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Specification for Finished Fabric Woven from ''E'' Glass for Printed Boards

Supersedes IPC-4412A with Amendments 1, 2 & 3
July 2011

A standard developed by IPC

Association Connecting Electronics Industries

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- Show relationship to Design for Manufacturability (DFM) and Design for the Environment (DFE)
- Minimize time to market
- Contain simple (simplified) language
- Just include spec information
- Focus on end product performance
- Include a feedback system on use and problems for future improvement

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- Increase time-to-market
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Specification for Finished Fabric Woven from "E" Glass for Printed Boards

Developed by the Woven Glass Reinforcement Task Group (3-12d) of the Printed Board Base Materials Committee (3-10) of IPC

Supersedes:

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Users of this publication are encouraged to participate in the development of future revisions.

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Specification for Finished Fabric Woven from "E" Glass for Printed Boards

1 SCOPE

This specification covers finished fabrics woven from "E" glass electrical grade glass fiber yarns that are intended as a reinforcing material in laminated plastics for electrical and electronic use. All fabrics covered by this specification are plain weave.

1.2 Purpose This specification determines the nomenclature, definitions, general and chemical requirements for the glass, and physical requirements for finished woven glass fiber fabrics.

1.3 Designation Appendix II of this standard provides a style designator for each finished fabric glass style, with specifications on yarn, fabric count, thickness and weight in both SI and US system. Fabrics listed in Appendix II also categorize fabrics by their current availability status.

2 APPLICABLE DOCUMENTS

2.1 IPC[1]

IPC-T-50 Terms and Definitions for Interconnecting and Packaging Electronic Circuits

IPC-9191 General Guidelines for Implementation of Statistical Process Control (SPC)

2.2 American Society for Testing and Materials (ASTM)[2]

ASTM D578 Standard Specification for Glass Fiber Strands

ASTM D579 Standard Specification for Greige Woven Glass Fabrics

ASTM D1776 Standard Practice for Conditioning Testing Textiles

2.3 International Standards[3]

ISO 9001 Quality Management Systems - Requirements

2.4 National Conference of Standards Laboratories (NCSL)[4]

NCSL Z 540-1 General Requirements for Calibration Laboratories and Measuring and Test Equipment

3 REQUIREMENTS

3.1 Terms and Definitions The definition of terms shall be in accordance with IPC-T-50 and 3.1.1 through 3.1.21.

3.1.1 AQL (Acceptable Quality Level) Maximum number of defects per hundred units that can be considered satisfactory as a process average.

3.1.2 Bias Filling yarns are off-square to the warp ends.

3.1.3 Bow Filling yarns lie in an arc across the width of the fabric.

3.1.4 Creases A ridge in the fabric caused by a fold or wrinkle being placed under pressure.

3.1.5 Defects A substandard area in a fabric.

1. www.ipc.org
2. www.astm.org
3. www.iso.ch
4. www.ncsl-h9.org