INCH-POUND

MIL-STD-1276G
14 March 2005
SUPERSEDING
MIL-STD-1276F
14 January 2000

DEPARTMENT OF DEFENSE INTERFACE STANDARD

LEADS FOR ELECTRONIC COMPONENT PARTS

AMSC N/A **FSC 5999**

FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense.

2. Comments, suggestions, or questions on this document should be addressed to: Defense Supply Center Columbus, ATTN: DSCC-VAT, PO Box 3990, Columbus, OH 43218-3990, or emailed to Relay@dscc.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at http://assist.daps.dla.mil/.

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TABLES

1. SCOPE

1.1 Scope. This standard establishes the method of identifying, specifying, and limiting to a minimum the combinations of basic materials, the thickness and composition of the plating used therewith, and the sizes of wire and flat wire (ribbon) leads on electronic and electrical parts when they are to be soldered or welded during assembly in equipment.

1.2 Classification.

1.2.1 Type designation. The type designation will be in the following format:

L	W	(X.XX)	D	-	21	-	A1
Lead	Cross-section (see 1.2.1.1)	Nominal size (see 1.2.1.2)	Composition (see 1.2.1.3)		Final finish (see 1.2.1.4)		Under-plating (see 1.2.1.5)

1.2.1.1 Cross section. The lead cross section will be identified by a single letter symbol as follows:

R - Rectangular.
S - Square.
W - Wire (round or circular).
X - Other (as specified).

1.2.1.2 Nominal size. The lead size will be identified by the nominal diameter or nominal diagonal in millimeters (within parentheses) or inches (without parentheses). See table I for a list of suggested nominal sizes.

1.2.1.3 Composition. The lead composition will be identified by a single letter symbol as specified in 5.1.

1.2.1.4 Final finish. The final finish for leads will be identified by a two-number code as specified in 5.2.

1.2.1.5 Underplating. The underplating type and thickness will be identified by a one or two digit alpha-numeric code as specified in 5.2.1.

TABLE I. Nominal size (for information only).

Wire size AWG (B and S)	Diameter in inches	Diameter in millimeters
1	.289	7.34
2	.257	6.53
3	.229	5.82
4	.204	5.18
5	.181	4.60
6	.162	4.11
7	.144	3.65
8	.128	3.25
9	.114	2.90
10	.101	2.57
11	.090	2.29
12	.080	2.03
13	.072	1.83
14	.064	1.63
15	.057	1.45
16	.050	1.27
17	.045	1.14
18	.040	1.02
19	.035	0.89
20	.032	0.81
21	.028	0.71
22	.025	0.64
23	.022	0.56
24	.020	0.51
25	.017	0.43
26	.015	0.38
27	.014	0.36
28	.012	0.30
29	.011	0.28
30	.010	0.25
31	.008	0.20
32	.008	0.20
33	.007	0.18
34	.006	0.15
35	.005	0.13
36	.005	0.13
37	.004	0.10
38	.004	0.10
39	.003	0.08
40	.003	0.08

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, and 5 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3, 4, and 5 of this standard, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-202	-	Test Methods for Electronic and Electronic and Electrical Component Parts.
MIL-STD-750	-	Test Methods for Semiconductor Devices.
MIL-STD-883	-	Test Methods and Procedures for Microelectronics.

(Copies of these documents are available online at http://assist.daps.dla.mil/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

AMERICAN NATIONAL STANDARDS

J-STD-006	-	Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications.

