

REPORT No 11982

Date of issue: July 30, 2026

Status: FINAL REPORT

ISO 6486-1

CERAMIC WARE, GLASS-CERAMIC WARE AND GLASS DINNERWARE IN CONTACT WITH FOOD - RELEASE OF LEAD AND CADMIUM - TEST METHOD

Program: SQ-3515.V2

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1. FOREWORD

This report summarizes the results of the **SQ-3515.V2** proficiency testing program on the determination of the release of lead and cadmium from ceramic ware, glass ceramic ware and glass dinnerware. 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 the determination of the release of lead and cadmium from ceramic ware, glass ceramic ware and glass dinnerware, using the following standard:

Standard
ISO 6486-1: 2019

For verification, batches of dinnerware have been selected.

Participants in this program have not been previously informed about the expected behavior 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: **150 units**

Tested samples from each batch: **30 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES - CERAMIC DINNERWARE -		
	BATCH: LGC3237	BATCH: LGC3238	BATCH: LGC3239
Release of lead	YES	YES	YES
Release of cadmium	NO	YES	YES

Size of each batch: **150 units**

Tested samples from each batch: **30 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES - GLASS DINNERWARE -		
	BATCH: LGC3412	BATCH: LGC3413	BATCH: LGC3414
Release of lead	YES	YES	NO
Release of cadmium	YES	YES	YES

Samples for this program are taken from selected batches identified as **LGC3239** and **LGC3413**.

