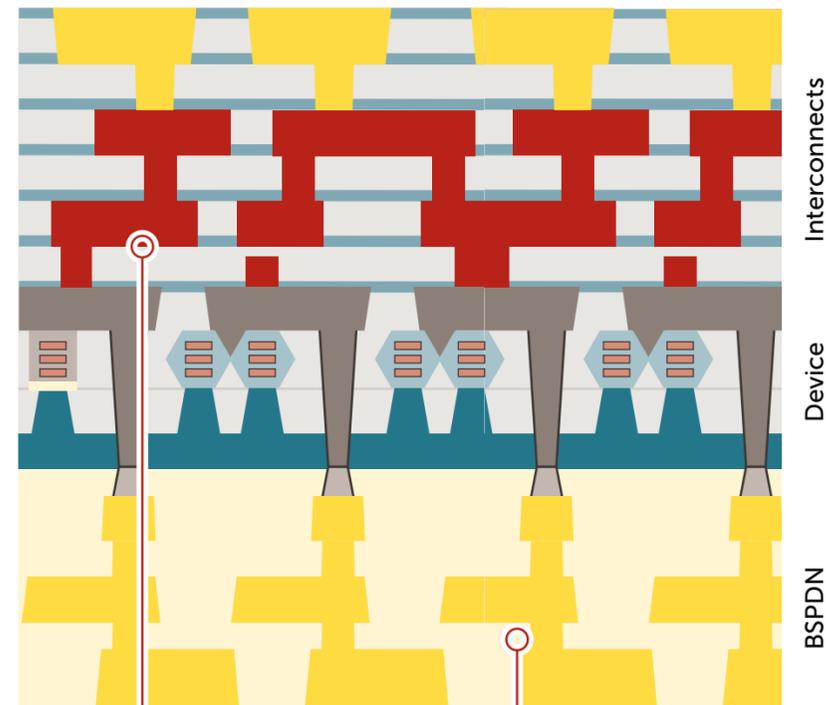


Migrating to Molybdenum: Comprehensive IC Solutions to Streamline the Transition

Integrating new materials into semiconductor technology can enhance performance, but downstream impacts require thorough research. Entegris can speed the process of turning innovations into improved yield. Here's how.

UNDERSTANDING THE DESIGN

Replacing copper and tungsten with molybdenum (Mo) reduces resistivity in narrow features, increasing performance but also increasing the risk of corrosion.



INTERCONNECTS

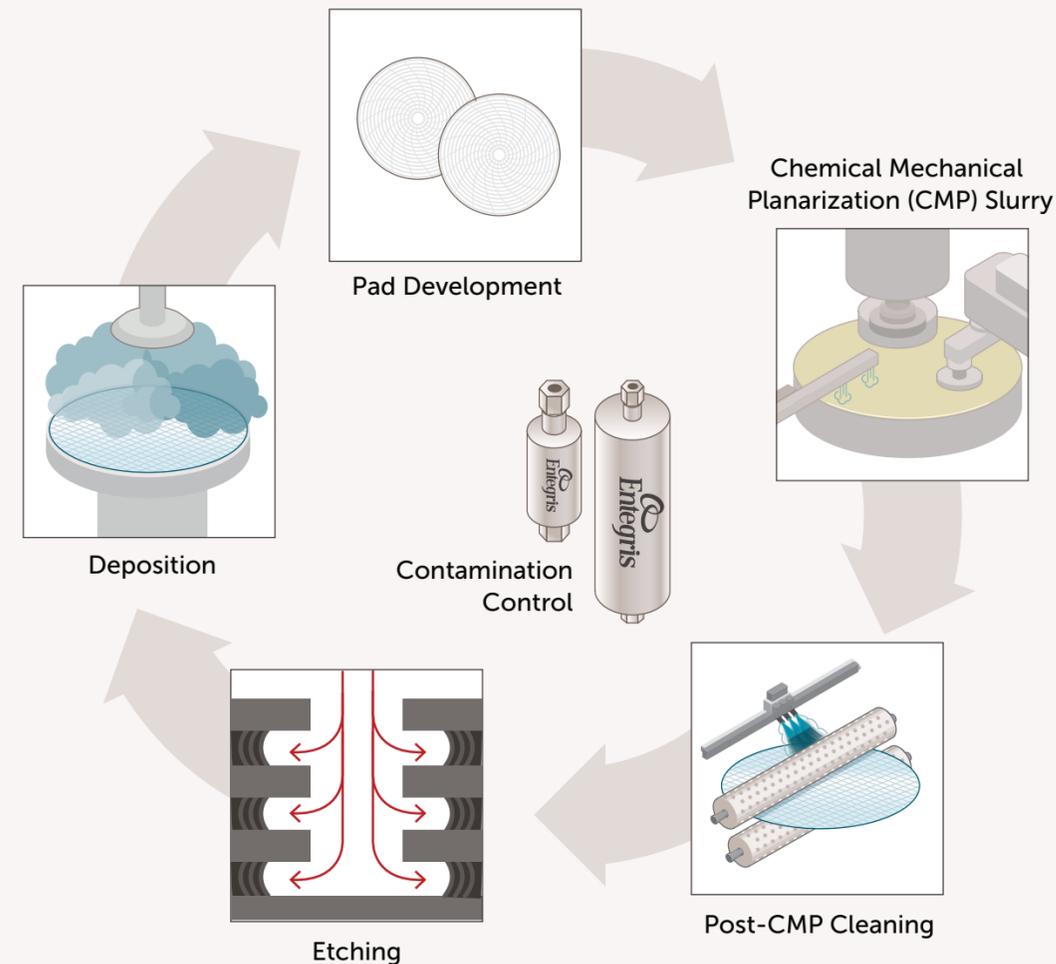
Mo has an advantage over copper since it does not require a barrier layer metal such as TaN or TiN.

WORD LINES & POWER RAILS

Low resistivity in narrow features gives Mo an advantage over tungsten for routing power and signals more efficiently.

UNDERSTANDING HOLISTIC IMPACTS

Entegris offers a holistic understanding of how a switch to Mo impacts many aspects of the chip fabrication process.



DEPOSITION

Novel Mo precursors have unique temperature and vapor pressure delivery requirements.



CMP SLURRY

Precursors affect film properties such as corrosion propensity and oxidation profiles. CMP slurry compositions and cleans must be developed for these new metals.



PAD DEVELOPMENT

CMP pads must be developed for optimal Mo removal rate and to limit wafer defectivity in combination with the slurry.



POST-CMP CLEANING

Post-CMP cleaners and brushes must be tailored to the surface residue left by the CMP process, to avoid contamination.



ETCHING MATERIALS AND PROCESSES

Etchants must cleanly and consistently recess Mo, particularly in deeply layered 3DNAND applications.



CONTAMINATION CONTROL

Process gases, slurries, and other materials must be thoroughly filtered and purified to prevent unwanted interactions.

OUR NEW COLLABORATIVE APPROACH

Collaborating with Entegris to address these challenges means partnering with a singular supplier attuned to the comprehensive requirements of your material selections. Our team not only supplies high-purity materials tailored for each application but also rigorously tests their compatibility to ensure seamless interaction.



Learn More

www.entegris.com/speed-to-yield

