



FOR IMMEDIATE RELEASE
August 12, 2022
<https://bis.doc.gov>

BUREAU OF INDUSTRY AND SECURITY
Office of Congressional and Public Affairs
Media Contact: OCPA@bis.doc.gov

Commerce Implements New Multilateral Controls on Advanced Semiconductor and Gas Turbine Engine Technologies

WASHINGTON, D.C. – Today, the Commerce Department’s Bureau of Industry and Security (BIS) issued an interim final rule that establishes new export controls on four technologies that meet the criteria for emerging and foundational technologies under Section 1758 of the Export Control Reform Act (ECRA) and are essential to the national security of the United States. These Section 1758 technologies support the production of advanced semiconductors and gas turbine engines. These four technologies are among the items that the 42 Participating States of the Wassenaar Arrangement reached consensus to control at the December 2021 Plenary. The United States additionally controls a wider range of technologies, including additional equipment, software, and technology used to produce semiconductors, beyond the items agreed upon in the Wassenaar Arrangement.

“Technological advancements that allow technologies like semiconductors and engines to operate faster, more efficiently, longer, and in more severe conditions can be game changers in both the commercial and military context,” **said Under Secretary of Commerce for Industry and Security Alan Estevez.** “When we recognize the risks as well as the benefits, and act in concert with our international partners, we can ensure that our shared security objectives are met, innovation is supported, and companies across the globe operate on a level playing field.”

“Global commerce is driven by innovation—new ideas, and novel ways to apply old ones. BIS is vigilant in assessing the development of new technology and whether it may be used for civil and military purposes,” **said Assistant Secretary of Commerce for Export Administration Thea D. Rozman Kendler.** “We are protecting the four technologies identified in today’s rule from nefarious end use by applying controls through a multilateral regime. This rule demonstrates our continued commitment to imposing export controls together with our international partners. Export controls are most effective when multilaterally imposed.”

The four technologies covered by today’s rule include two substrates of ultra-wide bandgap semiconductors: Gallium Oxide (Ga₂O₃), and diamond; Electronic Computer-Aided Design (ECAD) software specially designed for the development of integrated circuits with Gate-All-Around Field-Effect Transistor (GAAFET) structure; and Pressure Gain Combustion (PGC) technology. Additional information about these technologies is provided below:

- Gallium Oxide and diamond are materials that allow semiconductors that use them to work under more severe conditions, such as at higher voltages or higher temperatures. Devices that utilize these materials have significantly increased military potential.
- ECAD is a category of software tools used for designing, analyzing, optimizing, and validating the performance of integrated circuits or printed circuit boards. ECAD software is used in a variety of applications by the military and aerospace defense industries for designing complex integrated circuits. GAAFET technology approaches are key to scaling to 3 nanometer and below technology nodes. GAAFET technologies enable faster, energy efficient, and more radiation-tolerant integrated circuits that can advance many commercial as well as military applications including defense and communications satellites.
- PGC technology has the extensive potential for terrestrial and aerospace applications, including rockets and hypersonic systems. BIS has added controls on development and production technology for combustors that are not described on the U.S. Munitions List.

The text of the rule released today is available on the Federal Register's website [here](#). The effective date is August 15, 2022.

Additional Background:

In a May 23, 2022 rule ([link](#)), BIS informed the public that the agency would no longer characterize new controls as corresponding to “emerging” or “foundational” technologies pursuant to Section 1758 of ECRA, instead referring to the technologies at issue as “Section 1758 technologies.” As BIS noted in that rule, this approach reflects the difficulties in drawing meaningful and functional distinctions between technologies for purposes of fulfilling BIS’s statutory obligations under Section 1758 of ECRA. Additionally, referring to such items as Section 1758 technologies maximizes BIS’s flexibility and effectiveness.

Additional information about the Wassenaar Arrangement is available online [here](#). Further information on other changes agreed to during the Wassenaar Arrangement’s December 2021 Plenary is available [here](#).

For more information, visit www.bis.doc.gov.