CIO Bulletin

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Tokyo Dylec Co., Ltd.

Revolutionizing Nanotechnology and Setting the Gold Standard in Particle Measurement with Precision and Sustainable Innovation

Yoshiaki Shirai | President & CEO

Cover Story

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Yoshiaki Shirai, President & CEO

True precision is not defined under ideal conditions, but in the diverse environments where advanced industries operate. It is here, amid natural variations in atmosphere and process, that the integrity of particle measurement is most critical. When data remains accurate despite these fluctuations, it becomes a catalyst for innovation, quality, and trust. When it fails, progress stalls. The ultimate measure of a measurement system, therefore, is its steadfast reliability outside the lab.

This is where **Tokyo Dylec Co., Ltd.** excels, bringing over 35 years of expertise to the forefront of measurement technology. The company specializes in high-resolution particle and aerosol measurement systems that provide great accuracy in the face of real-world variability. This commitment translates into a practice of pre-deployment testing. By simulating a client's specific operational environment, Tokyo Dylec ensures every instrument is calibrated for lasting performance and integrity. This proactive approach guarantees that data remains a trusted asset, not a variable of concern.

As a pioneer in particle characterization for sectors like semiconductors and clean energy, Tokyo Dylec has built a legacy of trust across Asia's industrial and research landscape. Under the visionary leadership of President and CEO Yoshiaki Shirai, Tokyo Dylec has established itself as the essential partner for organizations that cannot compromise on data integrity. Their approach recognizes that true precision isn't just about achieving accuracy, it's about maintaining it through changing conditions and over time.

At CIO Bulletin, we had the privilege of interviewing Yoshiaki Shirai, President and CEO of Tokyo Dylec Co., Ltd., who shared valuable insights into how the company empowers its clients by transforming complex measurement challenges into a foundation of certainty, enabling them to move forward with confidence and build a reputation for uncompromising quality.

Interview Highlights

Tokyo Dylec Co., Ltd. is recognized as a leading company in nanoparticles and particle measurement equipment. Could you tell us how the company was founded and what inspired the journey so far?

Our company was originally founded about 40 years ago, at a time when air quality was

Yoshiaki Shirai | President and CEO

Born on January 11, 1967, in Tokyo, Yoshiaki Shirai is a seasoned technology executive with a career spanning over three decades in telecommunications, nanotechnology, and business development. He earned his Master's Degree in Applied Physics from Waseda University Graduate School in 1991, laying a strong foundation for his technical expertise and innovative approach.

Shirai began his career at Sumitomo Corporation in 1991, focusing on business development, before moving into the telecommunications sector. At Jupiter Telecommunications Co., Ltd., he held several leadership roles, including Officer and Deputy General Manager of the Technology Division, and later General Manager of the New Technology Office, where he oversaw the development and implementation of cutting-edge technologies.

In June 2017, Shirai joined Tokyo Dylec Co., Ltd. as EVP of the President's Office and quickly promoted to President and CEO in January 2018. Under his leadership, Tokyo Dylec has expanded its footprint in nanoparticle and microparticle measurement technologies, helping clients across industries achieve precision and innovation while contributing to environmental, health, and industrial advancements.

extremely poor due to pollution, to contribute to solving this problem, and began handling equipment for sampling fine particles in the air. Technology for measuring fine particles, such as PM2.5, in the air environment has since been further developed and applied, mainly in the United States and the EU. We have imported these technologies and products from the United States and the EU to Japan and expanded our business by applying them as nanotechnology to many other fields, including automobiles, filter testing, nanomaterials, semiconductors, electricity, CCS, and medicine.

As a Tokyo-based company, how does Japanese culture and innovation influence your approach to research, development and customer solutions?

Tokyo is a city where information and technology from Japan and around the world come together, constantly changing and innovating. Japan's traditional high-quality technological capabilities and its culture that values cooperation and collaboration are the driving force behind these advancements. We provide nanotechnology to Japan's leading research institutes, universities, and major manufacturers, accelerating their innovation.

What are the main products and services offered by Tokyo Dylec Co., Ltd.? How do these tools address real-world challenges?

Our main products and services are the import and sale of nanoparticle and microparticle (aerosol)-related measuring equipment and systems, their manufacturing and sales, maintenance services, and the provision of particle measurement technology and know-how.

Analysis of nanoparticles and fine particles (aerosols) is not only useful for analyzing and resolving the environmental and health impacts of diesel particulates, cigarette smoke, asbestos, pollen, radioactive particles, and nanotechnology materials, but it is also attracting attention from the perspective of developing high-performance materials and nanotechnology materials that take advantage of the properties of ultrafine particles, developing more effective pharmaceuticals and pesticides, stress testing ultra-precision equipment, and next-generation semiconductor manufacturing.

