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# IPC-SG-141

## Specification for Finished Fabric Woven From “S” Glass for Printed Boards

**IPC-SG-141**

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A standard developed by IPC

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# Specification for Finished Fabric Woven from "S" Glass for Printed Boards

## 1.0 SCOPE

This specification covers finished fabrics woven from "S" Glass Electrical Grade Glass 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 glass, and physical requirements for finished woven "S" glass 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 IPC<sup>1</sup>

**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 Military<sup>2</sup>

**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 ASTM<sup>3</sup>

**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.

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

2. To obtain documents, write: Documents Order Desk, Building 4D 700 Robbins Ave. Philadelphia, PA 19111-5094

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