

# Hitachi Chemical

## Nordson DAGE Case Study

Nordson DAGE is the market leading provider of award winning bond testing systems for destructive and non-destructive mechanical testing of electronic components. This case study demonstrates our commitment to providing solutions that help our customers succeed.

Since its creation in 1962, multi-national chemical manufacturer Hitachi Chemical has developed innovative product solutions across a wide range of areas; including semiconductor related materials and printed circuit boards. With over 3,700 people worldwide, research and development is a key part of its business, and vital in accelerating the commercialization of new products.

Its vision, to develop superior technologies and products, has resulted in the creation of two research and development centers at its global headquarters in Tokyo, Japan – the Advanced Materials Center and the New Applied Materials Center. To ensure the integrity of this research and development, Hitachi Chemical selected Nordson DAGE for its laboratories.

### Why Nordson DAGE?

The Hitachi Chemicals team carried out a thorough investigation before selecting the machines for its labs and evaluated a pendulum impact machine alongside the Nordson DAGE 4000HS machine. The Nordson DAGE 4000HS machine was found to be far superior; operating at speeds of up to 4m/s for shear tests and 1.3m/s for pull tests, it provides the ability to simulate the high strain rate of a drop test. This made the selection procedure simple.

“Both the Nordson DAGE 4000 and 4000HS machines are extremely efficient and provide consistent results,” said Mr Yoshinori Ejiri, a researcher in the New Applied Materials Research and Development Center. “The efficiency gains that we have benefited from by using the 4000HS machine have been tremendous.”

“ The Hitachi Chemical has earned a first class reputation as a direct result of the testing carried out by the Nordson DAGE bond testers, which is a major selling point for us. ”

**Yoshinori Ejiri**  
**Researcher – New Applied Materials Research and Development**  
**Hitachi Chemical**

## The Gold Standard

The primary area of research carried out in the New Applied Materials Research Center is the development of copper and gold plating for semiconductor package substrates. The team use Nordson DAGE bond testers to investigate the impact reliability of the substrates when in service. The Nordson DAGE 4000 machine is used to perform pull tests and the Dage 4000HS machine is used to perform high strain rate shear tests.

“As the semiconductor becomes more highly integrated, the performance of the materials used in the manufacturing process becomes increasingly important” explained Mr Ejiri. “It is critical that we prove the high quality and reliability of our products for semiconductor production and the Nordson DAGE machines enable us to do just that.”

## Exceptional Accuracy

Mr Ejiri has high praise for the Nordson DAGE equipment, “Using the Nordson DAGE equipment has provided us with much more than just a testing machine. The Nordson DAGE 4000 and Nordson DAGE 4000HS machines provide extremely consistent and accurate data across our range of tests.” Mr Ejiri concluded “The insight that we gain from using the Nordson DAGE machines has a profound impact on the quality of our research.”

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