



Advancing CMP Performance Across Advanced Semiconductor Applications

Entegris Technology Day

THURSDAY, OCTOBER 8, 2026 | GEBÄUDE WERKSTÄTTEN HELLERAU, DRESDEN, GERMANY

As semiconductor devices continue to evolve toward higher integration, tighter geometries, and advanced packaging architectures, achieving consistent CMP performance requires more than incremental improvements—it demands a holistic, co-optimized approach across materials, processes, and systems.

This Technology Day is designed to take you through that journey: from **solution-driven innovation** to the **latest advances in CMP slurries, pads, and integration**. We will then explore how **real-time process control, advanced filtration, and materials lifecycle engineering**, including circularity strategies, enable sustained yield and operational efficiency. The day concludes with **integrated consumable set evaluation and application-driven insights**, alongside a forward-looking view on **advanced packaging**, equipping you with both practical insights and a clear vision of what comes next.

8:30 REGISTRATION AND WELCOME COFFEE

9:00 Entegris at 60: Advancing Performance through Collaboration and Innovation

Antoine Amade, President, EMEA Region

As Entegris celebrates 60 years at the forefront of semiconductor materials, this opening presentation will highlight how Entegris' broad materials portfolio drives productivity, high yield, and reliability, while sharing how global benchmark studies and world-class Technology Centers help customers measure performance, safely extend their experiments, and co-optimize solutions faster. Building on a collaborative "flywheel" approach, we aim to accelerate innovation across the entire value chain. Sustainability is also a central pillar of our strategy – we will conclude by showcasing key initiatives, underscoring our commitment to a more sustainable semiconductor future.

9:15 More Than a Product – A Solution Story

Chad Teters, Lead Product Management

This presentation outlines a solution-driven approach that goes beyond products to deliver measurable customer value. By leveraging a structured Voice of the Customer (VoC) framework, it captures actionable insights and translates them into high-impact solutions. The approach accelerates time-to-qualification, reduces adoption risks, and provides robust data packages that build confidence, ultimately enabling faster decision-making and rapid deployment of new technologies.

9:30 High-Performance Copper CMP Solutions for Advanced Packaging and 3D Integration

Pankaj Singh, IC Polishing Solutions R&D Director

Explore how Entegris' advanced copper CMP portfolio is designed to address the most demanding requirements of 2.5D/3D IC Advanced Packaging applications. From bulk copper to barrier and hybrid bonding processes, the platform delivers tunable performance across throughput, defectivity, and topography control, supporting both panel-level and wafer-level integration schemes. Integrated post-CMP cleaning technologies further enhance surface quality, minimizing corrosion and particle defects while ensuring process robustness over extended queue times.

9:55 High-Rate Ceria CMP Solutions for Advanced Dielectric Planarization

Hanks Huang, Advanced Dielectrics Business Director

Learn how Entegris' latest ceria-based CMP solutions enable ultra-high removal rates and superior planarization efficiency for advanced dielectric applications in 2.5D/3D IC integration, such as die isolation, hybrid bonding, and backside processing. Leveraging innovative two-pack slurry chemistry and optimized pad combinations, these solutions deliver high throughput while maintaining low defectivity and excellent selectivity control. Integrated with advanced post-CMP cleaning technologies, the platform ensures near-zero particle defects and improved surface quality.

10:20 Next-Generation CMP Pad Technologies for Advanced Planarization, Defectivity Control, and Extended Consumable Lifetime

Pankaj Singh, IC Polishing Solutions R&D Director

Understand how Entegris' CMP pad technology roadmap leads to improved planarization efficiency, reduced defectivity, and enhanced process stability across advanced semiconductor applications. The Ultra Pad platform evolution introduces additional innovations to break traditional performance trade-offs between rate, defectivity, and topography. Next-generation materials enable further control of surface texture, uniform asperity distribution, and reduced conditioning requirements for improved stability.

10:35 From Waste to Value: Reinventing CMP Pads Through Circular Innovation

Paola Gonzalez Aguirre, Ph.D., Lead Scientist, Research Associate

Entegris' "Renaissance" initiative converts CMP pads from a hazardous, high-cost waste stream into a lever for sustainability, cost optimization, and supply chain differentiation. Post-use analysis shows limited contamination, enabling reclassification and unlocking reuse and recycling potential. Mechanical recycling emerges as the most scalable pathway, reducing carbon footprint while recovering material value. The approach integrates cleaning steps and local recycling ecosystems to enable circularity without disrupting operations. It also positions pad recyclability as a supplier selection criterion, strengthening collaboration with device manufacturers and reinforcing Entegris' sustainability leadership.

10:45 BREAK

11:00 Real-Time Concentration Monitoring for Enhanced CMP Efficiency

Philipp Lehmann, Field Applications Engineer – Fluid Management

Early detection of slurry composition changes is essential to keep your CMP process within specification and prevent minor variations from becoming yield-impacting excursions. Learn how the Index of Refraction technology provides real-time process data visibility for your CMP quality control, helping to improve your process yield, operational efficiency, and sustainability.

11:25 Optimizing CMP Filtration: From Particle Capture Mechanisms to Advanced Defect Control

Günter Haas, Ph.D., Lead Field Applications Engineer – Liquid Microcontamination Control

Slurry filtration is a key driver of defect reduction and yield improvement in CMP. This presentation explains how performance depends on operating conditions such as flow rate, slurry properties, pH, shear, pump type, and filter design across bulk and point-of-tool (PoT) applications. It highlights particle capture mechanisms – sieving and non-sieving (adsorptive interactions) – and their evolution with process conditions. Using silica and ceria case studies, the session shows how filtration impacts particle retention and defectivity. It also demonstrates how deeper understanding enables next-generation filtration solutions that improve large particle removal while effectively controlling fine particles critical for advanced node performance.

11:50 From Filtration to Planarization: D2W CMP Consumable Set Evaluation

Clément Castan, R&D CMP Engineer | CEA-Leti

This work addresses the challenges of die-to-wafer (D2W) CMP for thick oxide planarization (3–20 μm). A complete consumable set, including slurry, pad, and filtration, was evaluated through benchmarking and process optimization on dedicated test vehicles. High removal rates ($>1.5 \mu\text{m}/\text{min}$) were achieved using a ceria-based slurry, enabling efficient planarization under production constraints. Die density was found to impact removal rate, while optimized filtration significantly reduced defects and scratches. The study demonstrates that combining tailored consumables with advanced filtration enables low-defect, high-performance D2W CMP, supporting industrial transfer for advanced packaging applications.

12:15 Advanced Packaging: From a Materials Supplier's Perspective

Gilbert Parry, Director Advanced Innovation and Technology

Advanced packaging is reshaping semiconductor system integration, enabling heterogeneous architectures, higher performance, and new form factors beyond Moore's Law. This talk provides a concise overview and explores what it means for a materials supplier like Entegris – from contamination control and materials purity to enabling next-generation interconnects, hybrid bonding, and advanced substrates, and where future innovation opportunities lie.

12:45 LUNCH