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

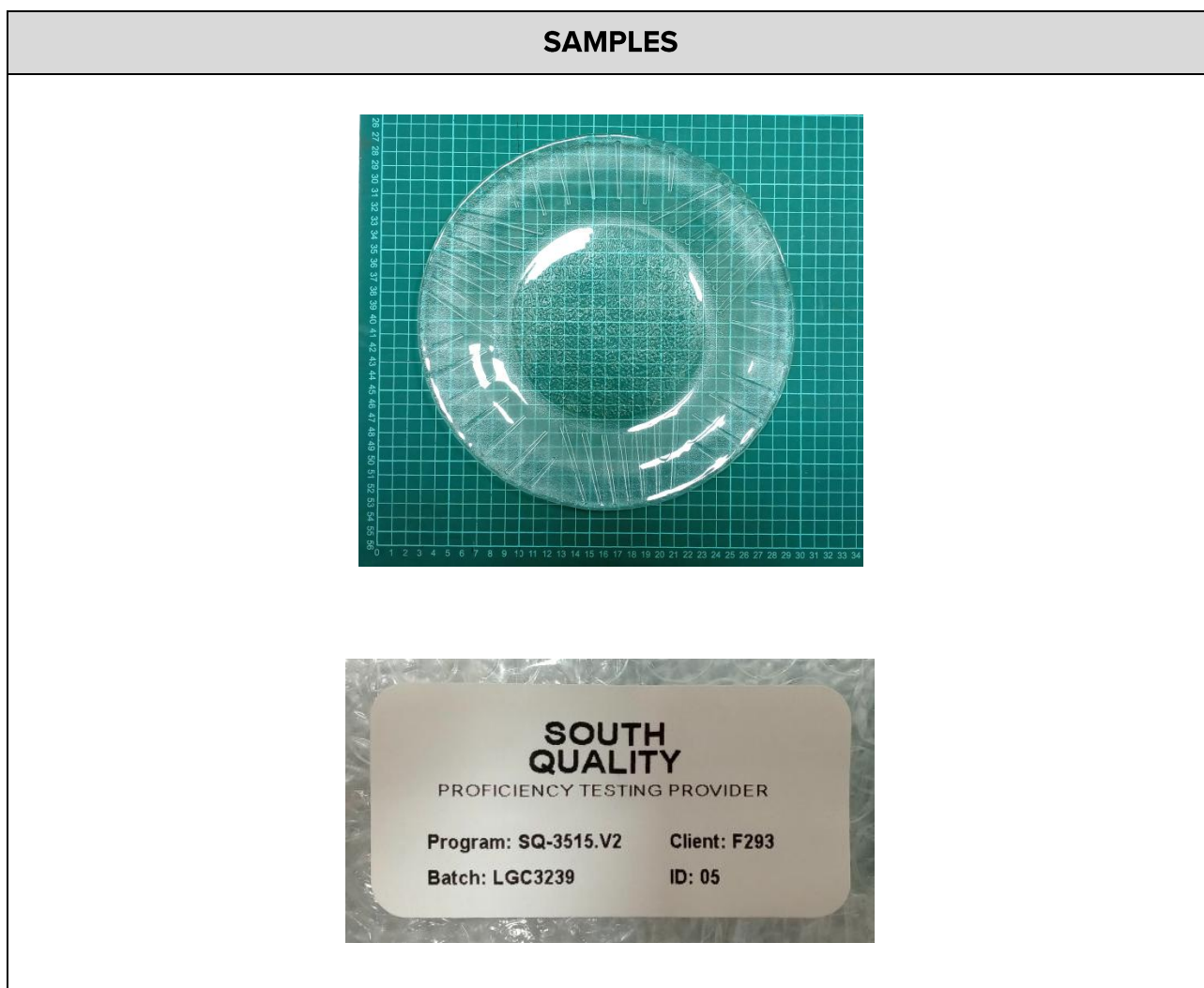
6. SAMPLE INFORMATION

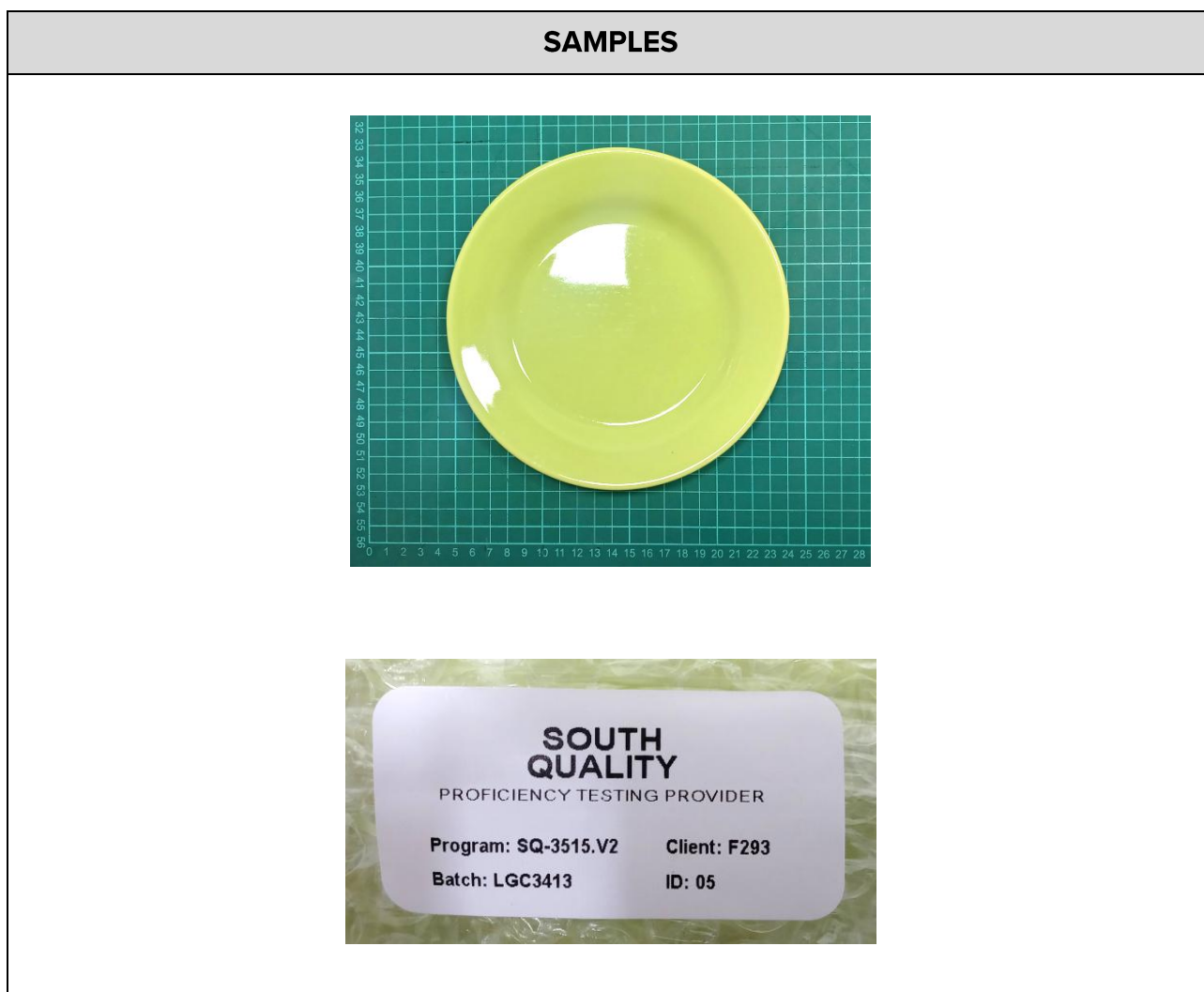
The following samples were sent for testing:

