SOUTH QUALITY

PROFICIENCY TESTING PROVIDER

# REPORT No 11402

***Date of issue:*** *October 8, 2025*

***Status: FINAL REPORT***

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# ASTM B117

# STANDARD PRACTICE FOR OPERATING SALT SPRAY (FOG) APPARATUS

# Program: SQ-0021.V3

**********



| Prepared by: | Reviewed by: | Approved by: |
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## 1. FOREWORD

This report summarizes the results of the **SQ-0021.V3** proficiency testing program on the determination of corrosion resistance of metallic materials. 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 September 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 to determine of corrosion resistance of metallic materials using the following standard:

| Standard |
|---|
| ASTM B117 - 19 |

To verify this, batches of metallic sheets have been selected.

Participants in this program have not been previously informed of the time or range of time of appearance of the first sign of corrosion, nor change in mass expected of the samples they receive.

## 4. PARTICIPANT

| | |
|---|---|
| Company: | **INDUSTRIAS AUGE** |
| Laboratory: | **INDUSTRIAS AUGE** |
| Country: | Mexico |
| Client ID: | C095 |
| Contact person: | Orlando Hernandez Montoya<br>Chief Laboratory<br>orlando.hernandez@auge.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 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: **100 samples** Tested samples from each batch: **20 samples**

| DETERMINATION | HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES | | |
|---|---|---|---|
| | BATCH: LM3259 | BATCH: LM3260 | BATCH: LM3261 |
| FSC | YES | YES | NO |
| Change in mass | YES | YES | NO |

Samples for this program are taken from the selected batch identified as **LM3259**.

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

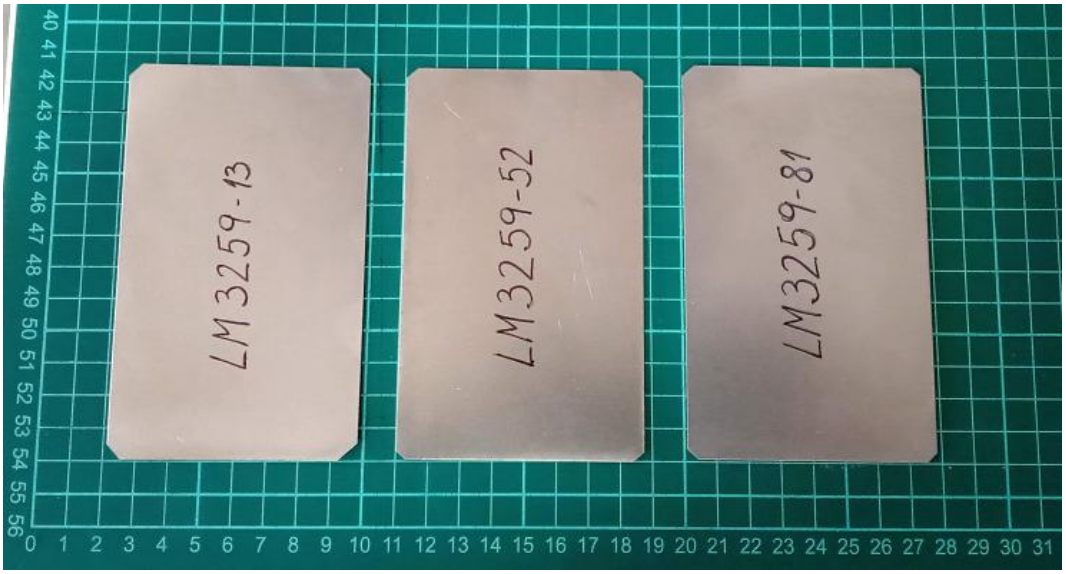
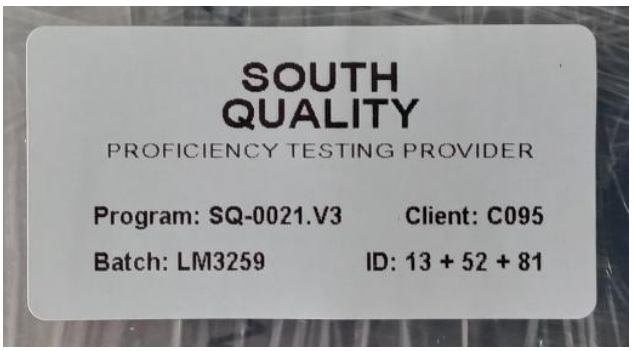
The analysis of the test data indicated that the selected samples exhibited sufficient homogeneity for the program. Therefore, the results of participants identified as outliers cannot be attributed to sample variability.