(Application for copies should be addressed to the Institute for Interconnecting and Packaging Electronic Circuits (IPC), 7380 N. Lincoln Avenue, Lincolnwood, IL 60646 or electronically at http://www.ipc.org/.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B5	-	Standard Specification for High Conductivity Tough-Pitch Copper Refinery Shapes.
ASTM B122	-	Standard Specification for Copper-Nickel-Tin Alloy, Copper-Nickel-Zinc Alloy (Nickel Silver), and Copper-Nickel Alloy Plate, Sheet, Strip and Rolled Bar.
ASTM B170	-	Standard Specification for Oxygen-Free Electrolytic Copper-Refinery Shapes.
ASTM B322	-	Standard Practice for Cleaning Metals Prior to Electroplating.
ASTM B343	-	Standard Practice for Preparation of Nickel for Electroplating with Nickel.
ASTM B452	-	Standard Practice for Electronic Application, Wire, Steel, Copper-Clad.
ASTM B465	-	Standard Specification for Copper-Iron Alloy Plate, Sheet, Strip, and Rolled Bar.
ASTM B487	-	Standard Practice for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of a Cross-section.
ASTM B488	-	Electrodeposited Coatings of Gold for Engineering Uses.
ASTM B545	-	Standard Specification for Electrodeposited Coatings of Tin.
ASTM B567	-	Standard Practice for Measurement of Coating Thickness by the Beta Backscatter Method.
ASTM B571	-	Standard Practice for Adhesion of Metallic Coating.
ASTM B592	-	Standard Specification for Copper-Zinc-Aluminum-Cobalt or Nickel-Alloy Plate, Sheet, Strip, and Rolled Bar, Specification for.
ASTM B700	-	Standard Specification for Electrodeposited Coatings of Silver for Engineering Use.
ASTM B735	-	Standard Test Method for Porosity in Gold Coatings on Metal Substrates by Nitric Acid Vapor.
ASTM B741	-	Standard Test Method for Porosity in Gold Coatings on Metal Substrates by Paper Electrography.
ASTM F15	-	Standard Specification for Iron-Nickel-Cobalt Sealing Alloy.
ASTM F29	-	Standard Specification for Dumet Wire for Glass-to-Metal Seal Applications.
ASTM F30	-	Standard Specification for Iron-Nickel Sealing Alloy.

(Application for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19482-2959 or electronically at http://www.astm.org/.)

SOCIETY OF AUTOMOTIVE ENGINEERS

AMS 2418	-	Plating, Copper.
AMS C-26074	-	Coatings, Electroless Nickel, Requirements for.
AMS P-81728	-	Plating, Tin-Lead (Electrodeposited).
AMS-QQ-N-290	-	Nickel Plating (Electrodeposited).

(Application for copies should be addressed to the Society of Automotive Engineers, Inc. (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001 or electronically at http://www.asme.org/).

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. DEFINITIONS

3.1 Definitions. This section is not applicable to this standard.

4. GENERAL REQUIREMENTS

4.1 Preferred methods of assembly. The preferred methods of assembly shall be in accordance with table II.

TABLE II. Preferred methods of assembly.

Composition (see 5.1)	Underplating (see 5.2.1)	Final finish (see 5.2)											
		01	21	22	32	34	41	43	51	52	61	71	72
A	A	---	S,W	S,W	S	S	S	S	S	S	W	S	S
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
B	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
C	A	---	---	---	"	"	"	"	"	"	"	"	"
"	B	---	---	---	"	"	"	"	"	"	"	"	"
"		---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
"	N	W	---	---	"	"	"	"	"	"	"	"	"
D	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
"	N	---	---	---	"	"	"	"	"	"	"	"	"
E	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
"	N	---	---	---	"	"	"	"	"	"	"	"	"
F	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
G	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
H	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
"	N	---	---	---	"	"	"	"	"	"	"	"	"
J	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
K	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
L	A	---	---	---	"	"	"	"	"	"	"	"	"
"	B	---	---	---	"	"	"	"	"	"	"	"	"
"					"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
"	N	---	---	---	"	"	"	"	"	"	"	"	"
M					"	"	"	"	"	"	"	"	"
"					"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
"	N	---	---	---	"	"	"	"	"	"	"	"	"

TABLE II. Preferred methods of assembly - Continued.

Composition (see 5.1)	Underplating (see 5.2.1)	Final finish (see 5.2)											
		01	21	22	32	34	41	43	51	52	61	71	72
N					S	S	S	S	S	S	W	S	S
"					"	"	"	"	"	"	"	"	"
"	C	---	---	---	"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
"	N	W	---	---	"	"	"	"	"	"	"	"	"
W	A	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"	B	---	S,W	S,W	"	"	"	"	"	"	"	"	"
"					"	"	"	"	"	"	"	"	"
"	P	---	---	---	"	"	"	"	"	"	"	"	"
"	N	---	---	---	"	"	"	"	"	"	"	"	"
X	As specified in the acquisition document.												

S = Solder.
W = Weld.

4.2 Solderability. When specified in the acquisition documents, leads shall meet the following solderability requirements.

a. Discrete semiconductor devices: Test method 2026 of MIL-STD-750.

b. Microelectronics: Test method 2003 of MIL-STD-883.

c. Other electronic and electrical component parts: Test method 208 of MIL-STD-202.