Batch:	LGC3239
Sample ID:	05
Characteristics:	Ceramic dinnerware - Ø18 cm - 6 units

Batch:	LGC3413
Sample ID:	05
Characteristics:	Glass dinnerware - Ø23 cm - 6 units

7. IMAGES





8. ASSIGNED VALUES

PARAMETER	BATCH: LGC3239		BATCH: LGC3413	
	AVG	SD	AVG	SD
RELEASE OF LEAD ($\mu\text{g}/\text{dm}^3$)	0.0156	0.0008	0.1234	0.0015
RELEASE OF CADMIUM ($\mu\text{g}/\text{dm}^3$)	0.0082	0.0004	0.0647	0.0009

9. PARTICIPANT RESULTS (SEE APPENDIX B)

PARAMETER	CODE: LGC3239-05 (AVG)	CODE: LGC3413-05 (AVG)
RELEASE OF LEAD ($\mu\text{g}/\text{dm}^3$)	0.0148	0.1216
RELEASE OF CADMIUM ($\mu\text{g}/\text{dm}^3$)	0.0079	0.0635

10. STATISTICS

The results must be treated as quantitative.

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

QUANTITATIVE RESULTS					
BATCH	PARAMETER	AVERAGE		z score	PERFORMANCE RESULT
		PARTICIPANT RESULT	ASSIGNED VALUE		
LGC3239	RELEASE OF LEAD ($\mu\text{g}/\text{dm}^3$)	0.0148	0.0156	1.00	SATISFACTORY
	RELEASE OF CADMIUM ($\mu\text{g}/\text{dm}^3$)	0.0079	0.0082	0.80	SATISFACTORY
LGC3413	RELEASE OF LEAD ($\mu\text{g}/\text{dm}^3$)	0.1216	0.1234	1.20	SATISFACTORY
	RELEASE OF CADMIUM ($\mu\text{g}/\text{dm}^3$)	0.0635	0.0647	1.30	SATISFACTORY

12. CONCLUSIONS

The overall performance on this **SQ-3515.V2** 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 & RESULTS FORM

PROGRAM:	Ceramic ware, glass-ceramic ware and glass dinnerware in contact with food - Release of lead and cadmium - Test method
CODE:	SQ-3515
VERSION:	2
STANDARD:	ISO 6486-1
COORDINATOR:	Eng. Erika Brest (ebrest@ptsouthquality.com)

DSQ-012 - REV 06 -

SQ-3515.V2

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1 - General

This document serves as a guide for managing the results of the **SQ-3515.V2** program.

Results must be typed, not handwritten.

2 - Standard

ISO 6486-1: 2019

3 - Tests involved

TEST
Determination of the release of lead and cadmium from ceramic ware, glass ceramic ware and glass dinnerware

4 - Samples

CODE	SAMPLE	QUANTITY
LGC3239-05	Ceramic dinnerware - Ø18 cm	6
LGC3413-05	Glass dinnerware - Ø23 cm	6

5 - Notes

- a) Being a bilateral program, there is no deadline for submitting results.
- b) The tables in this document may be modified by the participant, if desired, to include data or observations.
- c) The samples are to be handled as routine lab samples, with all testing, documentation, and reporting adhering to **ISO 6486-1**.
- d) Samples must be retained until the end of the program, which concludes with the submission of the final report.
- e) To review the results, test images would be appreciated. Images can be attached at the end of this document or sent by email.
- f) Once this document is completed, it must be converted into a PDF file and sent to the program coordinator.

6 - Test results

Test date:	
Analytical method:	ICP-MS

CODE	Item	Release of lead ($\mu\text{g}/\text{dm}^2$)	Release of cadmium ($\mu\text{g}/\text{dm}^2$)
LGC3239-05	1		
	2		
	3		
	4		
	MEAN		

CODE	Item	Release of lead ($\mu\text{g}/\text{dm}^2$)	Release of cadmium ($\mu\text{g}/\text{dm}^2$)
LGC3413-05	1		
	2		
	3		
	4		
	MEAN		

OBSERVATIONS

PHOTOGRAPHS

APPENDIX B

PARTICIPANT RESULTS (TEST REPORT)



Rapport d'essais N° : /26-PC

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
Déclarant	
Code d'échantillon	
N° de Facture	
Etat d'échantillon	Scellé et propre

Données Laboratoire :

Description des échantillons reçus	
Code échantillon	SQ-3515
Lieu d'exécutions	ACLAB MOHAMMEDIA
Facture N°	
Date de réception des échantillons	Le
Essais Demandés	Emission de plomb et de cadmium ▪ NM ISO 6486-1
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'aux 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.



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Ref: FOR01PRT04; V06; Date: 08/12/2025



Rapport d'essais N° : /26-PC

Description de l'échantillon :

Voir illustration



1. Emission de plomb et de Cadmium :

- Norme de référence : NM ISO 6486-1.
- Solution d'extraction : Acide Acétique à 4% (V/V) Solution Aqueuse.
- Equipement utilisé : ICP-MS.
- Type article : Article de Table
- Essai effectué à (22 ± 2) et Pour une durée de 24h.

	LGC3413-05 Vaisselle vert	LGC3239-05 Vaisselle Blanc
Volume de Remplissage ml	220	500

- : 50 ml



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Ref: FORM PR104 - V06 - Date: 08/12/2025



Rapport d'essais N° : /26-PC

Résultats

Emission de plomb et de Cadmium

Code	Item	Release of lead ($\mu\text{g}/\text{dm}^2$)	Release of cadmium ($\mu\text{g}/\text{dm}^2$)
LGC3413-05 Vaisselle vert	Echa-1	0,176	0,085
	Echa-2	0,104	0,059
	Echa-3	0,118	0,066
	Echa-4	0,086	0,043
	Mean	0.1216	0.0635
Code	Item	Release of lead ($\mu\text{g}/\text{dm}^2$)	Release of cadmium ($\mu\text{g}/\text{dm}^2$)
LGC3239-05 Vaisselle Blanc	Echa-1	0,014	0,0085
	Echa-2	0,014	0,0089
	Echa-3	0,014	0,0067
	Echa-4	0,016	0,0074
	Mean	0.0148	0.0079

Responsable Technique
Mme ZAMZAM Merienne



Responsable Laboratoire
Mr CHAH Marouane



Fin du rapport

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