

REPORT No 11980

Date of issue: July 30, 2026

Status: FINAL REPORT

EN 71-3

SAFETY OF TOYS

PART 3: MIGRATION OF CERTAIN ELEMENTS

Program: SQ-3004.V1

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1. FOREWORD

This report summarizes the results of the **SQ-3004.V1** proficiency testing program on the determination of migration of certain elements from toys materials. This program is conducted in a bilateral format, following the “split-sample” design described in clause A.4.2 of ISO/IEC 17043: 2023 (Alternative interlaboratory comparisons).

South Quality conducted the testing program in June 2026 with the aim of assessing the laboratory's ability to competently perform the designated tests.

2. ORGANIZATION

Program Coordinator:	Eng. Erika Brest
Assistant Technician:	Mateo Giovanni
Statistics:	Lic. Manuel Tozaki
Supervision:	Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to determine the quantity of certain elements using the following standard:

Standard
EN 71-3: 2019 + A2: 2024

To verify this, batches of crayons, liquid paint, and plastic toys have been selected.

Participants in this program have not been previously informed of the expected behavior and values, or value ranges, of the samples they receive.

4. PARTICIPANT

Company:	ACLAB
Laboratory:	ACLAB
Country:	Morocco
Client ID:	F293
Contact person:	Jihane Sakar Responsable Metrologie et Essai Interlaboratoire essais.interlaboratoire@gmail.com

5. HOMOGENEITY

Several batches were prepared identically by the staff at South Quality.

Subsequently, a homogeneity study was conducted with an ISO 17025 accredited laboratory.

The control process followed ISO 33405: 2024, clauses 7.4.1.1 / 7.4.1.2. Stratified random sampling was applied, and samples were selected using random number generation software.

The results of this test are presented below:

Size of each batch: **50 units**

Tested samples from each batch: **15 units**

DETERMINATION	PINK LIQUID PAINT - HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LKS2259	BATCH: LKS2260	BATCH: LKS2261
Migration of certain elements	YES	NO	YES

Size of each batch: **80 units**

Tested samples from each batch: **20 units**

DETERMINATION	LIGHT BLUE PLASTIC BLOCK - HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LKS2301	BATCH: LKS2302	BATCH: LKS2303
Migration of certain elements	NO	YES	YES

Size of each batch: **50 units**

Tested samples from each batch: **15 units**

DETERMINATION	BROWN CRAYON - HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LKS2943	BATCH: LKS2944	BATCH: LKS2945
Migration of certain elements	YES	YES	YES

Size of each batch: **50 units**

Tested samples from each batch: **15 units**

DETERMINATION	GREEN CRAYON - HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LKS2956	BATCH: LKS2957	BATCH: LKS2958
Migration of certain elements	YES	YES	NO

Samples for this program are taken from the selected batches identified as **LKS2259**, **LKS2303**, **LKS2945** and **LKS2957**.

For the indicated batches, the values determined in the homogeneity study are utilized as the assigned values.

Analysis of this test data indicated that the selected samples were sufficiently homogeneous for the program and therefore the results of participants identified as outliers cannot be attributed to sample variability.

6. SAMPLE INFORMATION

The following samples were sent for testing:

Batch:	LKS2259
Sample ID:	13
Characteristics:	Pink liquid paint (2.5g)

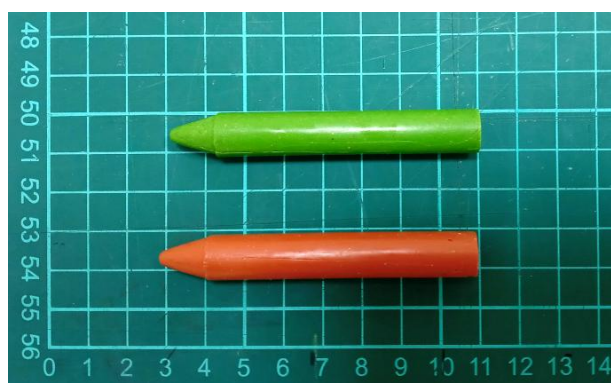
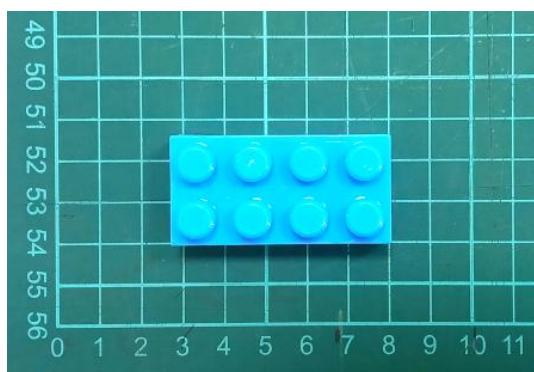
Batch:	LKS2303
Sample ID:	11
Characteristics:	Light Blue lastic block

