

Certificate of Conformance  
SIFCO Process Solution

The solution identified below has been tested under controlled conditions and found to meet SIFCO Applied Surface Concepts specifications and Quality Assurance standards. This product does not contain, nor has it been contaminated with metallic mercury or mercury compounds. SIFCO ASC, LLC is a mercury free facility.

This product is free from all foreign materials that could result in foreign object damage to the equipment or process.

Capability of Meeting Specifications

SIFCO Process electroplates, when properly selected and applied, will meet the requirements of: AMS2451/10, MIL-STD-865E and ASTM F 519-18.

Product Code	<b>4019</b>
Product Description	<b>Tin-Zinc LHE®</b>
Batch Number	<b>2209022</b>
Test Requirement	Actual Value
pH	6.35 @ 20°C
Specific Gravity	1.201 @ 20°C
Metal Content	Sn 26.94 Zn 13.01 g/l
Solution Appearance	Yellow
Date of Manufacture	September 12, 2022
HE Certification Date	September 22, 2022 Lab Report# 22-75495
Date of Expiration	September 12, 2024



Quality Technician

09/27/2022

Date

"Specialists in Embrittlement Testing"

**Date:** September 22 2022

**To:** **SIFCO OH**  
5708 Schaaf Road  
INDEPENDENCE, OH 44131

**Test Report:** 22-75495

**Reference P.O.:** PO00009022  
S/N 1-4

**Test:** **NOTCH TENSILE HYDROGEN EMBRITTLEMENT**

**Sample Identification:** SAMPLES A, B, C, D:

**Job / SN:** SOLUTION CODE 4019 BATCH 2209022

**Process:** BRUSH TIN ZINC PLATE

**PO Specification:** AMS 2451/10B, ASTM F519 1A1

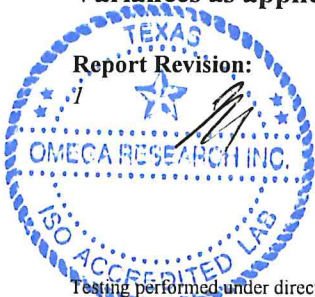
**Test Method Scope:** ASTM F519-18

**Receive Date:** Sep 13, 2022  
**Test Start Date:** Sep 13, 2022  
**Test End Date:** Sep 22, 2022

**Sample Lot:** 45H **Mfg.:** GREEN  
**Notched Ultimate Tensile Load:** 9256 **Units:** LBS  
**Test Load:** 6942 **Units:** LBS

**Observation:** Single failure noted at: 3.7 hours  
**Results:** Process Considered Non-Embrittling IAW ASTM F519

**The above identified notched tensile samples were subjected to a 200-hour sustained load test at a load of 75% of the Notch Ultimate Tensile Load (NUTL). Results above are applicable to submitted purchase order specifications. Additionally, results apply to the samples as received. Variances as applicable are noted at bottom right of report:**



**Report Revision:**

**Revision Description:**

STEP LOAD 9/22/2022

1

1 - Original

The remaining three samples were step loaded in 5% increments every 2 hours to 90% NUTL IAW ASTM F519 11.2. No additional failures noted.

Testing performed under direct supervision of approved signatories per QM-001 ISO 17025 Quality Manual PARA 7.8.

**Jeremy Riley**     **Joshua Cox**     **Clint Williams**  
**Ops Mgr**            **Quality Mgr**        **Engr Tech**

**APPROVED**  
DS 9/27/22

Decision Rule: Per previously communicated and agreed, data has been supplied/reported as observed without accounting for measurement uncertainty.

Report invalid unless color seal present. Page 1 of 1