NEWS RELEASE
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https://www.mitsuichemicals.com MITSUI CHEMICALS,INC.

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Mitsui Chemicals, Inc.

Mitsui Chemicals Selected for NEDO's "Development of Manufacturing Technologies for Advanced Semiconductors (Subsidy)"

Advancing R&D for pellicles compatible with ultra-high-power EUV lithography systems

Mitsui Chemicals, Inc. (Head Office: Chuo-ku, Tokyo; President & CEO: ICHIMURA Satoshi) today announced that it has been selected as part of the "Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems / Development of manufacturing technologies for advanced semiconductors (Subsidy)" launched by the New Energy and Industrial Technology Development Organization (NEDO). NEDO has selected Mitsui Chemicals as part of Item [2] Development of manufacturing technologies for advanced semiconductors, (c) Development of peripheral lithography technologies, (c1) Development of pellicles for high-power EUV lithography.

This project aims to ensure a stable supply of advanced semiconductors for the post-5G era and strengthen semiconductor manufacturing infrastructure, thereby establishing semiconductor manufacturing technologies that will serve as a core component of Japan's industrial competitiveness. Increasing the output power of extreme ultraviolet (EUV) lithography equipment is seen as an essential step toward manufacturing next-generation semiconductor devices, creating a strong need for the widespread introduction of pellicle technologies compatible with such environments.

Building on the pellicle manufacturing technologies it has cultivated to date, as well as its nanomaterials design technologies and advanced process technologies, Mitsui Chemicals will work as part of this project to develop pellicle technologies that offer both durability and high transmittance under high-power EUV lithography environments. These efforts are expected to make a significant contribution toward improving yields in the production processes of advanced logic and memory semiconductors, enhancing throughput, and reducing power consumption in lithography processes.

Going forward, Mitsui Chemicals will continue leveraging innovation centered on materials technologies to contribute to the advancement of information and communications, semiconductors, and digital society – fields essential to solving social challenges – and strengthen Japan's international industrial competitiveness in these sectors.

Project overview

- **Project name:**
  Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems / Development of manufacturing technologies for advanced semiconductors (Subsidy)
- **Development item:**
  [2] Development of manufacturing technologies for advanced semiconductors
  (c) Development of peripheral lithography technologies
  (c1) Development of pellicles for high-power EUV lithography

- **Development targets:**
  - To develop pellicles that achieve the following performance targets:
    - EUV transmittance: 95% or higher
    - Durability: Able to withstand lithography for a period equivalent to the production of 10,000 wafers or more under 1000W EUV output power (Exposure dose: 30 mJ/cm² per wafer, 96 fields)
  - To reduce lithography power consumption by 15% or more
- **Joint research partner:**
  National Institute of Advanced Industrial Science and Technology (AIST)
- **Supporting organization:**
  Interuniversity Microelectronics Centre (imec)

Reference

Project page:
Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems | Activities | NEDO

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