Batch:	LKS2945
Sample ID:	09
Characteristics:	Brown crayon

Batch:	LKS2957
Sample ID:	07
Characteristics:	Green crayon

7. IMAGES

SAMPLES



8. ASSIGNED VALUES

	As	Cd	Se	Hg	Pb	Sb	Cr	Ba	Sn
LOD (mg/kg)	0.05	0.05	0.15	0.02	0.05	0.25	0.10	0.15	0.05

	Zn	Ni	Co	B	Mn	Cu	Al	Sr
LOD (mg/kg)	0.10	0.25	0.05	0.15	0.10	0.15	0.20	0.25

BATCH	M (mg/kg) (Standard deviation)								
	As	Cd	Se	Hg	Pb	Sb	Cr	Ba	Sn
LKS2259	< 0.05	0.13 (0.02)	< 0.15	< 0.02	47.94 (1.7)	< 0.25	< 0.10	< 0.15	0.25 (0.04)
LKS2303	0.94 (0.06)	< 0.05	< 0.15	< 0.02	0.22 (0.21)	2.46 (0.13)	< 0.10	< 0.15	< 0.05
LKS2945	0.54 (0.05)	< 0.05	< 0.15	< 0.02	0.19 (0.06)	0.62 (0.06)	< 0.10	< 0.15	< 0.05
LKS2957	0.09 (0.026)	0.32 (0.009)	< 0.15	< 0.02	0.12 (0.023)	2.17 (0.04)	0.21 (0.06)	< 0.15	< 0.05

BATCH	M (mg/kg) (Standard deviation)							
	Zn	Ni	Co	B	Mn	Cu	Al	Sr
LKS2259	4.67 (0.14)	< 0.25	< 0.05	0.78 (0.05)	< 0.10	< 0.15	0.41 (0.03)	< 0.25
LKS2303	1.26 (0.08)	< 0.25	< 0.05	1.30 (0.08)	< 0.10	< 0.15	0.56 (0.05)	< 0.25
LKS2945	0.41 (0.05)	< 0.25	< 0.05	0.87 (0.07)	0.31 (0.09)	< 0.15	< 0.25	0.40 (0.16)
LKS2957	0.67 (0.12)	< 0.25	< 0.05	0.84 (0.03)	0.44 (0.09)	< 0.15	< 0.25	< 0.25

9. PARTICIPANT RESULTS (SEE APPENDIX B)

CODE	M (mg/kg)								
	As	Cd	Se	Hg	Pb	Sb	Cr	Ba	Sn
LKS2259-13	< 0.05	0.10	< 0.25	< 0.025	48.56	< 0.25	< 0.25	< 0.25	0.21
LKS2303-11	1.02	< 0.05	< 0.25	< 0.025	0.16	2.53	< 0.25	< 0.25	< 0.05
LKS2945-09	0.61	< 0.05	< 0.25	< 0.025	0.15	0.55	< 0.25	< 0.25	< 0.05
LKS2957-07	0.06	0.29	< 0.25	< 0.025	0.09	2.2	0.28	< 0.25	< 0.05

CODE	M (mg/kg)							
	Zn	Ni	Co	B	Mn	Cu	Al	Sr
LKS2259-13	4.59	< 0.25	< 0.05	0.74	< 0.25	< 0.25	0.43	< 0.25
LKS2303-11	1.30	< 0.25	< 0.05	1.24	< 0.25	< 0.25	0.62	< 0.25
LKS2945-09	0.46	< 0.25	< 0.05	0.89	0.25	< 0.25	< 0.25	0.36
LKS2957-07	0.55	< 0.25	< 0.05	0.82	0.39	< 0.25	< 0.25	< 0.25

10. STATISTICS

The results must be treated as qualitative as quantitative.

