LONG-TERM STUDY OF THE PROFICIENCY TESTING SCHEME IN TEXTILES (2001-2012)

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Introduction

The official methods for the quantitative chemical analysis of binary mixtures of textile fibres are an effective tool with which the market surveillance authorities can detect frauds. It is possible to analyze the correlation between the composition determined in the laboratory and that supplied by those responsible for the product. These methods are essential to ensure compliance in the European framework of the Regulation (EU) No 1007/2011. In order to guarantee the technical competence in this field, this proficiency testing scheme was provided by LCG.

Description

A total of 34 laboratories across 13 countries have participated during the last 8 years. Most of the participants come from Europe and Asia, but in recent years an increment of laboratories from North and South America can be observed.

	2001	2003	2005	2006	2007	2008	2010	2012	TOTAL
Nº Countries	1	1	3	4	8	7	9	11	13
Countries							Argentina	Argentina	Argentina
								Bangladesh	Bangladesh
				Bulgaria	Bulgaria		Bulgaria	Bulgaria	Bulgaria
								China	China
			Croatia	Croatia	Croatia	Croatia	Croatia	Croatia	Croatia
								Cuba	Cuba
								USA	USA
	Spain	Spain	Spain	Spain	Spain	Spain	Spain	Spain	Spain
					Lithuania	Lithuania	Lithuania	Lithuania	Lithuania
				Pakistan	Pakistan	Pakistan	Pakistan	Pakistan	Pakistan
					Portugal	Portugal	Portugal		Portugal
					Turkey	Turkey	Turkey		Turkey
			Jordan		Jordan	Jordan	Jordan	Jordan	Jordan
Nº Laboratories	10	10	11	13	13	9	12	20	34

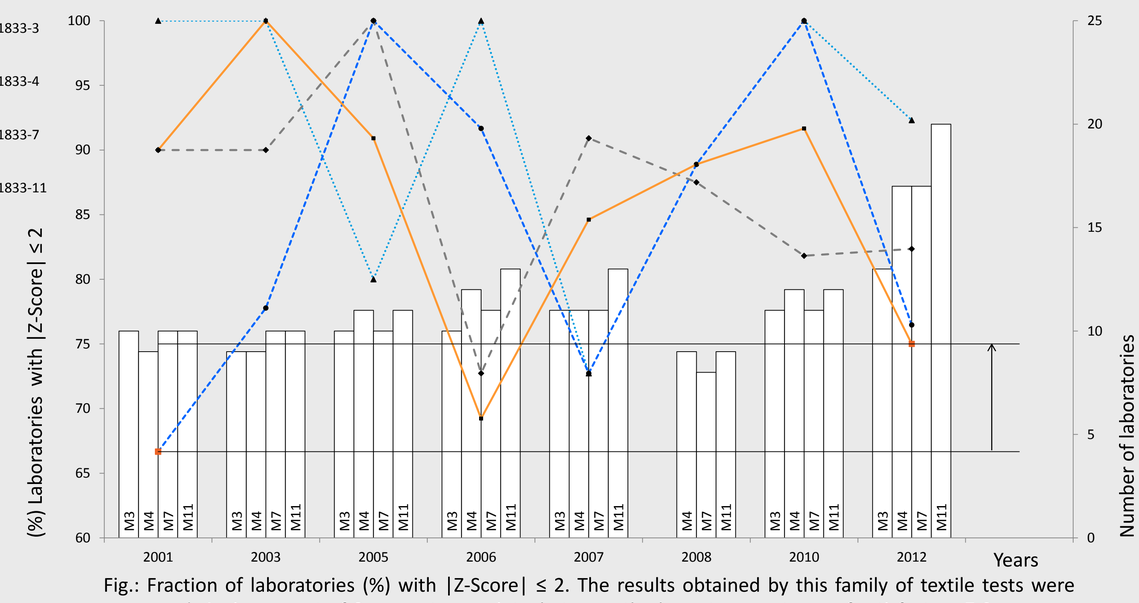

Fig.: Fraction of laboratories (%) with |Z-Score| ≤ 2. The results obtained by this family of textile tests were compared. An increment of 8 percentage points, between the lowest percentages of satisfactory Z-Score, was observed . Arrow pointing to the new minimum value reached.

Experimental

EN ISO/IEC 17043 has been considered in the design phase. The samples were analyzed in accordance with parts 3, 4, 7 and 11 of EN ISO 1833. These methods were selected taking into account the mixtures of fibres more commonly found in the market. Statistical analysis of the quantitative results was performed according to ISO 13528.

