

REPORT No 11746

Date of issue: June 1, 2026

Status: FINAL REPORT

ISO 10545-13 CERAMIC TILES - CHEMICAL RESISTANCE - Program: SQ-3533

This document is issued by the Company subject to its Terms and Conditions, available on request or accessible at <https://www.ptsouthquality.com/terms-and-conditions>. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Copyright © 2026 South Quality, Buenos Aires, ARGENTINA



Prepared by:	Reviewed by:	Approved by:
Berenice Ferrel Assistant Technician	Lic. Esther Casas Physics expert	Eng. Emiliano Medina Quality Assurance Lead

TABLE OF CONTENTS

1. FOREWORD	3
2. ORGANIZATION	3
3. OBJECTIVE	3
4. PARTICIPANT	3
5. HOMOGENEITY	4
6. SAMPLE INFORMATION	4
7. IMAGES	5
8. ASSIGNED VALUES	6
9. PARTICIPANT RESULTS	7
10. STATISTICS	8
11. EVALUATION OF PERFORMANCE	8
12. CONCLUSIONS	9
APPENDICES	
APPENDIX A - INSTRUCTIONS	10
APPENDIX B - PARTICIPANT RESULTS (TR # 26.04.00029)	13
APPENDIX C - PARTICIPANT RESULTS (TR # 26.05.00266)	16

1. FOREWORD

This report summarizes the results of the **SQ-3533** proficiency testing program on the determination of the chemical resistance of ceramic tiles. 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 April 2026 with the aim of assessing the laboratory's ability to competently perform the designated tests.

2. ORGANIZATION

Program Coordinator: Lic. Esther Casas
 Assistant Technician: Berenice Ferrel
 Statistics: Lic. Manuel Tozaki
 Supervision: Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to assess the classification of chemical resistance of ceramic tiles based on visual examination, using the following standard:

Standard
ISO 10545-13: 2016

To verify this, batches of ceramic tile samples have been selected.

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

4. PARTICIPANT

Company: **TCKI**
 Laboratory: **Laboratorium**
 Country: Netherlands
 Client ID: E548
 Contact person: Ing. Ineke Geist
 Head of laboratory
i.geist@tcki.nl

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: **15 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LGC2140	BATCH: LGC2141	BATCH: LGC2142
CHEMICAL RESISTANCE	YES	NO	YES

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LGC2681	BATCH: LGC2682	BATCH: LGC2683
CHEMICAL RESISTANCE	YES	YES	YES

Samples for this program are taken from the selected batches identified as **LGC2142** and **LGC2682**.

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

The analysis of the test data indicated that the selected samples exhibited sufficient homogeneity for the program. Therefore, the results of participants identified as outliers cannot be attributed to sample variability.

6. SAMPLE INFORMATION

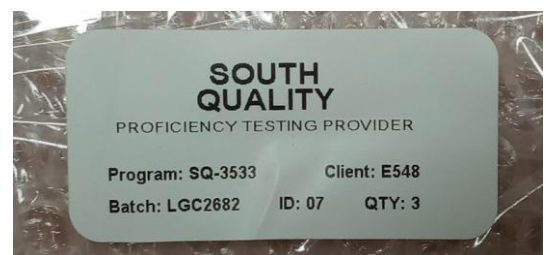
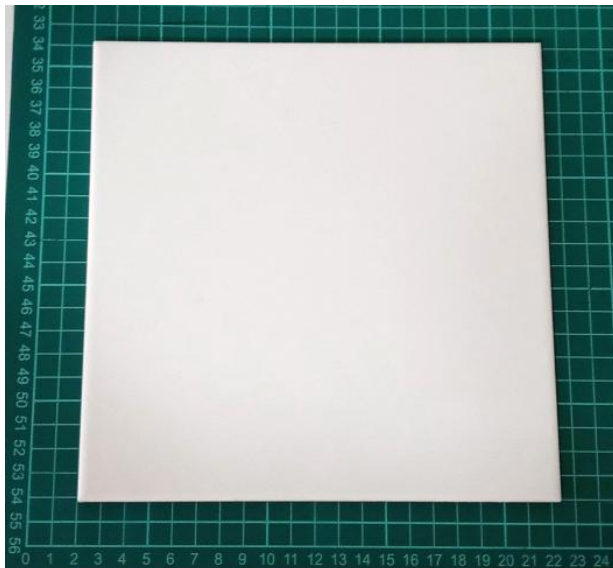
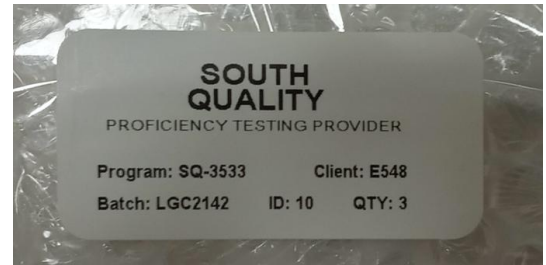
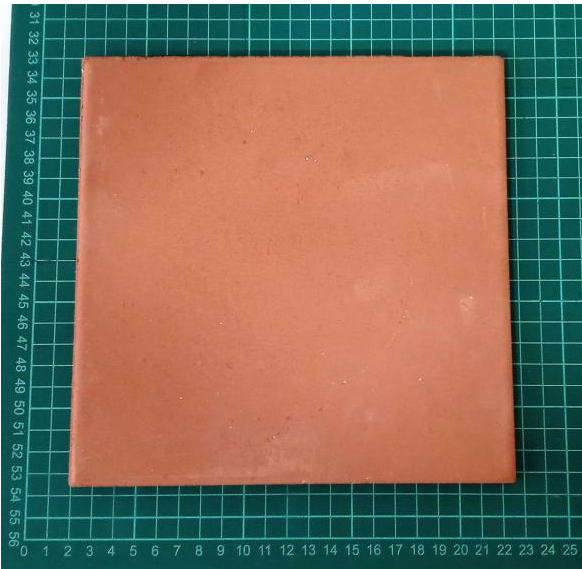
The following samples were sent for testing:

Batch:	LGC2142
Sample ID:	10
Characteristics:	White ceramic tile (Glazed) - 200 x 200 x 6 mm - 3 units

Batch:	LGC2682
Sample ID:	07
Characteristics:	Red ceramic tile (Unglazed) - 200 x 200 x 8 mm - 3 units

7. IMAGES

SAMPLES



8. ASSIGNED VALUES

BATCH	TEST SOLUTION	CLASSIFICATION
LGC2142	AMMONIUM CHLORIDE 100 g/l	CLASS A
	SODIUM HYPOCHLORITE 20 mg/l	CLASS A
	HYDROCHLORIC ACID 3 %	CLASS LA
	CITRIC ACID 100 g/l	CLASS LA
	POTASSIUM HYDROXIDE 30 g/l	CLASS LA
	HYDROCHLORIC ACID 18 %	CLASS HA
	LACTIC ACID SOLUTION 5 %	CLASS HA
	POTASSIUM HYDROXIDE 100 G/L	CLASS HA
LGC2682	AMMONIUM CHLORIDE 100 g/l	CLASS A
	SODIUM HYPOCHLORITE 20 mg/l	CLASS A
	HYDROCHLORIC ACID 3 %	CLASS LA
	CITRIC ACID 100 g/l	CLASS LA
	POTASSIUM HYDROXIDE 30 g/l	CLASS LA
	HYDROCHLORIC ACID 18 %	CLASS HB
	LACTIC ACID SOLUTION 5 %	CLASS HB
	POTASSIUM HYDROXIDE 100 G/L	CLASS HB

9. PARTICIPANT RESULTS (SEE APPENDICES B AND C)

CODE	TEST SOLUTION	CLASSIFICATION
LGC2142-10	AMMONIUM CHLORIDE 100 g/l	CLASS A
	SODIUM HYPOCHLORITE 20 mg/l	CLASS A
	HYDROCHLORIC ACID 3 %	CLASS LA
	CITRIC ACID 100 g/l	CLASS LA
	POTASSIUM HYDROXIDE 30 g/l	CLASS LA
	HYDROCHLORIC ACID 18 %	CLASS HA
	LACTIC ACID SOLUTION 5 %	CLASS HA
	POTASSIUM HYDROXIDE 100 G/L	CLASS HA
LGC2682-07	AMMONIUM CHLORIDE 100 g/l	CLASS A
	SODIUM HYPOCHLORITE 20 mg/l	CLASS A
	HYDROCHLORIC ACID 3 %	CLASS LA
	CITRIC ACID 100 g/l	CLASS LA
	POTASSIUM HYDROXIDE 30 g/l	CLASS LA
	HYDROCHLORIC ACID 18 %	CLASS HB
	LACTIC ACID SOLUTION 5 %	CLASS HB
	POTASSIUM HYDROXIDE 100 G/L	CLASS HB

10. STATISTICS

The results must be treated as qualitative.

For qualitative results, the comparison will be made directly against the assigned values, so any difference will be evaluated as **Unsatisfactory**.

