SOUTH QUALITY

PROFICIENCY TESTING PROVIDER

REPORT No 11264

Date of issue: *July 4, 2025*

Status: FINAL REPORT

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ASTM A262

DETECTING SUSCEPTIBILITY TO INTERGRANULAR ATTACK IN AUSTENITIC STAINLESS STEELS

Program: SQ-0001

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Prepared by:	Reviewed by:	Approved by:
cn=SERGIO E. ANDRADA, o=PT SOUTH QUALITY SAS, ou=PT SOUTH QUALITY SAS, email=tech@ptsouthquality.com, c=AR 2025.07.04 11:37:51 -03'00'	cn=ALFREDO M. SCHMIDT, o=PT SOUTH QUALITY SAS, ou=SOUTH QUALITY, email=aschmidt@ptsouthquality.com, c=AR 2025.07.04 16:44:27 -03'00'	cn=Emiliano Medina, o=SOUTH QUALITY, ou=PT SOUTH QUALITY SAS, email=quality@ptsouthquality.com, c=ES 2025.07.07 10:00:21 -03'00'
Sergio Andrada Assistant Technician	**Eng. Alfredo Schmidt** Metallurgical expert	**Eng. Emiliano Medina** Quality Assurance Lead

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1. FOREWORD

This report summarizes the results of the **SQ-0001** proficiency testing program on the classification of etch structures of austenitic stainless steels. This program is conducted in a bilateral format, following the A.3.3 classification of the ISO 17043 standard ("Split-sample testing schemes").

South Quality conducted the testing program in June 2025 with the aim of assessing the laboratory's ability to competently perform the designated tests.

2. ORGANIZATION

Program Coordinator:	Eng. Alfredo Schmidt
Assistant Technician:	Sergio Andrada
Statistic:	Lic. Manuel Tozaki
Supervision:	Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is the classification of etch structures of austenitic stainless steels, using the following standard:

Standard
ASTM A262 - 15 (PRACTICE A)

To verify this, samples of steel have been selected.

Participants in this program have not been previously informed about the expected classification of the samples they receive.

4. PARTICIPANT

Company:	**COLUMBUS STAINLESS PTY (LTD)**
Laboratory:	**Columbus Laboratory**
Country:	South Africa
Client ID:	F290
Contact person:	Kobie Groenewald QA Manager groenewald.kobie@columbus.co.za

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 Guide 35: 2017, clause 7.4.1.2. Stratified random sampling was employed, and samples were chosen using random number generation software.

The results of this test are presented below:

Size of each batch: **50 units** Tested samples from each batch: **20 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LM2090	BATCH: LM2091	BATCH: LM2092
ETCH STRUCTURE	NO	YES	YES

Size of each batch: **50 units** Tested samples from each batch: **20 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LM3030	BATCH: LM3031	BATCH: LM3032
ETCH STRUCTURE	YES	YES	NO

Size of each batch: **50 units** Tested samples from each batch: **20 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LM3319	BATCH: LM3320	BATCH: LM3321
ETCH STRUCTURE	YES	YES	YES

The samples for this program are taken from the selected batches identified as LM2091, LM3031 and LM3319.

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:

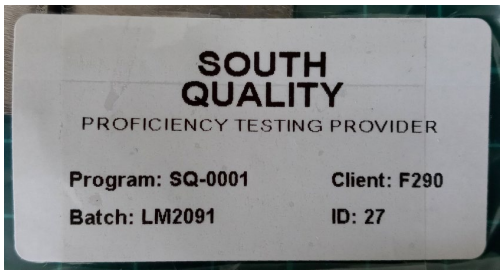
Batch:	LM2091
Sample ID:	27
Characteristics:	Stainless steel (AISI 304) - Ø19 x 22 mm

Batch:	LM3031
Sample ID:	22
Characteristics:	Stainless steel (AISI 304) - 50 x 30 x 4.8 mm

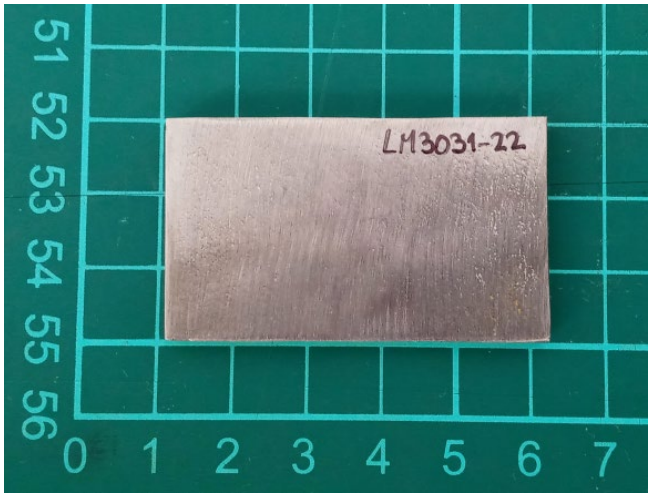
Batch:	LM3319
Sample ID:	30
Characteristics:	Stainless steel (AISI 304) - 50 x 20 x 10 mm