For qualitative results (Values below the limit of detection, LOD), the comparison will be made directly against the assigned values, so any difference will be evaluated as **Unsatisfactory**. In cases where the participant's LOD is greater than the reference, it will be considered **Satisfactory** if the reference value is below the participant's LOD.

For quantitative results the comparison is made according to B.4.1.3 of ISO 17043, the appropriate technique is to compare participant results with the assigned values. The results can be compared using **z score**.

$$z = \frac{x - X}{\hat{\sigma}}$$

x is the participant's result

X is the assigned value

$\hat{\sigma}$ is the standard deviation

The performance evaluation of each sample is carried out with the following criteria:

$|z| \leq 2.0$ indicates “satisfactory” performance and generates no signal;

$2.0 < |z| < 3.0$ indicates “questionable” performance and generates a warning signal;

$|z| \geq 3.0$ indicates “unsatisfactory” performance and generates an action signal;

11. EVALUATION OF PERFORMANCE

A - QUALITATIVE RESULTS

BATCH	ELEMENT	PARTICIPANT RESULT M (mg/kg)	ASSIGNED VALUE M (mg/kg)	PERFORMANCE RESULT
LKS2259	As	< 0.05	< 0.05	SATISFACTORY
	Se	< 0.25	< 0.15	SATISFACTORY
	Hg	< 0.025	< 0.02	SATISFACTORY
	Sb	< 0.25	< 0.25	SATISFACTORY
	Cr	< 0.25	< 0.10	SATISFACTORY
	Ba	< 0.25	< 0.15	SATISFACTORY
	Ni	< 0.25	< 0.25	SATISFACTORY
	Co	< 0.05	< 0.05	SATISFACTORY
	Mn	< 0.25	< 0.10	SATISFACTORY
	Cu	< 0.25	< 0.15	SATISFACTORY
	Sr	< 0.25	< 0.25	SATISFACTORY

BATCH	ELEMENT	PARTICIPANT RESULT M (mg/kg)	ASSIGNED VALUE M (mg/kg)	PERFORMANCE RESULT
LKS2303	Cd	< 0.05	< 0.05	SATISFACTORY
	Se	< 0.25	< 0.15	SATISFACTORY
	Hg	< 0.025	< 0.02	SATISFACTORY
	Cr	< 0.25	< 0.10	SATISFACTORY
	Ba	< 0.25	< 0.15	SATISFACTORY
	Sn	< 0.05	< 0.05	SATISFACTORY
	Ni	< 0.25	< 0.25	SATISFACTORY
	Co	< 0.05	< 0.05	SATISFACTORY
	Mn	< 0.25	< 0.10	SATISFACTORY
	Cu	< 0.25	< 0.15	SATISFACTORY
	Sr	< 0.25	< 0.25	SATISFACTORY

BATCH	ELEMENT	PARTICIPANT RESULT M (mg/kg)	ASSIGNED VALUE M (mg/kg)	PERFORMANCE RESULT
LKS2945	Cd	< 0.05	< 0.05	SATISFACTORY
	Se	< 0.25	< 0.15	SATISFACTORY
	Hg	< 0.025	< 0.02	SATISFACTORY
	Cr	< 0.25	< 0.10	SATISFACTORY
	Ba	< 0.25	< 0.15	SATISFACTORY
	Sn	< 0.05	< 0.05	SATISFACTORY
	Ni	< 0.25	< 0.25	SATISFACTORY
	Co	< 0.05	< 0.05	SATISFACTORY
	Cu	< 0.25	< 0.15	SATISFACTORY
	Al	< 0.25	< 0.20	SATISFACTORY

BATCH	ELEMENT	PARTICIPANT RESULT M (mg/kg)	ASSIGNED VALUE M (mg/kg)	PERFORMANCE RESULT
LKS2957	Se	< 0.25	< 0.15	SATISFACTORY
	Hg	< 0.025	< 0.02	SATISFACTORY
	Ba	< 0.25	< 0.15	SATISFACTORY
	Sn	< 0.05	< 0.05	SATISFACTORY
	Ni	< 0.25	< 0.25	SATISFACTORY
	Co	< 0.05	< 0.05	SATISFACTORY
	Cu	< 0.25	< 0.15	SATISFACTORY
	Al	< 0.25	< 0.20	SATISFACTORY
	Sr	< 0.25	< 0.25	SATISFACTORY