## 6. SAMPLE INFORMATION

The following samples were sent to be tested:

| | |
|---|---|
| Batch: | LM3259 |
| Sample ID: | 13 + 52 + 81 |
| Characteristics: | Metallic sheet (SAE 1010) - 127 x 76 x 0.7 mm |

## 7. IMAGES

| SAMPLES |
| --- |
|  <br>  |

## 8. ASSIGNED VALUES

| PROPERTY | LM3259 - AVG |
| --- | --- |
| FSC (h): | 48 |
| CHANGE IN MASS (g/m$^2$): | - 94.25 |
| CHANGE IN MASS (SD): | 4.5 |

## 9. PARTICIPANT RESULTS (SEE APPENDIX)

| PROPERTY | LM3259 - AVG |
|---|---|
| FSC (h): | 48 |
| CHANGE IN MASS (g/m²): | - 101.74 |

## 10. STATISTICS

The results must be treated as qualitative and quantitative.

According B.3.1.3 of ISO 17043 the appropriate technique is to compare participant results with the assigned values.

a) For the variable **FSC** the comparison is made through the difference ***D*** (B1 - ISO 17043).

$$D = (x - X)$$

$x$ is the participant's result

$X$ is the assigned value

The performance evaluation is carried out with the following criteria:

| | |
|---|---|
| $\|D\| \leq$ **12 h** | **indicates "satisfactory" performance and generates no signal;** |
| **12 h** $< \|D\| \leq$ **24 h** | **indicates "questionable" performance and generates a warning signal;** |
| $\|D\| >$ **24 h** | **indicates "unsatisfactory" performance and generates an action signal;** |

In those samples where there is no degradation of the material, the result is treated as qualitative and must match with the assigned value to be considered **satisfactory**, otherwise, it is evaluated as **unsatisfactory**.

b) For the variable **CHANGE IN MASS** the comparison is made through ***z*** **score** (B3 - ISO 17043).

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

$x$ is the participant's result

$X$ is the assigned value

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

The performance evaluation 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

| BATCH | FSC (h) | | \| D \| | PERFORMANCE RESULT |
|---|---|---|---|---|
| | PARTICIPANT RESULT | ASSIGNED VALUE | | |
| LM3259 | 48 | 48 | 0 | SATISFACTORY |

| BATCH | CHANGE IN MASS ($g/m^2$) | | \| z score \| | PERFORMANCE RESULT |
|---|---|---|---|---|
| | PARTICIPANT RESULT | ASSIGNED VALUE | | |
| LM3259 | - 101.74 | - 94.25 | 1.7 | SATISFACTORY |

## 12. CONCLUSIONS

The overall performance on this **SQ-0021.V3** program from the participant laboratory **INDUSTRIAS AUGE,** is **SUFFICIENT** based on expected results.