11. EVALUATION OF PERFORMANCE

BATCH	TEST SOLUTION	CLASSIFICATION		PERFORMANCE RESULT
		PARTICIPANT RESULT	ASSIGNED VALUE	
LGC2142	AMMONIUM CHLORIDE 100 g/l	CLASS A	CLASS A	SATISFACTORY
	SODIUM HYPOCHLORITE 20 mg/l	CLASS A	CLASS A	SATISFACTORY
	HYDROCHLORIC ACID 3 %	CLASS LA	CLASS LA	SATISFACTORY
	CITRIC ACID 100 g/l	CLASS LA	CLASS LA	SATISFACTORY
	POTASSIUM HYDROXIDE 30 g/l	CLASS LA	CLASS LA	SATISFACTORY
	HYDROCHLORIC ACID 18 %	CLASS HA	CLASS HA	SATISFACTORY
	LACTIC ACID SOLUTION 5 %	CLASS HA	CLASS HA	SATISFACTORY
	POTASSIUM HYDROXIDE 100 G/L	CLASS HA	CLASS HA	SATISFACTORY
LGC2682	AMMONIUM CHLORIDE 100 g/l	CLASS A	CLASS A	SATISFACTORY
	SODIUM HYPOCHLORITE 20 mg/l	CLASS A	CLASS A	SATISFACTORY
	HYDROCHLORIC ACID 3 %	CLASS LA	CLASS LA	SATISFACTORY
	CITRIC ACID 100 g/l	CLASS LA	CLASS LA	SATISFACTORY
	POTASSIUM HYDROXIDE 30 g/l	CLASS LA	CLASS LA	SATISFACTORY
	HYDROCHLORIC ACID 18 %	CLASS HB	CLASS HB	SATISFACTORY
	LACTIC ACID SOLUTION 5 %	CLASS HB	CLASS HB	SATISFACTORY
	POTASSIUM HYDROXIDE 100 G/L	CLASS HB	CLASS HB	SATISFACTORY

12. CONCLUSIONS

The overall performance of this **SQ-3533** program from the participant laboratory **TCKI - Laboratorium**, is **SUFFICIENT** based on expected results.

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

- **SUFFICIENT** performance: No unsatisfactory results were obtained.
- **INSUFFICIENT** performance: An unsatisfactory result was obtained.

APPENDIX A

INSTRUCTIONS



INSTRUCTIONS

PROGRAM:	CERAMIC TILES - CHEMICAL RESISTANCE -
CODE:	SQ-3533
VERSION:	-
STANDARD:	ISO 10545-13
COORDINATOR:	Lic. Esther Casas (ecasas@ptsouthquality.com)

1 - General

This document serves as a guide for managing the results of the **SQ-3533** program.

2 - Standard

ISO 10545-13: 2016

3 - Tests involved

TEST
Determining the chemical resistance of ceramic tiles (Test solutions: 5.1 + 5.2 + 5.3.1 + 5.3.2)

4 - Samples

CODE	SAMPLE	QUANTITY
LGC2682-07	Red ceramic tile (Unglazed) - 200 x 200 x 8 mm	3
LGC2142-10	White ceramic tile (Glazed) - 200 x 200 x 6 mm	3

5 - Notes

- a) Being a bilateral program, there is no deadline for submitting results.
- b) The participant must submit the results using the usual report employed by their laboratory.
- c) The samples are to be handled as routine lab samples, with all testing, documentation, and reporting adhering to **ISO 10545-13**.
- 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.

PHOTOGRAPHS

APPENDIX B

PARTICIPANT RESULTS (TEST REPORT #26.04.00029)



TCKI

Stichting TCKI Florijnweg 6, Velp-Arnhem, The Netherlands +31 26 3845600
PO Box 27, NL-6880 AA Velp KvK 41047499 info@tcki.nl www.tcki.nl



Customer :
T.C.K.I. (intern)

TCKI order number : 26.04.00029
Sample test number : SQ-3533 Batch LGC2682 ID7
Your job description :

Report

Collective designation/sample test number (also invoice designation):
SQ-3533 Batch LGC2682 ID7


Dear,

I herewith send you the results of the products you supplied.

- Sampling, recommendations and declarations of conformity of the results fall outside the scope of the accreditation.
- The laboratory management can give you, on request, supplementary information concerning the test procedure and measurement uncertainty of the results or can be found in the clarification document.
- Results from this report only have reference to the tested material.
- Duplication of this document is only allowed with preliminary permission of TCKI or client.
- Findings and declarations of conformity do not take into account the measurement uncertainty.

We trust to be of service to you with the information provided.

Yours faithfully,
Velp, 30-04-2026


Mieke Geist, Head of laboratory.