B - QUANTITATIVE RESULTS

BATCH	ELEMENT	PARTICIPANT RESULT M (mg/kg)	ASSIGNED VALUE M (mg/kg)	z score	PERFORMANCE RESULT
LKS2259	Cd	0.10	0.13	1.50	SATISFACTORY
	Pb	48.56	47.94	0.40	SATISFACTORY
	Sn	0.21	0.25	1.00	SATISFACTORY
	Zn	4.59	4.67	0.60	SATISFACTORY
	B	0.74	0.78	0.80	SATISFACTORY
	Al	0.43	0.41	0.70	SATISFACTORY

BATCH	ELEMENT	PARTICIPANT RESULT M (mg/kg)	ASSIGNED VALUE M (mg/kg)	z score	PERFORMANCE RESULT
LKS2303	As	1.02	0.94	1.30	SATISFACTORY
	Pb	0.16	0.22	0.30	SATISFACTORY
	Sb	2.53	2.46	0.50	SATISFACTORY
	Zn	1.30	1.26	0.50	SATISFACTORY
	B	1.24	1.30	0.80	SATISFACTORY
	Al	0.62	0.56	1.20	SATISFACTORY

BATCH	ELEMENT	PARTICIPANT RESULT M (mg/kg)	ASSIGNED VALUE M (mg/kg)	z score	PERFORMANCE RESULT
LKS2945	As	0.61	0.54	1.40	SATISFACTORY
	Pb	0.15	0.19	0.70	SATISFACTORY
	Sb	0.55	0.62	1.20	SATISFACTORY
	Zn	0.46	0.41	1.00	SATISFACTORY
	B	0.89	0.97	1.10	SATISFACTORY
	Mn	0.25	0.31	0.70	SATISFACTORY
	Sr	0.36	0.40	0.30	SATISFACTORY

BATCH	ELEMENT	PARTICIPANT RESULT M (mg/kg)	ASSIGNED VALUE M (mg/kg)	z score	PERFORMANCE RESULT
LKS2957	As	0.06	0.09	1.20	SATISFACTORY
	Cd	0.29	0.32	0.30	SATISFACTORY
	Pb	0.09	0.12	1.30	SATISFACTORY
	Sb	2.2	2.17	0.80	SATISFACTORY
	Cr	0.28	0.21	1.20	SATISFACTORY
	Zn	0.55	0.67	1.00	SATISFACTORY
	B	0.82	0.84	0.70	SATISFACTORY
	Mn	0.39	0.44	0.60	SATISFACTORY

12. CONCLUSIONS

The overall performance of this **SQ-3004.V1** program from the participant laboratory **ACLAB**, is **SUFFICIENT** based on expected results.

The criteria used for the evaluation of the overall performance are the following:

- **SUFFICIENT** performance: No unsatisfactory/questionable results were obtained.
- **ALMOST SUFFICIENT** performance: No unsatisfactory results were obtained, but one questionable result was found.
- **INSUFFICIENT** performance: An unsatisfactory result or two questionable results were obtained.

APPENDIX A

INSTRUCTIONS



INSTRUCTIONS

PROGRAM:	Migration of certain elements
CODE:	SQ-3004
VERSION:	1
STANDARD:	EN 71-3
COORDINATOR:	Eng. Erika Brest (ebrest@ptsouthquality.com)

1 - General

This document serves as a guide for managing the results of the **SQ-3004.V1** program.

2 - Standard

EN 71-3: 2019 + A2: 2024

3 - Tests involved

TEST
Determination of migration of certain elements (Al; Sb; As; Ba; B; Cd; Cr(III); Cr(VI); Co; Cu; Pb; Mn; Hg; Ni; Se; Sr; Sn; Sn-org; Zn)

4 - Samples

CODE	SAMPLE	QUANTITY
LKS2259-13	Pink liquid paint (2.5g)	1
LKS2303-11	Light blue plastic block	1
LKS2957-07	Green crayon	1
LKS2945-09	Brown crayon	1

5 - Notes

- Being a bilateral program, there is no deadline for submitting results.
- The participant must submit the results using the usual report employed by their laboratory.
- The samples are to be handled as routine lab samples, with all testing, documentation, and reporting adhering to **EN 71-3**.
- Samples must be retained until the end of the program, which concludes with the submission of the final report.
- To review the results, test images would be appreciated. Images can be attached at the end of this document or sent by email.

