

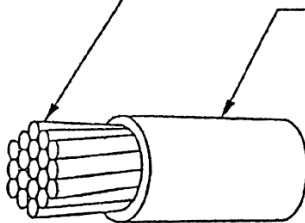
RATIONALE

THE INDUSTRY HAS IDENTIFIED FLUORIDE OFFGASSING AS A POTENTIAL SERIOUS ISSUE IN ENCLOSED ENVIRONMENTS SUCH AS SPACECRAFT AND MISSILES. THE EVOLUTION OF FLUORIDE GAS CAN ACCELERATE CORROSION OF METAL SURFACES AND ETCHING OF OPTICS. IT CAN ALSO ACCELERATE COPPER OXIDATION. THE INDUSTRY HAS ALSO IDENTIFIED ADDITIONAL AEROSPACE CRITICAL TESTS SINCE THE LEGACY CROSS-LINKED MODIFIED ETFE DETAILED SPECIFICATIONS SHEETS WERE ORIGINATED. THESE TESTS INCLUDE UV LASER MARKING AND UV LASER CONTRAST AFTER THERMAL AGING AND THE REQUIREMENTS HAVE BEEN INCLUDED IN THIS DETAILED SPECIFICATION SHEET.

NOTICE

THE REQUIREMENTS FOR ACQUIRING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE QUALIFIED PRODUCTS DATABASE (QPD) SPECIFIED IN THE SOLICITATION: AS22759

SMALL DIAMETER CONDUCTOR - Silver -
COATED COPPER



INSULATION - CROSSLINKED,
EXTRUDED, MODIFIED ETFE*

* ETFE - Ethylene-tetrafluoroethylene copolymer

FIGURE 1 – GENERAL CONFIGURATION

TABLE 1 – CONSTRUCTION DETAILS

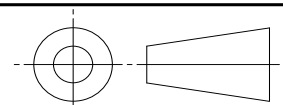
PART NO. 1/	WIRE SIZE	STRANDING (NUMBER OF STANDS X AWG GAUGE OF STRANDS) 2/	DIAMETER OF STRANDED CONDUCTOR (INCHES)		FINISHED WIRE		
			(MIN)	(MAX)	RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FT) MAX	DIAMETER (INCHES)	WEIGHT (LBS/1000 FT) (MAX)
M22759/48-28-*	28	7 X 36	.0135	.0154	63.8	.027 ± .002	0.91
M22759/48-26-*	26	19 X 38	.0175	.0194	38.4	.032 ± .002	1.4
M22759/48-24-*	24	19 X 36	.0225	.0244	24.3	.037 ± .002	2.0
M22759/48-22-*	22	19 X 34	.0285	.0304	15.1	.043 ± .002	2.8
M22759/48-20-*	20	19 X 32	.0365	.0384	9.19	.050 ± .002	4.3
M22759/48-18-*	18	19 X 30	.0455	.0484	5.79	.060 ± .002	6.5
M22759/48-16-*	16	19 X 29	.0515	.0544	4.52	.068 ± .002	8.3
M22759/48-14-*	14	19 X 27	.0645	.0684	2.88	.085 ± .003	13.0
M22759/48-12-*	12	37 X 28	.0835	.0874	1.90	.103 ± .003	19.7

1/ PART NUMBER: THE ASTERISKS IN THE PART NUMBER COLUMN, TABLES 1 AND 2, SHALL BE REPLACED BY COLOR CODE DESIGNATORS IN ACCORDANCE WITH MIL-STD-681. EXAMPLES: SIZE 20, WHITE-M22759/48-20-9; WHITE WITH ORANGE STRIPE – M22759/48-20-93. PRINTING OF COLOR CODE DESIGNATOR ON SURFACE OF WIRE INSULATION IS NOT REQUIRED.

2/ CONDUCTOR SHALL CONFORM TO MIL-DTL-29606A, TYPE SCC1 80 MICROINCH SILVER PLATED COPPER CONDUCTOR

SAE values your input. To provide feedback on this Technical Report, please visit <http://www.sae.org/technical/standards/AS22759/48>

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: AS22759

SAE Aerospace
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AEROSPACE STANDARD

WIRE, ELECTRICAL, FLUOROPOLYMER-INSULATED
CROSSLINKED MODIFIED ETFE, LOW FLUORIDE,
LIGHTWEIGHT, 80 MICROINCH SILVER-COATED COPPER,
200 °C. 600 VOLT