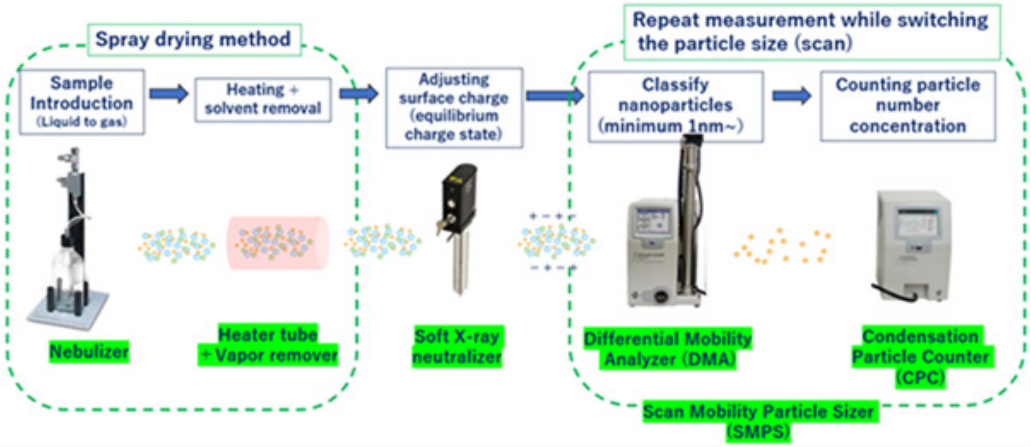
Furthermore, it is also necessary to clarify the impact of global environmental problems, such as global warming, acid rain, ozone layer depletion, and yellow sand from China.

Air quality and PM2.5 are major global issues. Can you explain how your technology contributes to environmental protection and public health?

We provided technical support when the Ministry of the Environment established the PM2.5 standards. We also supplied approximately 30% of the automatic measuring devices and 70% of the sampling machines installed at measurement stations across Japan. In 2021, the Ministry of the Environment achieved 100% compliance with the PM2.5 environmental standards

nationwide (2021 data), and it is said that *"Japan's air has become cleaner."* Our company has made a significant contribution to this.

The semiconductor and nanomaterial industries require precision at the single nanometer level. How is Tokyo Dylec helping these industries achieve this extreme level of precision?



- Conventional DLS methods are said to have a measurement limit of 20 nm due to the physical limitations of laser light. The Condensation Particle Counter (CPC) enables measurement by rapidly condensing single nanoparticles to further expand the laser light measurement area.
- A condensation particle counter (CPC) consists of a saturator, a condenser, and an optical detection unit. The principle of the particle detection unit itself is the same as that of a general particle counter: it detects scattered light from target particles irradiated with laser light.
- Airborne particles drawn in from the sample inlet pass through a saturator section heated to a predetermined temperature, where the condensed alcohol vaporizes and disperses into the sample air.
- The aerosol particles and vaporized alcohol then pass through a condenser cooled to a predetermined temperature, where the alcohol becomes supersaturated and condenses around the floating particles.
- The floating particles, condensed and grown in alcohol, grow to a size that can be detected by laser, making it possible to count them.

These technologies are extremely important for the development of next-generation semiconductors and nanomaterials. Next-generation semiconductors in Japan and Taiwan are expected to be made on substrates of 2 nm or less. To achieve this, single-nanoparticle control is necessary. This is necessary for ultrapure water, IPA, slurries, materials, parts, manufacturing equipment, clean rooms, and everything else. Contamination by single nanoparticles significantly reduces semiconductor yields. Liquids such as ultrapure water, IPA, and slurries cannot be analyzed at the single-nanoparticle level using conventional methods. Therefore, this method is rapidly spreading and supporting new developments.

What core values drive Tokyo Dylec Co., Ltd. today, a company that received the Top Company Award in the Nanoparticle and Particle Measurement Equipment category? How are these values reflected in your day-to-day work and approach to nanotech solutions?

Developing our business while contributing to the development of society and solving problems is a major motivation for us. The government has set out 14 growth areas in its Green Growth Strategy, and our company is expected to play an active role in nine of these areas. The government has passed the GX Promotion Act, which calls for public and private investments worth over 150 trillion yen over the next 10 years, and our company has already begun receiving some of these orders.

- ✓ Wind, solar, geothermal
- ✓ hydrogen/ammonia
- ✓ next generation energy
- ✓ nuclear power
- ✓ mobility
- ✓ semiconductor
- ✓ ship

- ✓ logistics/Infrastructure
- ✓ Food/Agriculture/Forestry
- ✓ aircraft
- ✓ carbon recycling
- ✓ housing
- ✓ resource circulation
- ✓ Lifestyle

Cover Story

"Our company has been in business for about 40 years, but our vision has remained unchanged since the beginning: contributing to the environment, health, R&D, and industrial development with advanced technology."

Company Snippet

Company Name: Tokyo Dylec Co., Ltd.

Founded: January 23, 1986

Website: www.t-dylec.net

Email Address: yshirai@tokyo-dylec.co.jp

CEO: Yoshiaki Shirai

Primary Customers or Industries Served: Air environment, mobility, filter testing, indoor environment, nanomaterials, semiconductors, and power/CCS medical

Office Location: Naitocho Bldg. 1 Naito-machi Shinjuku-ku, Tokyo 160-0014, Japan

Looking ahead, what is your vision for Tokyo Dylec Co., Ltd.? How do you plan to expand your contribution to global challenges such as climate change, indoor air quality, and sustainable nanotechnology, while staying true to your Tokyo roots?

Our company has been in business for about 40 years, but our vision has remained unchanged since the beginning: contributing to the environment, health, R&D, and industrial development with advanced technology.

However, the global environment is changing dramatically, and our role is also changing while becoming increasingly important. The behavior of small particles affects many materials and industries and drives technological innovation. We aim to support our clients, researchers, and scientists, and contribute to solving challenges in a variety of fields. CB

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