1833-3

Lab	2001	2003	2005	2006	2007	2008	2010	2012
1	-1,74							
2	0,12	1,17	-0,52	-0,29			-0,21	0,44
3	0,06	-0,47	0,15	1,35	0,00		-1,06	-0,44
4	-0,37	0,16						
5	0,81	1,41	0,59	0,29	5,56		0,85	1,58
6	0,93	0,08	3,41	-0,77	-1,67		0,64	0,70
7	-0,56	-1,41	-3,48	-1,15	-0,19			
8	-1,06	-1,64						
9	1,30		0,37					
10	0,00	-0,23			1,11			
11		0,55						
12			1,70	0,77	0,37		-0,85	-0,18
13			-0,37	0,10				
14		-1,33			-1,06			
15		-0,07	0,00	0,56	-0,21		0,09	
16			-1,25	-4,26	1,91		-1,84	
18			0,96					
19				0,00				
21				-2,41				
22				0,19	0,00			
23					0,21			
24					1,06		0,70	
27							-0,96	
30							-3,22	
32							1,14	
33							0,26	
34							-0,53	

1833-4

Lab	2001	2003	2005	2006	2007	2008	2010	2012
1	-5,23							
2	0,45	0,50	0,00	0,00			-0,20	-0,75
3	0,45	0,00	-0,58	-0,79	0,21	0,00	0,39	-0,43
4	-0,68	-0,17						
5	0,68	0,67	1,54	-0,79	-0,63		0,98	-0,43
6	0,45	0,83	0,38	-0,53	18,54	-0,59	-0,39	0,00
7	-3,18	-2,17	-1,73	-0,92	-2,50	-1,91		
8	-10,91	-3,33						
9		0,00	0,96	-1,18				
10	1,14	0,67			-2,92			
11			-0,25	1,84				
12			1,54	0,13	0,00	0,00	0,39	0,11
13			0,00	0,92				
14		-1,15		0,15	-0,69	-1,83		
15		-0,38	-0,26	-0,42	-0,74	-1,37	-1,08	
16			0,53	0,62		0,00	-0,22	
18			2,11					
19				0,00	-0,44			
20					1,47	0,98	-0,32	
21				1,04				
22				-0,21		-0,78		
23					4,71	-1,57		
24						1,37	1,08	
27							2,37	
28							-0,65	
29							2,90	
30							-0,84	
32							2,80	
33							0,43	
34							3,11	

1833-7

Lab	2001	2003	2005	2006	2007	2008	2010	2012
1	-1,58							
2	1,58	-0,64	-0,23	2,03			-0,67	-2,50
3	0,53	0,46	0,00	-0,43	-0,33	0,51	0,33	0,00
4	-0,53	-0,09						
5	0,53	1,01	1,51	-0,14	2,00		1,00	0,62
6	-0,53	0,09	-0,12	0,43	-0,33	-1,28	-1,33	-0,31
7	-1,58	-0,83	-1,63	-1,59	-2,00	0,51		
8	-8,95	-4,13						
9	0,53	-0,64	-1,16	0,29				
10	0,53	0,37			7,33			
11		1,65						
12			0,47	-0,87	-1,21	-0,26	3,00	-0,94
13			-0,70	8,90				
14			1,98		-0,51	-0,33	-0,63	
15			0,12	-0,58	-0,33	-1,03	-0,33	-0,31
16				-0,43	0,67		3,00	-0,63
18				13,77				
19					0,67	-0,26		
21					0,00			
22					0,00		-0,67	
23						3,85	-1,00	
24							-0,67	0,00
25								3,75
27								1,87
28								0,00
29								0,00
30								-0,59
32								4,69
33								0,62
34								1,31

1833-11

Lab	2001	2003	2005	2006	2007	2008	2010	2012
1	-1,24							
2	0,35	-0,57	0,00	0,62			0,26	-0,47
3	-0,53	-0,11	-1,05	-2,78	-1,70	-0,54	0,79	-2,10
4	1,06	-0,57						
5	1,06	1,02	-0,52	1,24	0,00		-1,06	0,23
6	0,71	1,81	0,70	0,31	0,43	-0,13	1,58	0,00
7	-0,71	-1,47	-0,87	-115,92	-2,55	-1,34		
8	-4,94	0,68						
9	0,35	-0,68	-0,70	-3,09				
10	0,53	0,68			0,21			
11		-0,34	5,21	0,77				
12			1,22	0,31	0,64	0,80	0,53	1,17
13			0,17	0,31				
14		0,70			0,54	-2,64	-1,87	
15		-0,52	-1,55	0,00	-0,80	-0,79	-0,23	
16			0,93	1,06		1,06	-0,47	
17			-0,31	-0,21				
18			-3,71					
19				3,62	-0,27			
20				0,85	0,80	0,00	0,47	
21				-0,85				
22				-0,21		-0,53		
23					2,28	-0,53		
24						-0,53	-0,23	
25							-2,34	
26							5,37	
27							0,47	
28							-1,40	
29							0,23	
30							0,56	
31							-0,23	
32							2,80	
33							0,70	
34							2,17	

Fig.: Z-Score obtained by each laboratory.

Conclusions

The number of laboratories submitting satisfactory results is increasing. However, new laboratories with limited experience still report unsatisfactory results. The challenge is to expand the PT scope. This 2014, five more countries are involved, Canada, Italy, Morocco, Serbia and UK, and two more methods are being compared.

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Acknowledgement: I would like to express my gratitude to all those who helped me in this project. A special thanks to Mrs. Natalia Crespo, Head of LCG and to PhD. Mr. Rafael Álvarez-Sarandés, the prime mover of this exercise.