4.3 Thickness. When specified in the acquisition document, the thickness of the final finish and underplating shall be determined in accordance with ASTM B487 or ASTM B567.

4.4 Adhesion. When specified in the acquisition document, the adhesion of the final finish and underplating shall be determined in accordance with ASTM B571 or method 2025 of MIL-STD-883.

4.5 Porosity. When specified in the acquisition document, there shall be no evidence of porosity for final finishes 21, 22, and 61 when tested in accordance with ASTM B735 or ASTM B741.

4.6 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

4.7 Workmanship in finishes. All plating or primary finishes or underplating shall be deposited in such a way that the plating is applied to a clean, nonoxidized metal surface that is free from defects that will be detrimental to the utility, form, fit, function, or protective value of the finish. Where surface cleaning, deoxidation, activation, or undercoating are used, the material or device so treated must proceed immediately to the primary finish process in order to maintain the ability to overplate effectively.

5. DETAILED REQUIREMENTS

5.1 Composition. The specified lead composition (see 1.2.1.3) shall be homogeneous and conform to the requirements of the applicable documents and table as follows:

A - Copper-iron-phosphorus-zinc alloy (194 alloy): ASTM B465 (see 5.2.1.4).

B - Copper-iron-phosphorus-cobalt-tin alloy (195 alloy), 97 percent Cu, 1.5 percent Fe, 0.1 percent P, 0.8 percent Co, and 0.6 percent Sn (see 5.2.1.4).

C - Copper (oxygen free): ASTM B170, grade 1 or grade 2.

D - Copper-clad nickel-iron alloy (Dumet): ASTM F29.

E - Copper-nickel-tin alloy (725 alloy), 88.2 percent Cu, 9.5 percent Ni, and 2.3 percent Sn: ASTM B122.

F - Iron-nickel alloy (52 alloy): ASTM F30 (see 5.2.1.2).

G - Iron-nickel alloy (42 alloy): ASTM F30 (see 5.2.1.2).

H - Copper-aluminum-silicon-cobalt alloy (638 alloy), 95.0 percent Cu, 2.8 percent Al, 1.8 percent Si, and 0.4 percent Co.

J - Copper-zinc-aluminum-cobalt alloy (688 alloy): ASTM B592 (see 5.2.1.4).

K - Iron-nickel-cobalt alloy: ASTM F15 (see 5.2.1.2).

L - Copper, Electrolytic tough - pitch: ASTM B5.

M - Steel, nickel clad, 8 percent nickel, clad by weight.

N - Nickel: See table III for ribbon leads or for round-wire leads.

W - Steel, copper-clad: ASTM B452 (except that the percent of conductivity shall be a minimum of 16 percent.)

X - Other composition as specified in the acquisition document (see 5.2.1.4).

TABLE III - Chemical composition

Ribbon leads		Round wire leads	
Element	Percent 1/	Element	Percent 1/
Nickel 2/	99.0 min.	Nickel 2/	99.0 min.
Others, total	1.00	Iron	0.30
Iron	0.30	Copper	0.20
Copper	0.20	Manganese	0.35
Manganese	0.35	Carbon	0.15
Carbon	0.15	Silicon	0.20
Silicon	0.20	Sulfur	0.008
Sulfur	0.008		

1/ Unless otherwise indicated, maximum allowable. Total not to exceed 100 percent.
2/ Cobalt counting as nickel.

5.2 Final finish. The final finish for leads (see 1.2.1.4) shall be homogeneous and conform to the following as applicable:

01 - No finish. Lead is supplied with no external finish.

21 - Gold plating, electrodeposited, in accordance with ASTM B488, type 2. The thickness of the gold plating shall be 100 to 300 microinches. When specified, under-plating shall be in accordance with 5.2.1.1.

22 - Gold plating, electrodeposited, in accordance with ASTM B488, type 2. The thickness of the gold plating shall be 50 to 100 microinches. When specified, under-plating shall be in accordance with 5.2.1.1.

32 - Tin-lead plating, electrodeposited, in accordance with AMS-P-81728. Composition shall be 50 to 70 percent tin (remainder lead). The thickness shall be 300 to 900 microinches (22.9 μm).

