



Department of Commerce Announces Definitive Agreement with SandboxAQ for a \$500 Million CHIPS R&D Award to Accelerate AI-Driven Semiconductor Materials Discovery

The Department's award will advance the development of AI-accelerated materials discovery, strengthen national and economic security by reducing dependence on foreign-controlled critical materials, and reinforce U.S. leadership in semiconductor innovation

June 17, 2026

WASHINGTON, D.C. – The Department of Commerce's CHIPS Research & Development Office today announced the signing of a definitive agreement with SandboxAQ for a \$500 million award under the CHIPS and Science Act.

The award will accelerate the development and deployment of SandboxAQ's AI-driven materials discovery platform to address critical semiconductor materials bottlenecks and supply chain risks, including developing new molecules and chemistries for alternatives to PFAS "forever chemicals," advanced catalysts, rare earth-free magnets, and novel battery chemistries for semiconductor facility backup power systems. SandboxAQ's platform is designed to compress traditional materials development timelines by combining first-principles physics and chemistry simulation, AI-driven optimization, high-throughput screening of millions of candidates, and targeted experimental validation. SandboxAQ will also partner with high-performing American manufacturing partners to advance the strongest breakthrough results into full-scale domestic manufacturing and commercialization.

"President Trump is committed to strengthening America's semiconductor supply chain and ensuring national security," said Secretary of Commerce Howard Lutnick. "This award will accelerate the discovery and innovation of critical materials and reduce our reliance on foreign-controlled materials."

The Department's award will advance U.S. economic and national security by accelerating development across four priority programmatic areas that are critical to continued innovation in next-generation semiconductor manufacturing, advanced computing, AI infrastructure, secure communications, and defense systems:

- **Replacements for Semiconductor Manufacturing PFAS:** Develop PFAS-free process chemicals for heat-transfer, lubricant, insulating coating, and surface treatment applications that meet semiconductor manufacturing fab equipment performance requirements without introducing environmental toxicity or bioaccumulation risks. SandboxAQ will use its ReAQT platform and LQMs to screen candidate materials and identify PFAS-free alternatives that match or exceed the performance of chemicals currently in use and aim to expand alternatives for domestically-sourced chemicals.
- **Catalysts for Semiconductor Fabrication:** Develop next-generation, high-purity catalysts to support upstream precursor generation and effective abatement of exhaust gases produced in fab operations. Creating domestic catalyst designs is necessary to reduce foreign supplier control over catalyst formulations and process IP within the U.S. semiconductor manufacturing ecosystem.
- **Rare Earth-Free Magnets for Semiconductor Manufacturing:** Discover rare earth-free magnetic materials using domestically sourced elements, optimized for semiconductor manufacturing applications. China controls more than 90% of global production of neodymium-based permanent magnets, which are critical inputs to semiconductor manufacturing equipment. Establishing new rare earth alternatives can dramatically reduce domestic exposure to foreign supply chain risk.
- **Advanced Battery Chemistries for Backup Power to Semiconductor Facilities:** Develop new solid state or hybrid energy storage solutions to ensure the uninterrupted, precisely controlled, and localized power that semiconductor fabs require. Most backup power systems rely on critical minerals (e.g. lithium, cobalt) sourced primarily from China. Developing alternative battery chemistries manufactured from domestically-accessible materials will help mitigate U.S. vulnerability to foreign supply chain disruptions.

"The CHIPS Research and Development Office is taking a targeted approach to strengthen the domestic semiconductor industry by supporting the development of new materials solutions to critical input constraints," said Bill Fraunhofer, Executive Director of Semiconductor Investment and Innovation. "By investing in AI-enabled materials discovery, we are advancing a capability that can identify novel chemistries and molecules for the semiconductor ecosystem, accelerate development timelines, and improve U.S. supply chain resilience."



In connection with the award, the Department will receive a minority, non-controlling equity stake in SandboxAQ, which enhances the benefit to the U.S. taxpayer.

The CHIPS Research and Development Office continues to solicit proposals from eligible applicants for research, prototyping and commercial solutions that advance microelectronics technology in the U.S. Eligible applicants should apply under announcement 2025-NIST-CHIPS-CRDO-01 at www.grants.gov.