

AICELLO: Cutting-edge solutions in clean packaging

As semiconductor performance improves and miniaturization progresses, the ultimate clean packaging that can control defects and metal ions is required, with the need for AICELLO's clean container and film solution rapidly increasing. You can check out the products that incorporate AICELLO's latest technology at the company's booth at this year's SEMICON® EUROPA (link below).



"Reducing the defects created by the semiconductor process is indispensable. Our goal is to attain zero defects from the transport and packaging processes."

Satoshi Morita,
President & CEO,
AICELLO Corporation

The first silicon transistor was built in the USA in 1947, an event that is widely heralded as a development that changed everything.

Today, with technology node sizes moving from millimeters to nanos (and beyond), it is fair to say that the art of miniaturization has revolutionized the semiconductor industry, leading to the development of high-performance microprocessors capable of powering a whole range of devices that we have come to consider as indispensable to our daily lives.

Some food for thought at this point: at the current rate of consumption, it is estimated that by



CLEANBARRIER bottle helps maintain the cleanliness of cutting-edge materials

2050 global society will use approximately 200 times more power than it does today. In IT-related areas, that figure is expected to rise to more like 4,000 times current levels.

All of which poses a conundrum for not just the IT sector but the semiconductor industry as a whole. Miniaturization or microfabrication, based on a principle developed in 1965 by Gordon Moore, co-founder of Intel, offers a potential solution.

"By reducing the circuit line width by half," says AICELLO Corporation President Satoshi Morita, "we can lessen power consumption by a quarter."

In order to achieve miniaturization, however, reducing the defects brought on by semiconductor production and packaging processes is crucial.

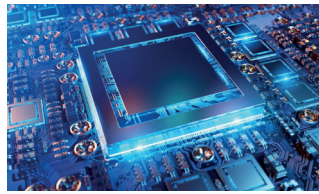


Mr. Morita again: "With the size of semiconductor products growing ever smaller, there is a higher chance that contamination or impurities during the process will cause defects to the end product. In terms of contamination from packaging, there are three potential causes of defects. First is the physical particles; second is the outgas and metal ions that come from resins and resin catalysts; and lastly there is the production environment."

In other words, the packaging, storage and transportation of semiconductor related chemical products needs to be as clean as possible – which is where AICELLO's CB Bottle comes in.

First developed over 20 years ago, when, according to Mr. Morita, "there was not as much demand as there is today", CLEAN-

BARRIER (CB) bottles are blow-molded, multi-layered, high density polyethylene bottles designed to carry ultra-pure semiconductor grade chemicals. Lighter, stronger and more hard-wearing than traditional glass bottles, their purity and elution prevention performance have won rave reviews in the semiconductor industry.



AICELLO, a firm that has cultivated a sense of urgency about the environmental impact of its business ever since its establishment almost a century ago in 1933, hopes that they will one day replace glass bottles altogether.

Originally active in the cellophane industry, the firm shifted its core business to polyethylene films and bottles in the 1970s, dramatically downsizing their portfolio of products in 2008, when with Mr. Morita installed as director of marketing, it began pursuing a company-wide policy known as 'CBS' (CLEAN, BOSELON, SOLUBLON).

A company with a long history of innovation, which has survived periods of economic downturn only to emerge as an internationally renowned pillar of industry, AICELLO highly values the concept of "Dantotsu", which refers to a product or business that is one of a kind, or impossible to replicate.

And, says Mr. Morita, "our clean packaging technology really is one of a kind", which creates huge value in "supporting the semiconductor industry through high purity process chemical packaging and manufacturing equipment parts packaging."

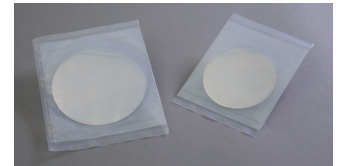
"As far as we know," he continues, "AICELLO is the first to

start bottle production within a cleanroom, something no one had considered doing before we began work in this field."

Nor does development stop at bottle production. Take, for example, the company's HYPERCLEAN Bag MA24, which is used for the packaging of hard disks and other easily contaminated devices.

According to Mr. Morita, it "exhibits a level of purity that is different from the polyethylene bags traditionally used by semiconductor manufacturing equipment manufacturers."

Its biggest feature, he continues, is the world's first standard management of outgas as a packaging material, outgas being a component that is potentially detrimental to semiconductor manufacturing equipment, which can cause defects to the end product.



MA24 contributes to semiconductor miniaturization

Integrating the latest technology among the company's clean bag grades, the MA24 has recently been adopted by one of the world's leading semiconductor manufacturing equipment firms, and has been recognized for its commercial value. It is, moreover, becoming an industry standard for the storage and transportation of semiconductor manufacturing equipment parts.

For more information about AICELLO, those interested are encouraged to visit the company's booth at SEMICON®EUROPA, the single largest event for electronics manufacturing in Europe, with a range of speakers and networking sessions aimed at business and technology leaders, researchers, and industry analysts from across the microelectronics supply chain.

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