Page 1 of 3



Stichting TCKI Florijnweg 6, Velp-Arnhem, The Netherlands +31 26 3845600
 PO Box 27, NL-6880 AA Velp KvK 41047499 info@tcki.nl www.tcki.nl



INVESTIGATION ON CERAMIC TILES

Customer	: T.C.K.I. (intern)
Manufacturer	: T.C.K.I. (intern)
TCKI order number	: 26.04.00029
Sample test number (Also invoice indication)	: SQ-3533 Batch LGC2682 ID7
Sampling date	: 18-03-2026
Date of receipt	: 18-03-2026
Sampling	: Unknown
Sample taken by	: South Quality
Supplied by	: South Quality
Finish	: Unglazed
Application	: Floor tile
Offered product specification	: Not applicable
Spacers	: No
Number of tiles	: 3

1. Chemical resistance



Stichting TCKI Florijnweg 6, Velp-Arnhem, The Netherlands +31 26 3845600
 PO Box 27, NL-6880 AA Velp KvK 41047499 info@tcki.nl www.tcki.nl



Q# 1. Chemical resistance (EN-ISO 10545-13)

TCKI order number : 26.04.00029
 Sample test number : SQ-3533 Batch LGC2682 ID7
 Sample number : 33, 34, 35, 36 and 37
 Method : Partial immersion

Resistance to	Test solution	Concentration	Classification
Household chemicals	Ammoniumchloride	100 g/l	A
Swimming pool salts	Sodiumhypochlorite	20 mg/l	A
Low concentration acids and alkalis	Hydrochloric acid	3 vol. %	LA
	Citric acid	100 g/l	LA
	Potassium hydroxide	30 g/l	LA
High concentration acids and alkalis	Hydrochloric acid	18 vol. %	HB
	Lactic acid	5 vol. %	HB
	Potassiumhydroxide	100 g/l	HB

If less than 3 specimens have been tested, the number of tested specimens is deviating from the standard.

APPENDIX C

PARTICIPANT RESULTS (TEST REPORT #26.05.00266)



TCKI

Stichting TCKI Florijnweg 6, Velp-Arnhem, The Netherlands +31 26 3845600
PO Box 27, NL-6880 AA Velp KvK 41047499 info@tcki.nl www.tcki.nl



Customer :
T.C.K.I. (intern)

TCKI order number : 26.05.00266
Sample test number : SQ-3533 Batch LGC2142 ID10
Your job description :

Report

Collective designation/sample test number (also invoice designation):
SQ-3533 Batch LGC2142 ID10

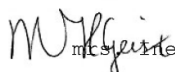
Dear,

I herewith send you the results of the products you supplied.

- Sampling, recommendations and declarations of conformity of the results fall outside the scope of the accreditation.
- The laboratory management can give you, on request, supplementary information concerning the test procedure and measurement uncertainty of the results or can be found in the clarification document.
- Results from this report only have reference to the tested material.
- Duplication of this document is only allowed with preliminary permission of TCKI or client.
- Findings and declarations of conformity do not take into account the measurement uncertainty.

We trust to be of service to you with the information provided.

Yours faithfully,
Velp, 07-05-2026


M. Geest, Head of laboratory.

Page 1 of 3



Stichting TCKI Florijnweg 6, Velp-Arnhem, The Netherlands +31 26 3845600
 PO Box 27, NL-6880 AA Velp KvK 41047499 info@tcki.nl www.tcki.nl



INVESTIGATION ON CERAMIC TILES

Customer	: T.C.K.I. (intern)
Manufacturer	: T.C.K.I. (intern)
TCKI order number	: 26.05.00266
Sample test number (Also invoice indication)	: SQ-3533 Batch LGC2142 ID10
Sampling date	: 18-03-2026
Date of receipt	: 18-03-2026
Sampling	: Unknown
Sample taken by	: South Quality
Supplied by	: South Quality
Finish	: Glazed
Application	: Floor tile
Offered product specification	: Not applicable
Spacers	: No
Number of tiles	: 3

1. Chemical resistance



Stichting TCKI Florijnweg 6, Velp-Arnhem, The Netherlands +31 26 3845600
 PO Box 27, NL-6880 AA Velp KvK 41047499 info@tcki.nl www.tcki.nl



Q# 1. Chemical resistance (EN-ISO 10545-13)

TCKI order number : 26.05.00266
 Sample test number : SQ-3533 Batch LGC2142 ID10
 Sample number : 1, 2, 3, 4, 5
 Method : Cylinder

Resistance to	Test solution	Concentration	Classification
Household chemicals	Ammoniumchloride	100 g/l	A
Swimming pool salts	Sodiumhypochlorite	20 mg/l	A
Low concentration acids and alkalis	Hydrochloric acid	3 vol. %	LA
	Citric acid	100 g/l	LA
	Potassium hydroxide	30 g/l	LA
High concentration acids and alkalis	Hydrochloric acid	18 vol. %	HA
	Lactic acid	5 vol. %	HA
	Potassiumhydroxide	100 g/l	HA

If less than 3 specimens have been tested, the number of tested specimens is deviating from the standard.

----- END OF REPORT -----