PHOTOGRAPHS

DSQ-012 - REV 06 -

SQ-3004.V1

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APPENDIX B

PARTICIPANT RESULTS (TEST REPORT)



Rapport d'essais N° : /26-PC



AL 116 .01/2020

Date d'émission du rapport : le 26 /06/2026

Madame, Monsieur,

Suite à votre demande de contrôle de conformité, veuillez trouver ci-joint le rapport relatif à l'échantillon reçu au sein de nos laboratoires et nous vous remercions de nous avoir consultés.

Bien à vous.

Données Client :

Demandeur	Interlab
Etat d'échantillon	Scellé et propre

Données Laboratoire :

Description des échantillons reçus	/
Code échantillon	
Lieu d'exécution	ACLAB MOHAMMEDIA
Facture N°	FAC/2026
Date de réception des échantillons	
Essais Demandés	■ Migration de certains éléments*.
Nombre de pages	03
Remarques	RAS

NB :

L'ensemble des essais sont réalisés au site du laboratoire ACLAB.
 Le laboratoire est responsable de toutes les informations fournies dans le rapport, sauf les informations fournies par le client.
 Responsabilité du laboratoire est exonérée sur les informations fournies par le client (échantillonnage, description...etc.).
 Les essais couverts par l'accréditation sont identifiés par (*).
 Les essais sous traités sont identifiés par (**).
 Les résultats s'appliquent à l'échantillon tel qu'il a été reçu au laboratoire.
 Les résultats ne se reportent qu'objets soumis aux essais.
 Les résultats ne peuvent être extrapolés à un lot.
 La déclaration de la conformité ne tient pas compte de l'incertitude.
 Les échantillons analysés doivent être récupérés lors du règlement de la facture.



RG: F0001PRT3; V06; Date: 08/12/2025

ACLAB : Lot N° 182, Zone Industrielle - Mohammedia
 ICE : 001715050000092 - Patente : 31590749 - IF : 15237310 - RC : 24015 - CNSS : 4391504 Tél : 0523 320 495
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Rapport d'essais N° : /26-PC



AL 116 .01/2020

Date de début d'analyse : /2026

Date de fin d'analyse : /2026

Description de l'échantillon :

1. Description de l'échantillon :

Catégorie :

Voir illustration



Ref : FORM1/PT04 : V06 : Date : 08/12/2025

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Rapport d'essais N° : /26-PC



AL 116 .01/2020

Résultats

1. Essai : Migration de certains éléments* : NM EN 71-3 (2023)

NM EN 71-3 (2023)	Traitement par Solution Sueur acide + Analyse Par ICP-MS							
Elément analysé	AS*	Cd*	Se*	Hg*	Pb*	Sb*	Cr	Ba*
LQ	0,05	0,05	0,25	0,025	0,05	0,25	0,25	0,25
Prélèvements	Teneur en élément (mg/kg)							
Light blue plastic block LKS2303-11	1,02	0,02	ND	0,01	0,16	2,53	0,06	0,03
Pink liquid paint (2.5g) LKS2259-13	0,03	0,10	0,18	ND	48,56	0,03	ND	0,08
Green crayon LKS2957-07	0,06	0,29	0,17	0,01	0,09	2,2	0,28	0,03
Brown crayon LKS2945-09	0,61	0,02	0,02	ND	0,15	0,55	0,04	0,09

NM EN 71-3 (2023)	Traitement par Solution Sueur acide + Analyse Par ICP-MS								
Elément analysé	Sn	Zn	Ni	Co	B	Mn	Cu	Al	Sr
LQ	0,05	0,25	0,25	0,05	0,25	0,25	0,25	0,25	0,25
Prélèvements	Teneur en élément (mg/kg)								
Light blue plastic block LKS2303-11	0,03	1,30	0,05	Nd	1,24	0,05	0,05	0,62	0,06
Pink liquid paint (2.5g) LKS2259-13	0,21	4,59	0,04	0,01	0,74	0,02	0,12	0,43	0,07
Green crayon LKS2957-07	ND	0,55	0,05	ND	0,82	0,39	0,08	0,09	0,21
LKS2945-09 Brown crayon	ND	0,46	0,2	ND	0,89	0,25	0,09	0,19	0,36

 Responsable Technique
 Mme ZAMZAM Merieme

 Responsable Laboratoire
 Mr CHAHY Marouane


Fin du rapport

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