SAE AS22759/48
SHEET 1 OF 3

TABLE 2 – PERFORMANCE DETAILS

PART NO.	BEND TESTING			
	MANDREL DIAMETER (INCHES (±3%))		TEST LOAD (LBS) (±3%)	
	CROSSLINKING PROOF, IMMERSION AND LIFE CYCLE TESTS	COLD BEND TEST	CROSSLINKING PROOF, IMMERSION AND LIFE CYCLE TESTS	COLD BEND TEST
M22759/48-28-*	.250	.375	.125	.500
M22759/48-26-*	.375	.500	.125	.500
M22759/48-24-*	.500	.500	.250	1.00
M22759/48-22-*	.500	.750	.375	1.00
M22759/48-20-*	.500	.750	.500	1.00
M22759/48-18-*	.500	1.00	.500	1.00
M22759/48-16-*	.750	1.00	.750	1.00
M22759/48-14-*	1.00	1.50	1.00	3.00
M22759/48-12-*	1.50	2.00	1.50	3.00

RATINGS:

TEMPERATURE RATING: 200 °C (392 °F) MAXIMUM CONTINUOUS CONDUCTOR TEMPERATURE.

VOLTAGE RATING: 600 VOLTS (RMS) AT SEA LEVEL.

THIS INSULATION SYSTEM HAS BEEN USED IN AEROSPACE APPLICATIONS USING 115 VOLTS (PHASE TO NEUTRAL), 400 HERTZ AC AND 28 VOLTS DC. VERIFICATION OF THE SUITABILITY OF THIS PRODUCT FOR USE IN OTHER ELECTRICAL SYSTEM ONFIGURATIONS IS THE RESPONSIBILITY OF THE USER.

ADDITIONAL REQUIREMENTS:

SILVER PLATED CONDUCTOR: SHALL MEET QUALITY CONFORMANCE TEST FOR CONDUCTOR MATERIAL AND REQUIREMENTS OF MIL-W-29606A AS DEFINED FOR SCC1 TYPE CONDUCTORS.

BLOCKING: 230 °C ±3 °C (446 °F ±5.4 °F).

COLOR: IN ACCORDANCE WITH MIL-STD-104, CLASS 1; WHITE PREFERRED. CONFORMITY OF COLOR TO THE LIMITS OF MIL-STD-104 SHALL NOT BE REQUIRED AFTER CROSSLINKING PROOF TEST OR LIFE CYCLE OVEN EXPOSURE.

COLOR STRIPING OR BANDING DURABILITY: 125 CYCLES (250 STROKES) (MIN), 500 GRAMS WEIGHT. NOT REQUIRED FOR SIZES 2 AND LARGER

CROSSLINKING PROOF TEST: 7 HOURS AT 300 °C ±3 °C (572 °F ±5.4 °F). QUALITY CONFORMANCE TEST, GROUP II. REQUIREMENTS AND PROCEDURES AS FOR LIFE CYCLE EXCEPT FOR TIME AND TEMPERATURE.

DIELECTRIC TEST AFTER IMMERSION: 2500 VOLTS (RMS), 60 HZ.

DRY ARC PROPAGATION RESISTANCE: NOT REQUIRED.

DYNAMIC CUT-THROUGH: NOT REQUIRED.

FLAMMABILITY: QUALITY CONFORMANCE TEST, GROUP II. FOR REQUIREMENTS AND PROCEDURES SEE BELOW. TEST IN ACCORDANCE WITH AS4373, METHOD 801.

REQUIREMENTS:

DURATION AFTER-FLAME	3.0 SECONDS (MAXIMUM)
FLAME TRAVEL	3.0 INCHES (MAXIMUM)
NO FLAMING OF TISSUE	

FLUORIDE OFFGASSING TEST: (GROUP 1 QUALITY CONFORMANCE TEST) FLUORIDE EXTRACTION LEVEL SHALL NOT EXCEED 20 PPM IN ACCORDANCE WITH AS4737 METHOD 608.

HIGH FREQUENCY SPARK TEST: (WHEN USED IN LIEU OF THE IMPULSE DIELECTRIC TEST) 5.7 KILOVOLTS (RMS). 100 PERCENT TEST

HUMIDITY RESISTANCE: AFTER HUMIDITY EXPOSURE, WIRE SHALL MEET THE REQUIREMENTS FOR INITIAL INSULATION RESISTANCE.

IDENTIFICATION OF PRODUCT: REQUIRED. SEE AS22759 FOR RESTRICTIONS.

 An SAE International Group	AEROSPACE STANDARD	SAE AS22759/48 SHEET 2 OF 3	
	WIRE, ELECTRICAL, FLUOROPOLYMER-INSULATED CROSSLINKED MODIFIED ETFE, LOW FLUORIDE, LIGHTWEIGHT, 80 MICROINCH SILVER-COATED COPPER, 200 °C, 600 VOLT		