



Perfecting the Surfaces of Tomorrow™

CASE HISTORY 401



CMP Polishing Pad Selected by Leading Edge Customer for Its Superior Performance

This customer switched to the Epic D100 CMP Polishing Pad for its reduced cost of ownership, lower defectivity, and superior quality pad (lot-to-lot) performance.

Overview

Seeking to improve an already successful operation, a leading edge customer took into consideration its polishing process. Visionary leadership and close collaboration led to exploring new CMP (chemical mechanical planarization) pad technologies as an approach to improving performance and reduce cost.

The Cabot Microelectronics' Epic® D100 CMP pad was proven to provide superior performance and quality improvements. Defectivity was superior to the previously-used pad and a decrease in total cost of ownership was among the other benefits of the new program.

Background

The unique manufacturing process Cabot Microelectronics utilizes for chemical mechanical planarization pads attracted the customer. For years, other manufacturers have produced CMP pads as a cake and sliced them horizontally to form individual CMP pads. This batch-type manufacturing process can result in gradient density variation which, in turn, can lead to pad to pad variation.

In an effort to resolve this issue, Cabot Microelectronics designed a patented thermoplastic technology for manufacturing CMP pads. The process utilizes a unique chemical composition and an extrusion process which is proven to yield much more consistent gradient density in the pad resulting in better pad to pad consistency. The extrusion process produces a continuous line of individual pads. Cabot Microelectronics' CMP pads are manufactured

such that pad consistency and quality are optimal. The pads are available in various configurations and designs—something the customer required.

To further ensure quality, testing can be and is done at each step of the CMP pad manufacturing process, from the resin used in the beginning of the process to the very end packaging. Each pad is tested to assure quality, consistency, and leak-free windows. Cabot Microelectronics manufacturing sites are ISO 9000 certified. The pads are developed, manufactured and tested using six sigma methodologies.

Results

While it typically takes six months to a year to qualify a new pad product, the Cabot Microelectronics pad provided promising results early in the customer's evaluation process, and it was qualified in HVM much earlier. Soon after the evaluation was initiated, the team observed a significant improvement in defectivity. This offered huge potential benefits to both the customer and the customer's multiple end-users. Cabot Microelectronics was able to meet the faster scale-up the customer requested.

The customer has capitalized on performance benefits since switching to the Epic D100 pad. Additionally, substantial improvement in pad quality and consistency saved the customer time and money from troubleshooting. An increase in pad performance and improvement in pad life have resulted in cost savings for the customer. In effect, cost of ownership is down and wafer production is up.

(MORE INFORMATION ON PAGE 2)



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Troubleshooting

The customer was impressed with Cabot Microelectronics' approach to troubleshooting. Being the leading supplier of polishing slurries enables Cabot Microelectronics to help troubleshoot CMP process problems. With both global and local support teams, and dedication at the corporate level to responsiveness and confidentiality, Cabot Microelectronics' troubleshooting expertise is unsurpassed.

Trusted Relationship

Cabot Microelectronics and the customer took the relationship one step further. A CMP pad manufacturing facility with grooving capability was built on the customer's site. Assured supply, responsiveness and local expertise have resulted in additional benefits. Reduced packaging and shipping have benefited the environment. Logistics associated with product delivery have further enhanced the customer's profitability. The trusted collaboration of the two entities is expected to help meet the challenges of the future.

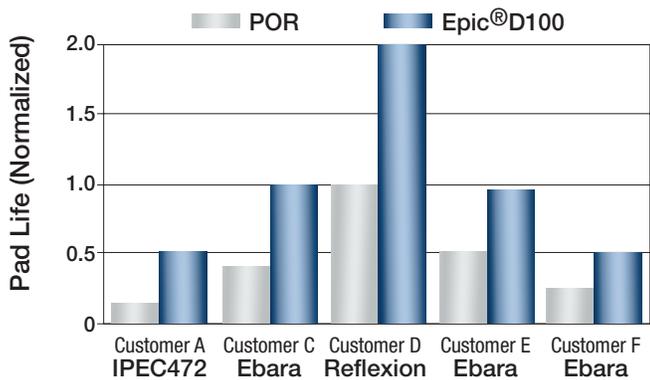
Conclusion

In recognition of its products and services, Cabot Microelectronics Corporation was awarded the Supplier of the Year award, two years in a row. The partnership is a reflection of a long-term commitment to excellence. The Epic D100 pad is the result of a dedication to research and development. Response to this unique CMP pad design and the results it provides to this and other chip manufacturers has been impressive. The Epic D100 pad has also been awarded the Best Product Award by Semiconductor International magazine in 2009.

Cabot Microelectronics manufactures the Epic D100 pads at its facilities in Aurora, Illinois and in Taiwan. Cabot Microelectronics researchers are studying ways to further improve CMP pad technology... enabling tomorrow's successes. ■

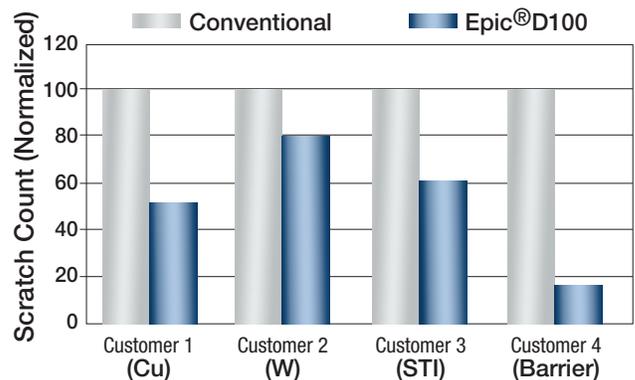


Longer D100 CMP Pad Life
Feedback from Multiple Customers



Epic® D100 CMP Polishing Pad has not been run through the end of its pad life.

Defectivity Improvement with D100 Pads
Feedback from Multiple Customers



Epic® D100 CMP Polishing Pad provides defectivity improvement across all applications.

CABOT MICROELECTRONICS CORPORATION

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