GT-24-147

Outgas Testing of GS27500-24SC2S23, GS22759-33-24, and GS22759-43-16

Revision	Description of Changes	Date	Author
A	Initial Release	8/9/2024	M. Summers
B	Revised per DCN102839	10/24/2024	M. Summers

1. Scope

This test report summarizes the outgassing test results of GS27500-24SC2S23, GS22759-33-24, and GS22759-43-16 wires and cables. All tests were performed according to ASTM E595.

2. Test Specimens

The part numbers and full description of the wires tested are listed in Table I. The insulation was stripped from the wire and cut into approximately 0.125-inch pellets. The combined insulating layers for GS27500-24SC2S23 underwent testing as a single unit.

Table I

Test Item	Part Number	Description
1	GS27500-24SC2S23	24 AWG, ANSI/NEMA WC 27500 Type Electrical Cable
2	GS22759-33-24	24 AWG, AS22759/33 Wire, Silver Coated High Strength Copper Conductor Crosslinked Modified ETFE Insulated, 600-Volt, 200°C
3	GS22759-43-16	16 AWG, AS22759/43 Wire, Silver Coated Copper Conductor Crosslinked Modified ETFE Insulated, Normal Weight, 600-Volt, 200°C

3. Summary of Results

The results of the tests are summarized in Table II.

Table II

Test Requirement	GS27500-24SC2S23	GS22759-33-24	GS22759-43-16
Total Mass Loss, 1.00 % max.	0.58	0.30	0.22
Collected Volatile Condensable Material, 0.10 % max.	<0.01	0.02	0.01
Water Vapor Recovered, report, %	0.02	0.02	0.01
Result	**Pass**	**Pass**	**Pass**

4. Conclusion

GS27500-24SC2S23, GS22759-33-24, and GS22759-43-16 meets the NASA low outgassing requirements when tested in accordance with ASTM E595.

5. Appendix A: Pacific Testing Laboratories, Inc Test Report

PACIFIC TESTING LABORATORIES, INC.

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TEST REPORT

In Account With	Date	
GLENAIR, INC. 1333 Air Way Glendale, CA 91201	July 24, 2024	Page 1 of 2 Pages
	W.O. Number 79237	Test Report Number TR79237
Attn: Micah Summers	P.O. No. D241158	Received 07/03/2024

IDENTIFICATION: Three (3) sample materials were submitted for Outgas Testing in accordance with ASTM E595. The test samples were identified as follows:

1) P/N: GS27500-24SC2S23, JOB#: AC-3B273-01
2) P/N: GS22759-33-24, JOB#: AC-3G930-01
3) P/N: GS22759-43-16

SPECIFICATION : ASTM E595.

REFERENCE : Purchase Order Number D241158.

TESTING : Outgas Testing.

SUMMARY : The test results, reported herein, are submitted for customer evaluation.

Respectfully submitted,
PACIFIC TESTING LABORATORIES, INC.

Hans Shin
Laboratory Director

Aileen Shin
Materials Engineer

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OUTGAS TESTING

REFERENCE:

ASTM E595.

REQUIREMENT:

ASTM E595, paragraph 1.5: The criteria used for the acceptance and rejection of materials shall be determined by the user and based upon specific component and system requirements. Historically, a total mass loss (TML) of 1.00% and collected volatile condensable material (CVCM) of 0.10% have been used as screening levels for rejection of spacecraft materials.

TEST METHOD:

The Outgas Test was performed in a vacuum environment of less than 5×10^{-5} torr according to ASTM E595, for a duration of 24 hours, at 125°C on three specimens per sample (unless otherwise noted). The TML, CVCM, and the amount of Water Vapor Recovered (WVR) were measured after the test and the average values reported.

RESULTS:

The following tables list the results of the testing:

Table 1. Average Outgas test results.

Sample	TML (%)	CVCM (%)	WVR (%)
P/N: GS27500-24SC2S23, JOB#: AC-3B273-01	0.58	<0.01	0.02
P/N: GS22759-33-24, JOB#: AC-3G930-01	0.30	0.02	0.02
P/N: GS22759-43-16	0.22	0.01	0.01

Table 2. Testing observation results (for information/reference only).

Sample	Visible Condensate (CVCM)	Percent Covered (CVCM)	Thin / Heavy (CVCM)	Opaque / Transparent (CVCM)	Interference Fringes (CVCM)	Colored Fringes (CVCM)	Appearance After Test (Sample)
P/N: GS27500-24SC2S23, JOB#: AC-3B273-01	Yes	15%	Thin	Opaque	No	Yes	No change
P/N: GS22759-33-24, JOB#: AC-3G930-01	Yes	5%	Thin	Opaque	No	No	No change
P/N: GS22759-43-16	Yes	15%	Thin	Opaque	No	No	No change

REMARKS:

The test results, reported herein, are submitted for customer evaluation.