34 - Fused (reflowed) tin-lead plated, electrodeposited, in accordance with AMS-P-81728. Composition shall be 50 to 70 percent tin (remainder lead). The tin-lead thickness after fusing (or reflow), shall not be less than 100 microinches (2.54 μm) at any single point. The average thickness of all points measured shall be 300 (7.62 μm) to 500 microinches (12.7 μm).

41 - Acid-tin-lead plating, electrodeposited, in accordance with ASTM B545. Thickness shall be 300 (7.62 μm) to 500 microinches (12.7 μm). Minimum lead content shall be 3 percent.

43 - Matte-tin-lead plating, electrodeposited, in accordance with ASTM B545. The thickness shall be 300 (7.62 μm) to 500 microinches (12.7 μm). The matte-tin plating shall contain no more than 0.05 percent by weight codeposited organic material measured as elemental carbon. Minimum lead content shall be 3 percent.

45 - Acid-tin-lead plating, electrodeposited, in accordance with ASTM B545. Thickness shall be 100 (2.54 μm) to 300 microinches (7.62 μm). Minimum lead content shall be 3 percent.

46 - Matte-tin-lead plating (low organic content), electrodeposited, in accordance with ASTM B545. The thickness shall be 100 (2.54 μm) to 300 microinches (7.62 μm). The matte-tin plating shall contain no more than 0.05 percent by weight codeposited organic material measured as elemental carbon. Minimum lead content shall be 3 percent.

51 - Hot solder dip. The composition shall be Sn60PB40A, Sn63Pb37A, or Sn62PB36AgO2C in accordance with J-STD-006. The coating shall have a minimum thickness of 200 microinches as measured at the crest. Hot solder dip finish may be used over final finish types 21, 22, 32, 34, 41, 43, 45, 46, 61, 71, and 72. When specified (see 1.2.1.5), electroless nickel under-plating may be used in accordance with 5.2.1.3.

52 - Hot solder dip. The composition shall be Sn60PB40A, Sn63Pb37A, or Sn62PB36AgO2C in accordance with J-STD-006. Thickness shall be 60-200 microinches as measured at the crest. Hot solder dip finish may be used over final finish types 21, 22, 32, 34, 41, 43, 45, 46, 61, 71, and 72. When specified (see 1.2.1.5), electroless nickel underplating may be used in accordance with 5.2.1.3.

61 - Nickel plating, electrodeposited, in accordance with AMS-QQ-N-290. Thickness shall be 50 (1.27 μm) to 150 microinches (3.81 μm). The nickel plating shall be nonbrightened and low stress.

71 - Silver plating, electrodeposited, in accordance with ASTM B700, grade D, class N. Thickness shall be 150 (3.81 μm) to 350 microinches (8.89 μm).

72 - Silver plating, electrodeposited, matte, nonbrightened, in accordance with ASTM B700, grade A, class N. Thickness shall be 150 (3.81 μm) to 350 microinches (8.89 μm).

5.2.1 Underplating. The underplating (see 1.2.1.5) shall conform to the following requirements:

A - Nickel electrolytic.

1 - 60 (1.52 μm) to 150 microinches (3.81 μm) thick.
2 - 100 (2.54 μm) to 300 microinches (7.62 μm) thick.
3 - 20 (0.50 μm) to 60 microinches (1.52 μm) thick.

B - Nickel, electroless (not to be used on flexible or semirigid leads).

1 - 100 (2.54 μm) to 200 microinches (5.08 μm) thick.
2 - 50 (1.27 μm) to 120 microinches (3.04 μm) thick.

C - Copper, electrodeposited.

1 - 60 (1.52 μm) to 150 microinches (3.81 μm) thick.
2 - 150 (3.81 μm) to 300 microinches (7.62 μm) thick.
3 - 20 (0.50 μm) to 60 microinches (1.52 μm) thick.

P - Palladium-nickel alloy

1 - 50 (1.27 μm) to 100 microinches (2.54 μm) thick.

N - No underplating.

5.2.1.1 Gold plating. A copper plus electrodeposited nickel or electrodeposited nickel underplating is required on all leads with gold plating as the final finish in accordance with AMS 2418.

5.2.1.2 Compositions F, G, and K. All leads with composition F, G, or K (see 5.1) shall have an underplating prior to final finish.

5.2.1.3 Hot solder dip. When specified for use under hot solder dip lead finish (see 5.2), the electroless nickel underplating shall be in accordance with AMS-C-26074. The thickness shall be as designated in 5.2.1.B.

