

BACK-END TEST & ELECTRONIC FIXTURING SOLUTIONS

ADVANCED MATERIALS FOR IC CHIP TESTING & FIXTURING.



Material Solutions & Key Properties

- POLYTUFF® (PPH)
- METALON® (PA-ESd)
- METAPOM® (POM- ESd)
- METRON (PEEK-ESd)
- METRON (PAI)

GENERAL TRENDS

The miniaturization of IC devices is pushing the back-end test industry to explore the limits of polymeric materials. As IC devices become smaller, the cross sections must also be thinner. These thinner cross sections require stiffer materials to endure the testing conditions. The main challenge is to enhance stiffness while preserving the machinability of increasingly smaller features like hole size and pitch.

TEST SOCKET TRENDS:

- Higher I/O count
- Smaller hole and pitch sizes
- Thinner cross sections

CRITICAL PROPERTIES

To deliver a functional test socket under the evolving conditions, engineers must focus on the key properties that impact both the machinability and stability of the test socket.

FLEXURAL MODULUS

Critical for managing the robustness of the finished socket under test conditions

POLYMER MELTING POINT

Critical for clean thru holes during drilling

TENSILE ELONGATION

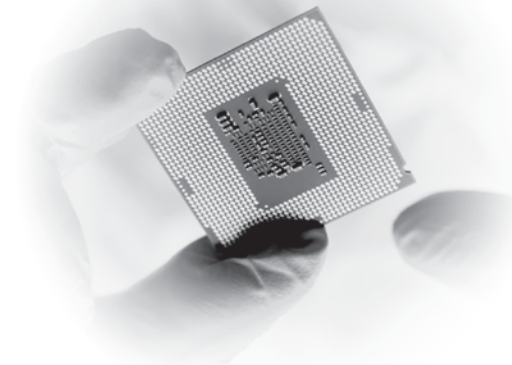
Critical for controlling the accuracy of holes during machining

CLTE

Critical for providing dimensional stability over a varied temperature range during usage

Moisture Absorption

Critical for maintaining dimensional stability



FEATURED PRODUCTS / ADVANCED MATERIALS

POLYTUFF® (PPH)

- Specifically developed grade for Semiconductor & Electronic Industry
- This material is free from any porosity or center line and free from any contamination
- Each plate is annealed in a controlled environment delivering lower stress plates

METALON® (PA-ESd)

- Cast Polyamide modified to suit harsh environment
- Purity requirement of Semiconductor & electronic Industry
- Plates and rods are available in various sizes
- Can be easily machined to required tolerances and sizes

METAPOM® (POM- ESd)

- Suitable material for applications requiring increased dimensional stability, ideal material for fixtures, test jigs and tooling etc.
- Offering superior stiffness and strength, with extremely low moisture absorption
- Easy to machine material, and suitable for precision components

METRON (PEEK-ESd)

- Advanced Material suitable for higher temperature requirement and precision parts
- This grade offer a very low CLTE over a wider temperature range
- Preferred for precision structural applications
- A very rigid, stable, moisture & chemical resistant material, preferred for wide variety of applications

METRON (PAI)

- An optimized material for vacuum chamber applications, material offers excellent heat resistance
- Low rates of erosion in plasma chambers
- Material offers excellent low ionic content & low outgassing
- can be easily machined precision parts
- specifically suitable for demanding chamber applications



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VACUUM CHAMBER SOLUTIONS

ADVANCED MATERIALS FOR USE IN VACUUM CHAMBER APPLICATIONS

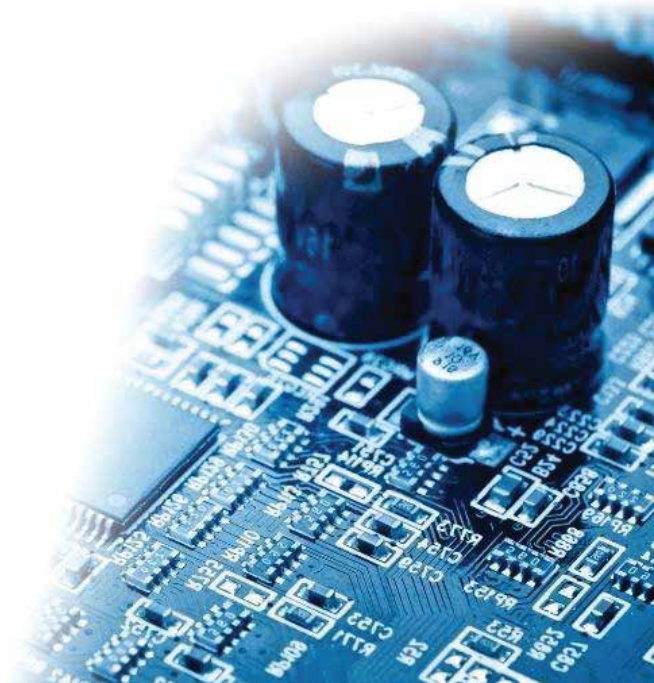


KEY CONSIDERATIONS

- Increasing energy in plasma chambers
- More aggressive plasma chemistries, introduction of Oxygen into the chambers
- Pinpoint material selection on a per application basis to maximize “cost vs. performance”
- Replacement of polyimide for reduced cost & increased performance
- Careful use of ceramics & quartz due to cost & breakage
- Increased requirements for ionic purity due to reduced node size

TYPICAL APPLICATIONS

- Screws & pins
- Clamp & trench rings
- Valve housings
- Shower heads
- Various etch & CVD parts



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WET PROCESS SOLUTIONS

ADVANCED MATERIALS FOR SEMICONDUCTOR INDUSTRY

WAFER HANDLING & COMPONENT FEATURES

KEY CONSIDERATIONS

- Corrosion resistance
- Flatness
- Strength & wear
- Purity
- Chemical resistance
- Dimensional strength

TYPICAL APPLICATIONS

- Spin discs & chucks
- Wafer motion gears
- Shower heads
- Wafer grabbers
- Pins & screws

KEY BENEFITS

- Minimizes center line porosity common with thicker plates (2" & up)
- Delivers ultra-clean plate to minimize risk of surface contaminants
- Lowers overall cost by delivering lower stress plate

MINIMAL CENTER LINE POROSITY

- SURLON has developed proprietary processing methods to minimize the high stress & center line porosity that is common with standard polypropylene
- The plates, ranging from 2" to 5" thickness are manufactured to the highest standards for use in the semiconductor wet process industry

