

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

When properly selected and applied, this solution will meet LGPS1102. This solution meets the requirements for: MIL-STD-865E, AMS2451/4E, ASTM F519-18, BAC5854M, DPS9.89P & PS 13113F.

Product Code	2023
Product Description	Cadmium No-Bake
Batch Number	2210168
Test Requirement	Actual Value
Specimen Type	1a1 Notch Bars per ASTM F519 Lot # 45H Sensitivity Pass Date: 07/06/2022 Notched Specimens per BAC5144 Lot # 164439-1-1 P Sensitivity Pass Date: 11/01/2021 Lot # 057093 Sensitivity Pass Date: 09/22/2020 2a rings per ASTM F519 Lot # 93117 Sensitivity Pass Date: 01/06/2022
pH	11.06 @ 20°C
Specific Gravity	1.161 @ 20°C
Metal Content	100.1 g/l
Hydrogen Embrittlement	CONFORMS – Lab Report #22-75979
200 Hour Fracture Test	Pass AMS2451/4, PS13113 and BAC5854
168 Hour Fracture Test	Pass DPS 9.89
Solution Appearance	Clear
Solution Manufacturing Date	October 26, 2022
HE Certification Pass Date	November 5, 2022
Recommended Shelf Life	MIL-STD-865E and AMS2451/4 Expires: October 26, 2026 BAC 5854, DPS 9.89 & PS 13113 Retest before: Nov. 5, 2023



 Quality Technician

11/09/2022

 Date



"Specialists in Embrittlement Testing"

Date: November 07 2022

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

Test Report: 22-75979

Reference P.O.: PO00009170
S/N 1, 2, 3, 4

Test: **NOTCH TENSILE HYDROGEN EMBRITTLEMENT**

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

Job / SN: SOLUTION 2023 BATCH 2210168

Process: BRUSH CADMIUM PLATE

PO Specification: MIL-STD-865E, AMS 2451/4E, PS13113F

Test Method Scope: ASTM F519-18

Receive Date: Oct 27, 2022

Test Start Date: Oct 27, 2022

Test End Date: Nov 05, 2022

Sample Lot: 45H

Notched Ultimate Tensile Load: 9256

Test Load: 6942

Mfg.: GREEN

Units: LBS

Units: LBS

Results: Conforms

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:

1

Revision Description:

1 - Original

APPROVED
PS 11/9/22



Testing performed under direct supervision of approved signatories per QM-008 ISO 17025 Quality Manual PARA 7.8.

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

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



"Specialists In Embrittlement Testing"

Date: November 07 2022

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

Test Report: 22-75979

Reference P.O.: PO00009170
S/N 0809N, 0193P

Test: **NOTCH TENSILE HYDROGEN EMBRITTLEMENT**

Sample Identification: SAMPLES A, B:

Job / SN: SOLUTION 2023 BATCH 2210168

Process: BRUSH CADMIUM PLATE 1A2

PO Specification: BAC 5854M, BAC 5144

Test Method Scope: ASTM F519-18

Receive Date: Oct 27, 2022
Test Start Date: Oct 27, 2022
Test End Date: Nov 05, 2022

Sample Lot: N, P **Mfg:** GREEN
Notched Ultimate Tensile Load: 16126, 15860 **Units:** LBS
Test Load: 12095, 11895 **Units:** LBS

Results: Conforms

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: 1	Revision Description: 1 - Original	One sample was metallographically cross-sectioned longitudinally across the notch and evaluated at 80-100X magnification for complete plating coverage of the notch. Conforms. Photo attached. Samples Loaded on individual frames.
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Testing performed under direct supervision of approved signatories per ASTM E1701 ISO 17025 Quality Manual PARA 7.8.

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

APPROVED
JS 11/9/22

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

Report invalid unless color seal present. Page 1 of 1



"Specialists in Embrittlement Testing"

Date: November 07 2022

To: SIFCO OH
5708 Schaaf Road
INDEPENDENCE, OH 44131

Test Report: 22-75979

Reference P.O.: PO00009170
S/N 0193P

Test: PHOTOMICROGRAPH

Sample Identification: SAMPLE A:

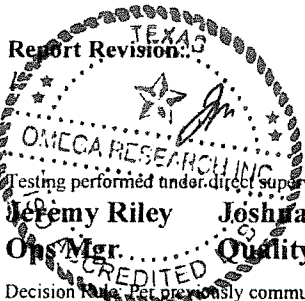
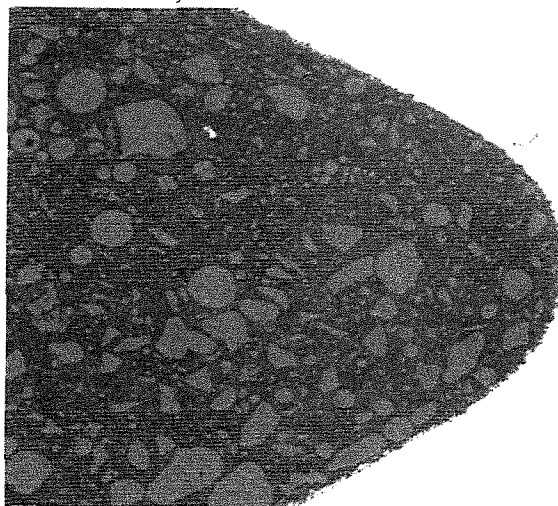
Job / SN: SOLUTION 2023 BATCH 2210168

Process: BRUSH CADMIUM PLATE 1A2

PO Specification: BAC 5854M, BAC 5144

Test Method Scope: ASTM E3-11(2017)

Receive Date: Oct 27, 2022



Revision Description:

1 - Original

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

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

Decision made 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