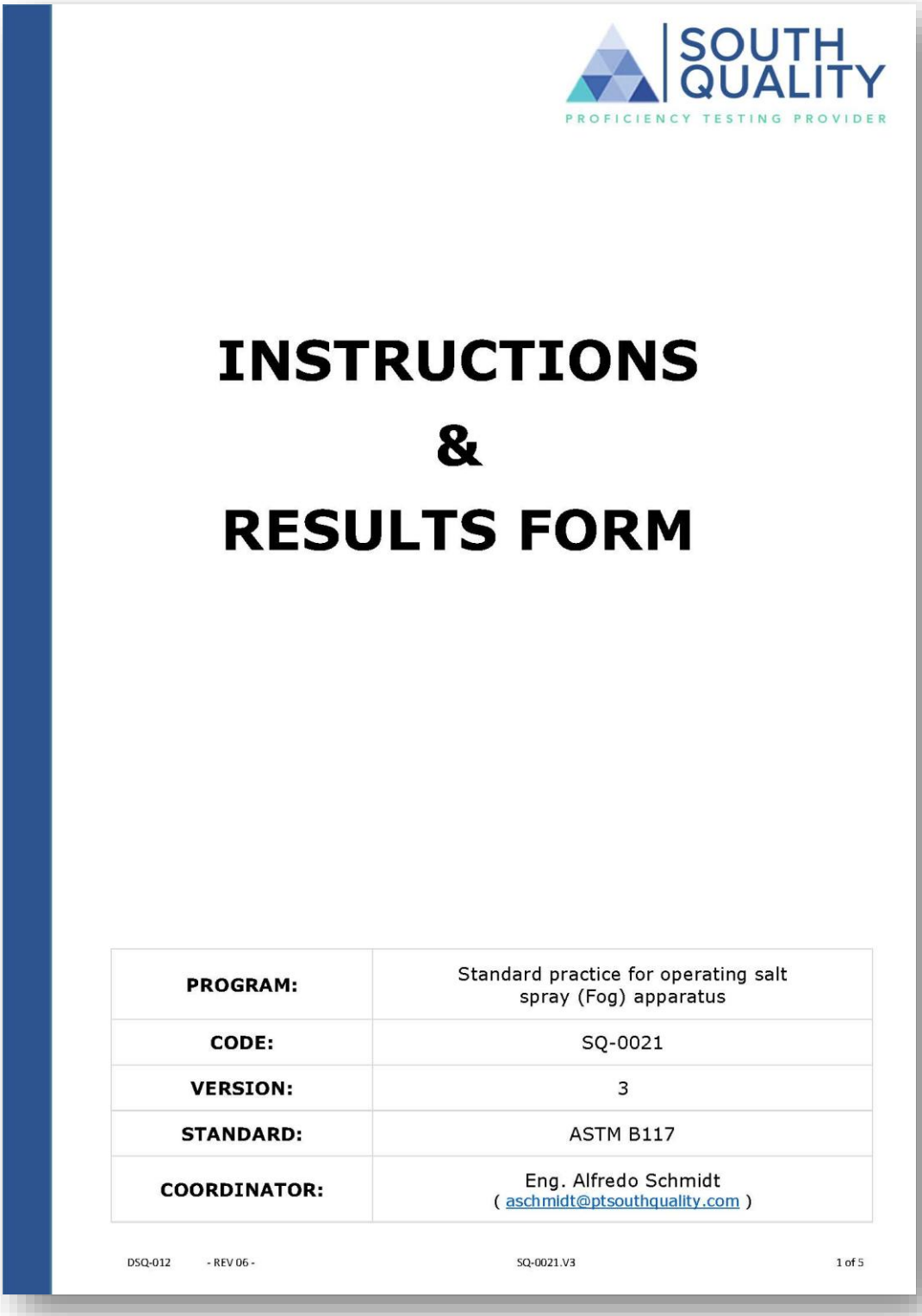
The criteria used for the evaluation of the overall performance is the following:

- **SUFFICIENT** performance: No unsatisfactory/questionable result was obtained.
- **ALMOST SUFFICIENT** performance: A questionable result was obtained
- **INSUFFICIENT** performance: An unsatisfactory result was obtained.

# APPENDIX

## PARTICIPANT RESULTS

## (Results form)



SOUTH QUALITY
PROFICIENCY TESTING PROVIDER

# INSTRUCTIONS
# &
# RESULTS FORM

| | |
|---|---|
| **PROGRAM:** | Standard practice for operating salt spray (Fog) apparatus |
| **CODE:** | SQ-0021 |
| **VERSION:** | 3 |
| **STANDARD:** | ASTM B117 |
| **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-0021.V3** program.

Results must be typed, not handwritten.

## 2 - Standard

**ASTM B117 - 19**

## 3 - Tests involved

| TEST |
|---|
| Assessment of corrosion resistance of metallic materials |

## 4 - Samples

| CODE | SAMPLE | QUANTITY |
|---|---|---|
| LM3259-XX | Metallic sheet - 127 x 76 x 0.7 mm | 3 |

## 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 **ASTM B117.**
**d)** The identification of the samples is located on the backside.
**e)** Samples must be retained until the end of the program, which concludes with the submission of the final report.
**f)** To review the results, test images would be appreciated. Images can be attached at the end of this document or sent by email.
**g)** Once this document is completed, it must be converted into a PDF file and sent to the program coordinator.

## 6 - **Preparation of tests specimens**

a) The samples must be adequately cleaned, and caution must be exercised to prevent recontamination from excessive or careless handling after cleaning.

b) The backside and cut edges should be adequately protected by coating them with a suitable material that remains stable under the test conditions, such as paint, wax, or adhesive tape. The protective coating along the front face edges must be straight and parallel to the sample's edges, leaving a rectangle of the material exposed.

c) Determine the area of exposed material in $cm^2$ (**A**) and weigh the samples to the nearest 1 mg (**m1**).

## 7 - **Test conditions**

| | |
|---|---|
| Procedure: | According to standard |
| Duration of test: | 96 h |
| Inspection frequency: | Min: 6 h / Max: 12 h |
| Parameter to determine: | First sign of corrosion (**FSC**) + Mass change |
| Final measurement: | Weigh the specimens to the nearest 1 mg (**m2**) |

## 8 - **Test results**

| **SAMPLE** | **A** ( $cm^2$ ) | **m1** ( mg ) | **m2** ( mg ) | **FSC** ( h ) * Hora aproximada |
|---|---|---|---|---|
| **LM3259-13** | 52 | 52.574 | 51.899 | 48 h |
| **LM3259-52** | 52 | 52.367 | 51.914 | 48 h |
| **LM3259-81** | 53 | 53.103 | 52.635 | 48 h |

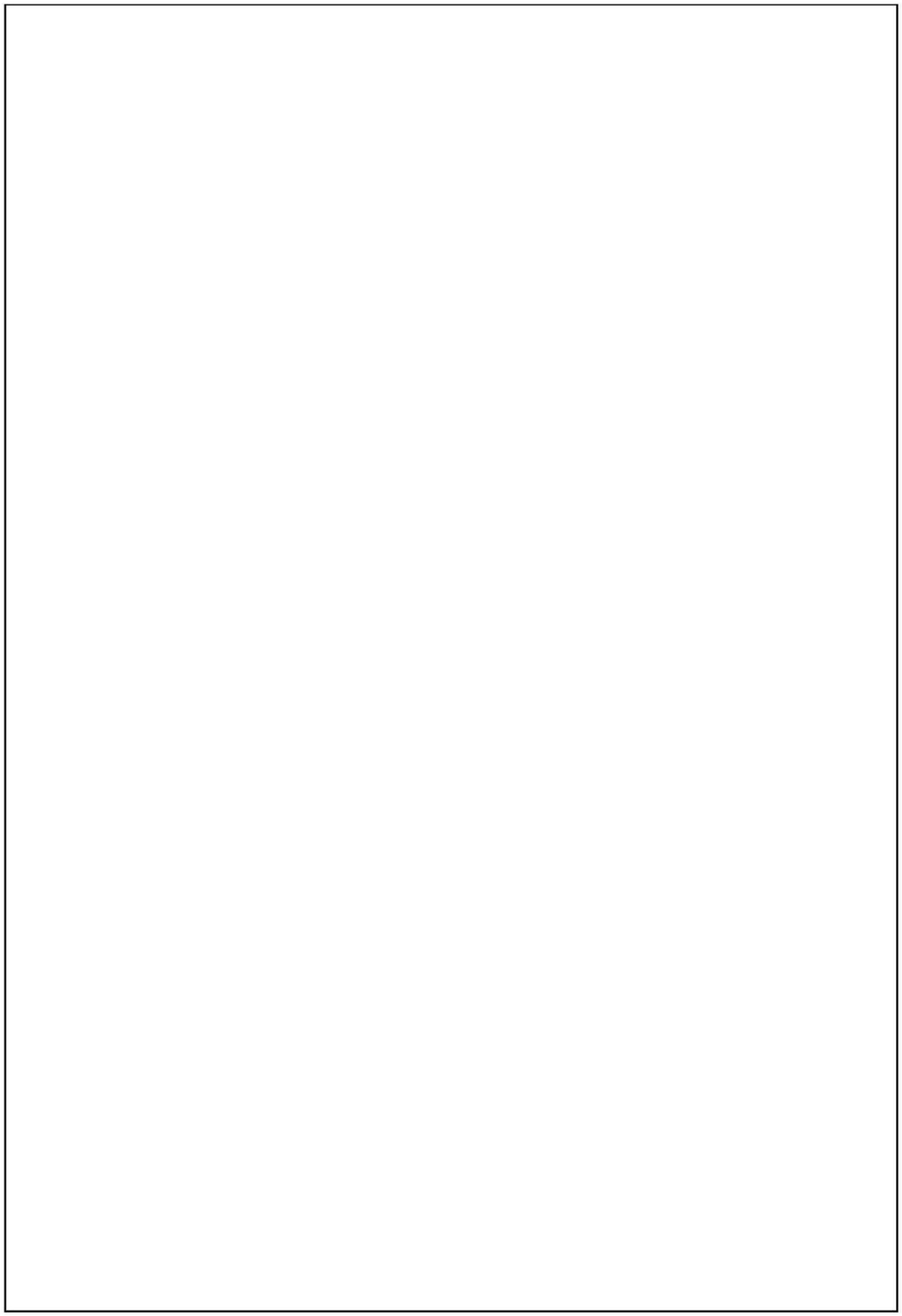
## 9 - **Observations**

| **OBSERVATIONS (According clause 15)** |
|---|
| Las condiciones de operación se realizaron de acuerdo con ASTM B 117. El pH es de 6.75. Presión de cámara de humidificación de 7 psi y temperatura 120°F , Temperatura wet: 95.5 °F, dry: 95°F. |

**PHOTOGRAPHS**

Antes


Después



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