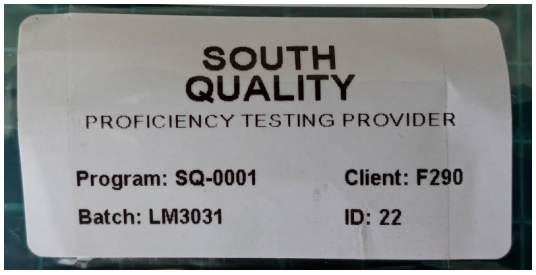
7. IMAGES

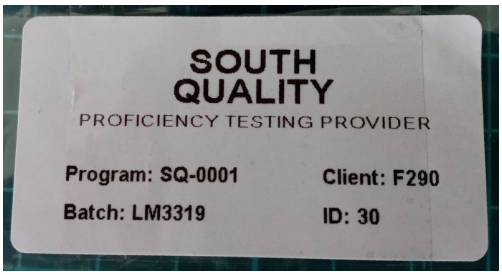
SAMPLES



SAMPLES







8. ASSIGNED VALUES

BATCH	ETCH STRUCTURE
LM2091	STEP
LM3031	STEP
LM3319	DUAL

9. PARTICIPANT RESULTS (SEE APPENDIX)

CODE	ETCH STRUCTURE
LM2091-27	STEP
LM3031-22	STEP
LM3319-30	DUAL

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	ETCH STRUCTURE		PERFORMANCE RESULT
	PARTICIPANT RESULT	PARTICIPANT RESULT	
LM2091	STEP	STEP	**SATISFACTORY**
LM3031	STEP	STEP	**SATISFACTORY**
LM3319	DUAL	DUAL	**SATISFACTORY**

12. CONCLUSIONS

The overall performance on this **SQ-0001** program from the participant laboratory **COLUMBUS STAINLESS PTY (LTD) - COLUMBUS LABORATORY**, is **SUFFICIENT** based on expected results.

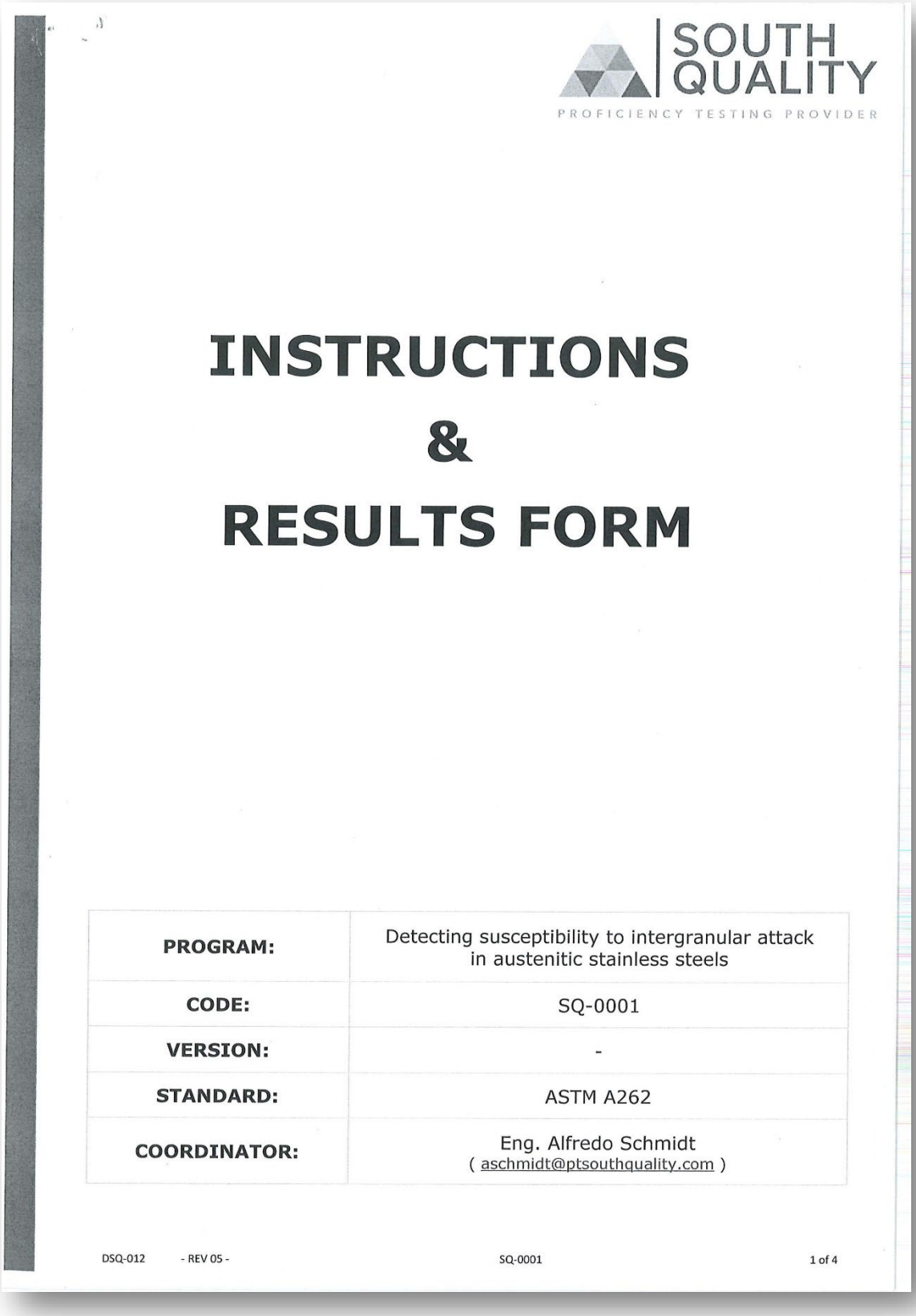
The criteria used for the evaluation of the overall performance is the following:

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

APPENDIX

PARTICIPANT RESULTS

(Results form)



SOUTH QUALITY
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INSTRUCTIONS
&
RESULTS FORM

PROGRAM:	Detecting susceptibility to intergranular attack in austenitic stainless steels
CODE:	SQ-0001
VERSION:	-
STANDARD:	ASTM A262
COORDINATOR:	Eng. Alfredo Schmidt (aschmidt@ptsouthquality.com)

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1 - **General**

This document serves as a guide for managing the results of the **SQ-0001** program.

Results must be typed, not handwritten.

2 - **Standard**

ASTM A262 - 15

3 - **Tests involved**

TEST
PRACTICE A OXALIC ACID ETCH TEST FOR CLASSIFICATION OF ETCH STRUCTURES OF AUSTENITIC STAINLESS STEELS

4 - **Samples**

CODE	SAMPLE	QUANTITY
LM2091-27	Stainless steel - Ø 19 x 22 mm	1
LM3031-22	Stainless steel - 50 x 30 x 4.8 mm	1
LM3319-30	Stainless steel - 50 x 20 x 10 mm	1

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) Samples must be retained until the end of the program, which concludes with the submission of the final report.
d) To review the results, test images would be appreciated. Images can be attached at the end of this document or sent by email.
e) Once this document is completed, it must be converted into a PDF file and sent to the program coordinator.

6 - Test results

Procedure:	According to standard
Test dates:	11/6/2025

Sensitization treatment:	Do not perform

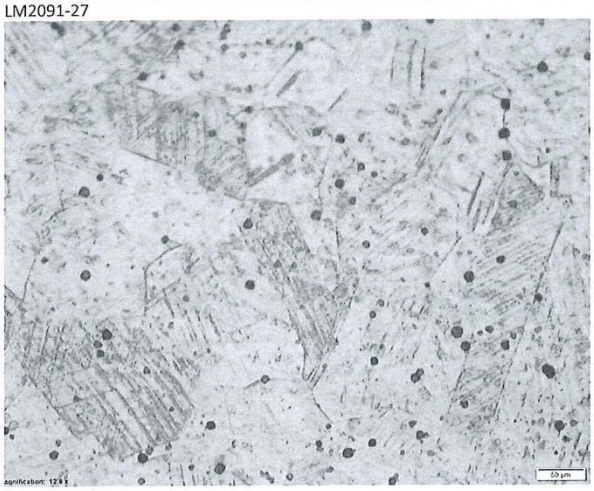
CODE	REAGENT	ETCH STRUCTURE
LM2091-27	Etching solution (Cl. 8.1)	Step
LM3031-22	Etching solution (Cl. 8.1)	Step
LM3319-30	Alternate etching solution (Cl. 8.1.1)	Dual

Magnification:	500x

OBSERVATIONS

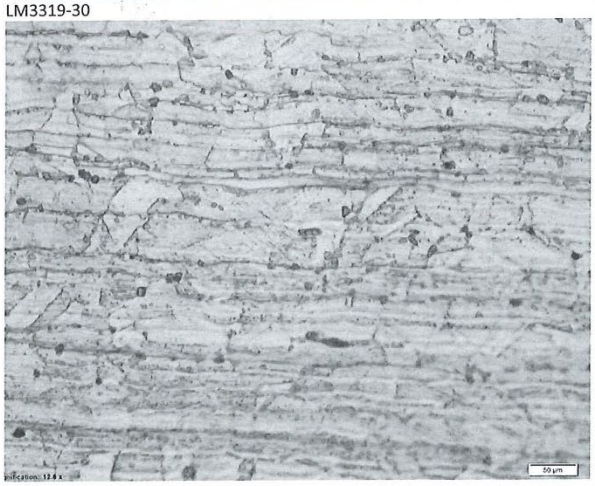
PHOTOGRAPHS

LM2091-27



LM3031-22

LM3319-30



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