



AEROSPACE MATERIAL SPECIFICATION

AMS-I-10™

REV. A

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Superseding AMS-I-10

Insulating Compound, Electrical, Ceramic,
Class L

RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

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1. SCOPE:

1.1 Scope:

This specification covers class L, low dielectric constant (12 or under), ceramic, electrical, insulating compounds, for use in electronic, communications, and allied electrical equipments, and the grading thereof (see 6.1).

1.2 Classification:

This specification shall cover only those insulating compounds characterized by combining the specific designators of 1.2.1 to 1.2.5, inclusive.

<u>L</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>X6/04</u>	<u>T</u>	<u>G</u>
<u>Class(1.2.1)</u>	<u>Dielectric</u>	<u>Dielectric</u>	<u>Flexural</u>	<u>X-band</u>	<u>Thermal</u>	<u>Finish</u>
	<u>loss index</u>	<u>strength</u>	<u>strength</u>	<u>(when</u>	<u>conduc-</u>	<u>(1.2.5)</u>
	<u>(1.2.2.1)</u>	<u>(1.2.2.2)</u>	<u>(modulus</u>	<u>specified)</u>	<u>tivity</u>	
			<u>of rup-</u>	<u>(1.2.3)</u>	<u>(when</u>	
			<u>ture)</u>		<u>specified)</u>	
			<u>(1.2.2.3)</u>		<u>(1.2.4)</u>	

- 1.2.1 Insulating compound designator: Insulating compounds shall be identified by the single letter designator "L".
- 1.2.2 Grade designators: Insulating compounds shall be further identified by three numbers (grade designators) following the above designator, the first representing dielectric loss index at one megahertz (MHz), the second dielectric strength, and the third flexural strength (modulus of rupture), as specified, i.e., L422-- (see 6.1 and 6.2).
- 1.2.2.1 Dielectric loss index at 1 MHz: The designator for dielectric loss index is determined by the maximum dielectric loss index at 1 MHz of the specimens tested, as follows:

<u>Grade</u>	<u>Maximum</u>
<u>designator</u>	<u>dielectric loss index</u>
<u>2</u>	<u>0.070</u>
<u>3</u>	<u>.035</u>
<u>4</u>	<u>.016</u>
<u>5</u>	<u>.008</u>
<u>6</u>	<u>.004</u>
<u>7</u>	<u>.002</u>
<u>8</u>	<u>.001</u>

- 1.2.2.2 Dielectric strength: The designator for dielectric strength is determined by the average dielectric strength of the specimens tested, as follows:

<u>Grade designator</u>	<u>Average dielectric strength volts/mil</u>
1	180 to 199, incl
2	200 to 249, incl
3	250 to 299, incl
4	300 and above

- 1.2.2.3 Flexural strength (modulus of rupture): The designator for flexural strength (modulus of rupture) is determined by the average flexural strength (modulus of rupture) of the specimens tested, as follows:

<u>Grade designator</u>	<u>Average flexural strength pounds/sq. in.</u>
1	7,000 to 11,900, incl
2	12,000 to 19,900, incl
3	20,000 to 29,900, incl
4	30,000 to 34,900, incl
5	35,000 to 49,900, incl
6	50,000 and above

- 1.2.3 X-band designators: When insulating compounds are required for frequency applications from 100 MHz to 24 gigahertz (GHz), they shall be identified by the designator "X", followed by a one-digit number, a slant line, and a two-digit number. The one-digit number shall represent dielectric loss index measured at some X-band frequency in the range from 8.2 GHz to 12.4 GHz, using the table of grade designators of 1.2.2.1, and the two-digit number shall represent dielectric constant measured at some X-band frequency (see 1.2.3.1), as specified (see 6.1 and 6.2).
- 1.2.3.1 Dielectric constant at X band: The designator for dielectric constant is determined by the dielectric constant at some X band frequency in the range from 8.2 to 12.4 GHz of the specimens tested as follows: