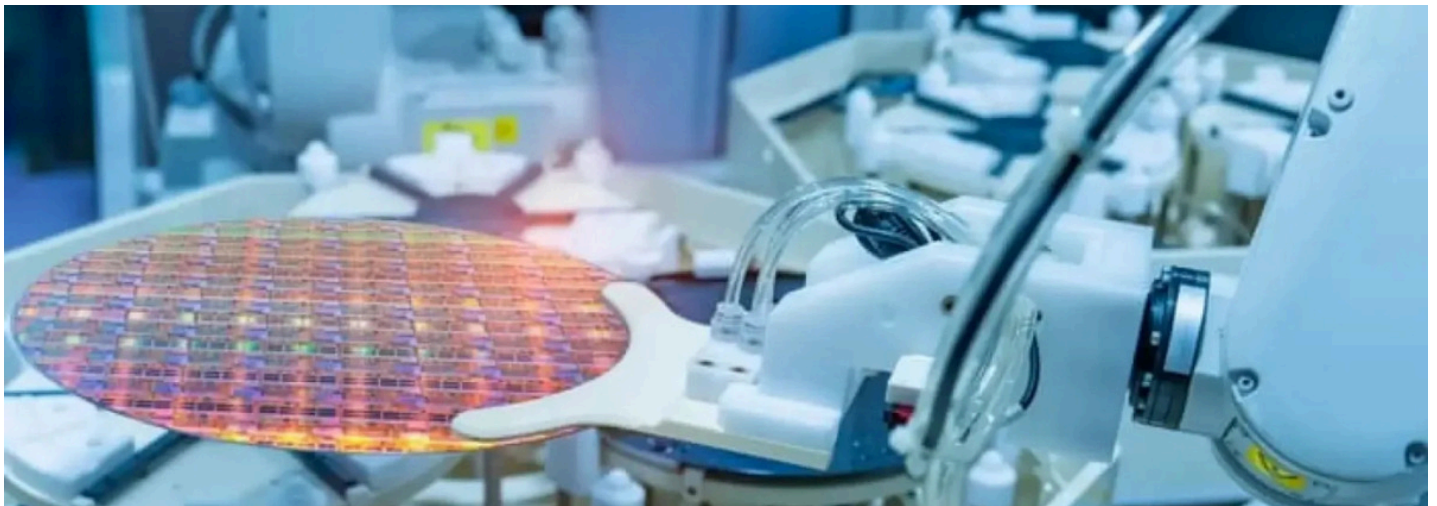


Custom Polyurethane Parts and Components for the Semiconductor Industry

Custom-formulated thermoset polyurethanes for mission-critical semiconductor applications.



— INTRODUCTION

This white paper from Mearthane Products Corporation (MPC) highlights the advantages and applications of customized thermoset polyurethanes in the semiconductor industry. With a legacy of supporting design and mechanical engineers through custom-formulated urethane materials and innovative manufacturing solutions, MPC stands as a trusted partner for high-performance components. As an ISO 9001:2008-certified company headquartered in Cranston, RI, MPC specializes in producing solid elastomers and microcellular foams for critical moving parts across various industries. Since its founding in 1965, MPC has provided cutting-edge solutions to complex engineering challenges, earning its reputation as a global leader in precision material formulation and manufacturing.

