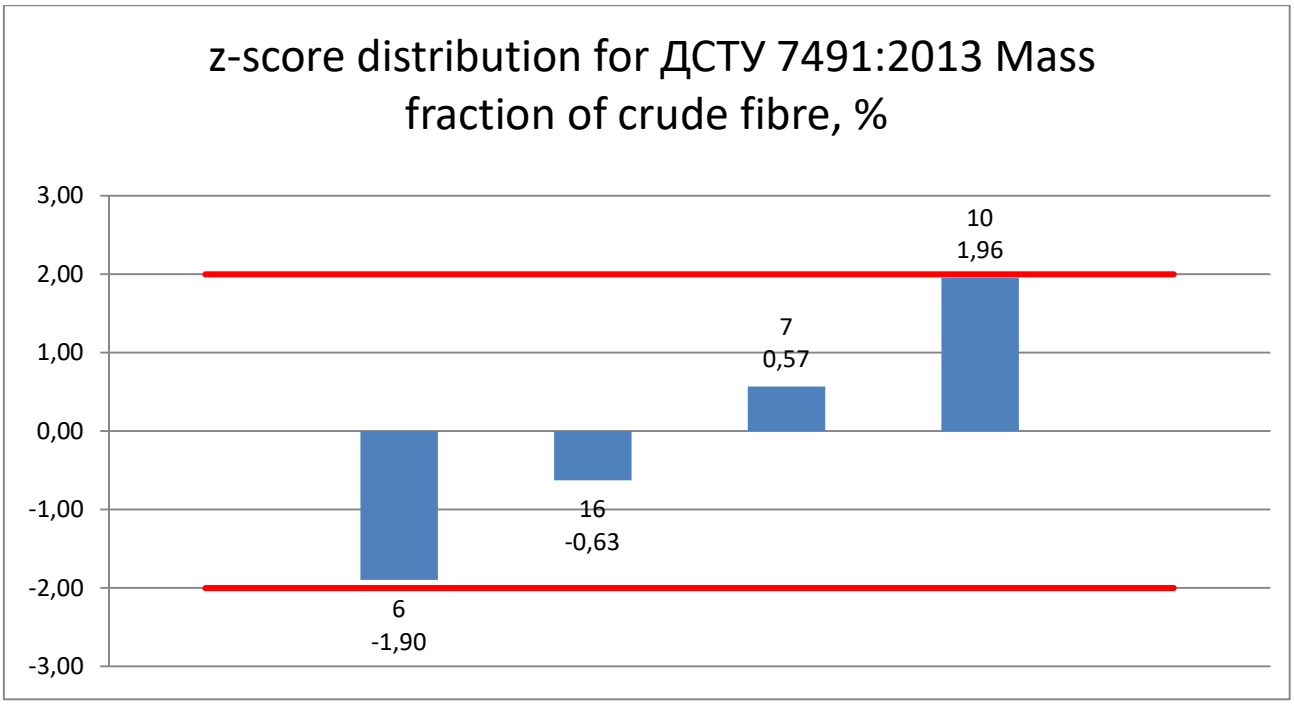


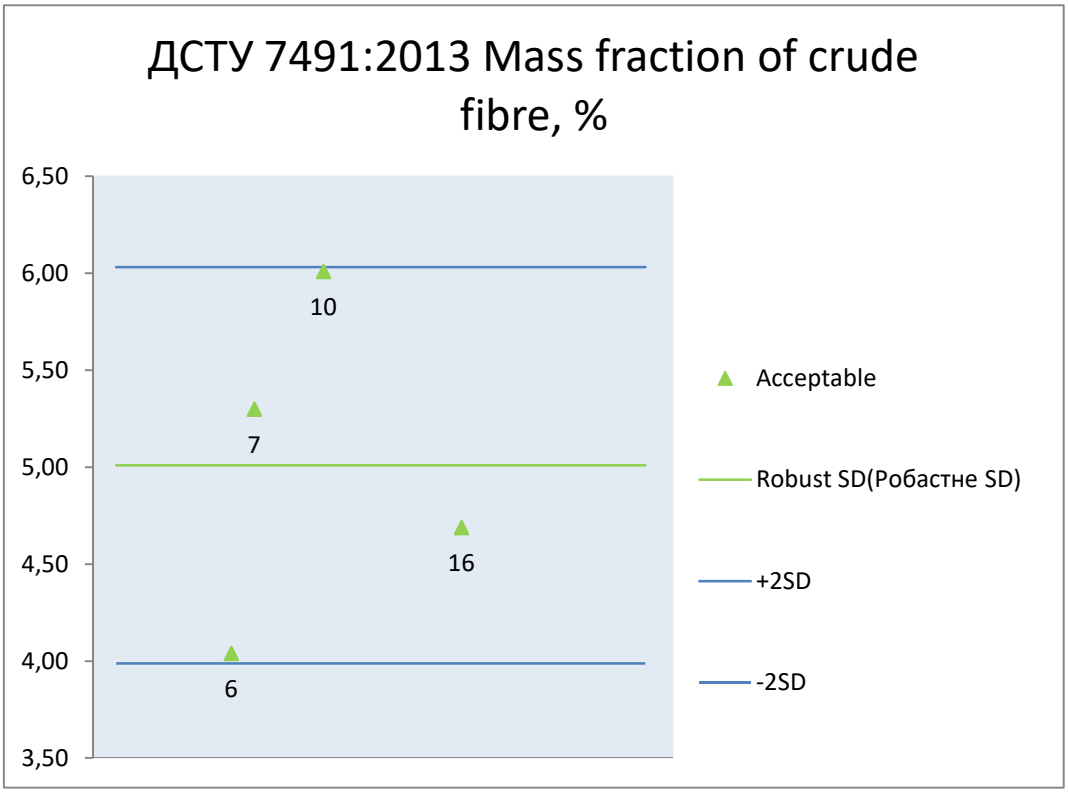
8.25 ГОСТ 13496.2-91 Mass fraction of crude fibre, %





8.26 ДСТУ 7491:2013 Mass fraction of crude fibre, %





9. NORMATIVE REFERENCE

1. ISO/IEC 17043:2010 Conformity assessment -- General requirements for proficiency testing
2. Analytical Methods Committee, Robust Statistics – How not to reject outliers Part 1. Basic Concepts, Analyst, 1989, 114, 1693-1697
3. FOOD ANALYSIS PERFORMANCE ASSESSMENT SCHEME (FAPAS). Protocol for the organization and analysis of data, sixth edition, 2002.
4. Fearn, T. and Thompson, M, A new test for 'sufficient homogeneity', Analyst, 2001, 126, 1414-1417
5. ISO 13528:2015 Statistical methods for use in proficiency testing by interlaboratory comparisons
6. ISO Guide 35:2006 Reference materials -- General and statistical principles for certification
7. ILAC Discussion Paper on Homogeneity and Stability Testing, April 2008.
8. ISO 17034:2016 General requirements for the competence of reference material producers