5.2.1.4 Compositions A, B, J, and X. All leads with compositions A, B, J. or X (see 5.1) shall have a copper or nickel underplate of 100 microinches (2.54 μm) minimum.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. Documents conforming to the requirements of this standard are intended for use of identifying, specifying, and limiting to a minimum the combinations of basic materials, the thickness and composition of the plating used therewith, and the sizes of wire and flat wire (ribbon) leads on electronic and electrical parts when they are to be soldered or welded during assembly in equipment.

6.2 Precaution. Substitution of any type of lead for the existing leads on electronic component parts should not be made in a parts specification without first determining the effect of this substitution on the performance and solderability characteristics of the component part.

6.3 Removal of gold plating before soldering. Prior to equipment assembly, gold plated leads will have the gold removed before soldering by single or double dipping into a flowing or nonflowing hot solder of sufficient volume to assure complete gold removal.

6.4 Passive nickel. If there is a delay after the application of nickel strike, where the nickel surface may have become passive, the nickel will be reactivated followed by gold plating. Reactivation of the nickel surface should be in accordance with the appropriate section of the latest ASTM standards. (Reference: ASTM B322, "Standard Practice for Cleaning Metals Prior to Electroplating"; and ASTM B343, "Standard Practice for Preparation of Nickel for Electroplating with Nickel".)

6.5 Cross reference. A cross reference of discontinued and superseding lead types appears in table IV. Where MIL-STD-1276B designations are specified, the cross referenced MIL-STD-1276C designations may be used.

TABLE IV. Cross reference of lead types.

Superseding type			Discontinued type
MIL-STD-1276C			MIL-STD-1276B
Composition	Final finish	Underplating	
C	3	---	C (tin plated)
C	4	---	C (tin-lead plated)
D	2a	A1	D
F	2a	A1	F
K	2a	A1	K
N	1	---	N-1
N	2a	---	N-2
N	3	---	N-3 (tin plated)
N	4	---	N-4 (tin-lead plated)

TABLE IV. Cross reference of lead types - Continued.

Superseding type	Discontinued type
MIL-STD-1276D	MIL-STD-1276C
Composition	Composition
A	Not available
B	Not available
C	C
D	D
E	Not available
F	F
G	G
H	Not available
J	Not available
K	K
L	C_1
M	Not available
N	N
W	W
X	X
Underplating (same as revision C with the addition of C and P)	
Final finish	Final finish
01	1
21	2a
22	2b
31	3
32	4
33	Not available
34	Not available
51	5a
52	5b
61	6
71	7
72	Not available

6.6 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs. Table V lists the Environmental Protection Agency (EPA) top seventeen hazardous materials targeted for major usage reduction. If any of these hazardous materials are required, it is recommended that it be used only when other materials cannot meet performance requirements.

TABLE V. EPA top seventeen hazardous materials.

Benzene	Dichloromethane	Tetrachloroethylene
Cadmium and compounds	Lead and compounds	Toluene
Carbon Tetrachloride	Mercury and compounds	1,1,1 - Trichloroethane
Chloroform	Methyl Ethyl compounds	Trichloroethylene
Chromium and compounds	Methyl Isobutyl Ketone	Xylenes
Cyanide and compounds	Nickel and compounds	

6.7 Cleanliness. The last step in any component manufacturing process should be cleaning to remove residues such as fluxes.

6.8 Supersession data. Final finishes 31, 33, 35, and 36 are deleted, effective with revision E of this standard. These pure tin finishes may cause "tin whiskers" growth leading to shorts and intermittents, especially in low power (5 mA and below) applications. For additional information on this matter, refer to ASTM B545 ("Standard Specification for Electrodeposited Coating of Tin.") Replacement finish codes are 41, 43, 45, and 46 respectively, as described in 1.2.1.4, 5.2, and table VI.

TABLE VI. Supersession data for final finishes.

Superseded (old) finish code (MIL-STD-1276D)	Superseding (new) finish code (MIL-STD-1276E)
31	41
33	43
35	45
36	46

6.9 Subject term (key word) listing.

Final finish
Plating
Terminals
Underplating

6.10 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5999-0405)

Review activities:
Navy - AS, CG, MC, SH
Air Force - 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://assist.daps.dla.mil/.