1965

FOUNDED IN CRANSTON, RI

ISO 9001

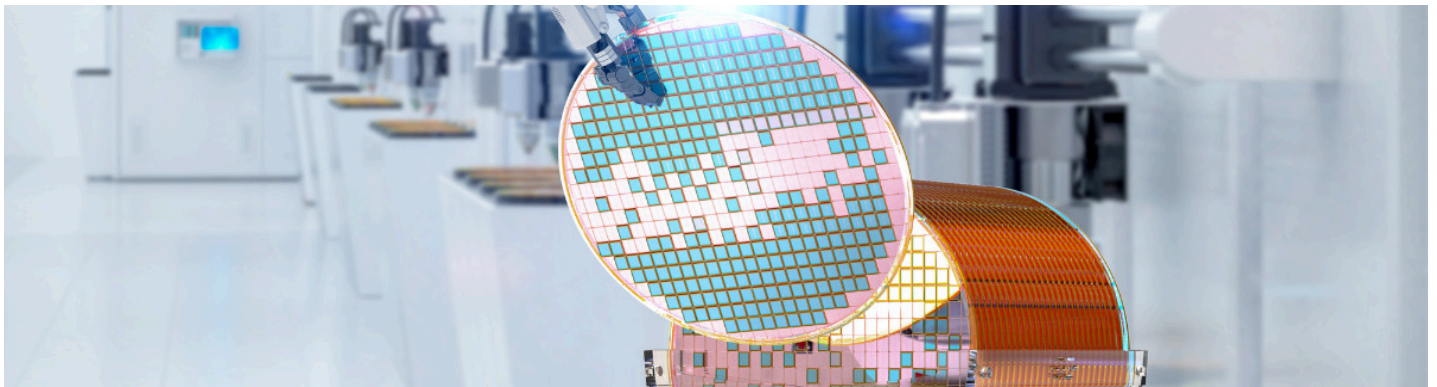
9001:2008-CERTIFIED COMPANY

Solids & foamsSOLID ELASTOMERS AND
MICROCELLULAR FOAMS

A Rapidly Growing Semiconductor Market in Need of High-Performing, High-Quality Parts

The semiconductor industry is experiencing unprecedented growth, driven by demand for faster, smaller, and more energy-efficient devices. As a result, mission-critical applications require parts and components that meet exacting standards of performance and reliability. The quality of these parts directly impacts manufacturing efficiency and end-product performance, making the selection of high-performing materials essential.

Failures in semiconductor manufacturing components can result in costly downtime, contamination, and compromised device quality. High-quality parts, such as those made with custom thermoset polyurethanes, ensure consistent reliability in demanding environments. Their ability to withstand the rigors of semiconductor processes, including exposure to extreme temperatures, abrasive conditions, and aggressive chemicals, makes them a key enabler of the industry's continued innovation and expansion.



Why Engineering Teams in the Semiconductor Industry Are Selecting Thermoset Polyurethanes Over Other Materials

Engineering teams are increasingly selecting thermoset polyurethanes for semiconductor components due to their superior performance and versatility. Polyurethane materials offer a unique combination of properties, including abrasion resistance, chemical stability, and mechanical strength, that outperform traditional materials like plastics and rubbers. These qualities make them ideal for applications requiring high precision and durability.

— THREE KEY PERFORMANCE SPECIFICATIONS

Three key performance specifications set polyurethanes apart. First, their exceptional abrasion resistance ensures components endure repeated mechanical stresses without degradation. Second, polyurethanes exhibit excellent tear strength, providing reliable performance under high-pressure or high-stress conditions. Lastly, their adaptability allows for tailored formulations to meet specific requirements, including low outgassing and high purity—critical for cleanroom environments. These advantages make polyurethanes the preferred choice for engineers seeking materials that can meet the rigorous demands of semiconductor manufacturing.

ABRASION RESISTANCE

Components endure repeated mechanical stresses without degradation.

TEAR STRENGTH

Reliable performance under high-pressure or high-stress conditions.

TAILORED FORMULATIONS

Low outgassing and high purity for cleanroom environments.

Conclusion

Partnering with Mearthane Products Corporation (MPC) ensures that your semiconductor components are crafted with precision, reliability, and performance in mind. MPC's extensive material knowledge and decades of experience allow us to develop custom urethane formulations tailored to your unique needs. Our manufacturing expertise ensures timely delivery of high-quality parts that meet your production demands.

At MPC, we understand the critical role high-performing materials play in the semiconductor industry's success. By choosing us, you gain a partner committed to supporting your engineering goals and driving innovation. Let MPC help you solve your most challenging design problems and achieve excellence in your semiconductor applications.

Tell us what you're working on.

For more information on MPC's capabilities and experience, visit www.mpcurethane.com

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