



*The Institute for
Interconnecting
and Packaging
Electronic Circuits*

IPC-QF-143

Specification for Finished Fabric Woven from Quartz (Pure Fused Silica) for Printed Boards

IPC-QF-143

Original Publication - February 1992

A standard developed by the Institute for Interconnecting
and Packaging Electronic Circuits

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- Minimize time to market
- Contain simple (simplified) language
- Just include spec information
- Focus on end product performance
- Include a feed back system on use and problems for future improvement

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- Increase time-to-market
- Keep people out
- Increase cycle time
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- Contain anything that cannot be defended with data

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The material in this standard was developed by the Glass Technology Task Group of the Laminate Raw Materials Subcommittee of the Base Materials Committee of the Institute for Interconnecting and Packaging Electronic Circuits.



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

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Acknowledgments

Any standard involving a complex technology draws material from a vast number of sources. While the principal members of the IPC Glass

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production of this document. To each of them, the members of the IPC extend their gratitude.

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Specification for Finished Fabric Woven from Quartz (Pure Fused Silica) for Printed Boards

1.0 SCOPE

This specification covers finished fabrics woven from quartz fiber, yarns that are intended as a reinforcing material in laminated plastics for electrical and electronic use.

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

1.3 Classification This standard provides two levels of tolerances on physical characteristics of the fabric which are useful for identifying degrees of precision needed to meet performance requirements of the printed wiring board.

In the event of conflict between design requirements and levels, as defined in this specification, design requirements will take precedence.

2.0 APPLICABLE DOCUMENTS

2.1 IPC¹

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

IPC-EG-140 Specification for Finished Fabric Woven from "E" Glass for Printed Boards

IPC-PC-90 General Requirements for Implementation of Statistical Process Control

IPC-TM-650 Test Methods Manual

2.2 Military²

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes

MIL-STD-202 Test Methods for Electronic and Electrical Component Parts

MIL-STD-414 Sampling Procedures and Tables for Inspection of Variables for Percent Defective

MIL-STD-45662 Calibration System Requirements

2.3 ASTM³

ASTM-D-578 Glass Fiber Yarns

3.0 REQUIREMENTS

3.1 Terms and Definitions The definition of terms shall be in accordance with IPC-T-50 and the following:

3.1.1 AQL 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 yarns.

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.

3.1.5.1 Major Defect A defect that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.

3.1.5.2 Minor Defect A defect that is not likely to reduce materially the usability of the unit of product for its intended purpose.

3.1.5.3 Defect per Hundred Units

$$\frac{(\text{Number of Defects})}{(\text{Number of Units Inspected})} \times 100$$

3.1.6 End Missing A very small portion of the warp in the fabric which may have been broken in the picking out of waste, or during the weaving process.

3.1.7 Feather Length Length of distance from last warp end to the end of the pick.

3.1.8 Finished Fabric Treatment of fabric to aid in compatibility with resins.

3.1.9 Fish Eye A prepreg defect in which a small area of fabric resists resin wetting. This defect can be caused by the resin system, fabric and/or treating.

1. Publications are available from the IPC, 2215 Sanders Road, Northbrook, IL 60062-6135

2. To obtain documents, write: Naval Publications and Forms Center, 5801 Tabor Road, Philadelphia, PA 19120

3. Application for test copies should be addressed to: American Society for Testing Materials, 1916 Race St., Philadelphia, PA 19103