

R&D Activities and Intellectual Property



R&D Activities

Basic Policy

Through the development of functional materials and related processing technologies utilizing LINTEC's original technological capabilities and research regarding user needs based on dialogues with markets, we are developing innovative products that generate demand and resolve customers' technological issues.

As a technology-centered company, we realize that strengthening R&D capabilities is one of our most important strategies for achieving sustainable growth. Therefore, we are developing new high-value-added products with a particular focus on growth businesses and environmentally friendly products, and working to accelerate LINTEC's globalization.

R&D System

LINTEC's R&D function is focused in the Research Center within the Research & Development Division, which has approximately 200 research personnel. With a complete array of the very latest research equipment, pilot coaters, and clean-room facilities, the research center collaborates closely with production engineering divisions to develop a range of coating agents and other products. Developing and producing a variety of equipment, our Ina Technology Center is working particularly hard to strengthen development and production of semiconductor-related products. Moreover, the Group also has an R&D base in Boston, in the United States, which conducts research and development in such areas as industrial-use multilayer materials and coating technology.

We are not only conducting in-house R&D but also proactively initiating technological alliances with industry, government, and academia. Our goal is to develop new technologies and products by integrating different technological areas.

Our Four Core Technologies

We will combine our four core technologies of pressure-sensitive adhesive applications, material quality and functionality enhancement, specialty paper and composite material production, and system development to develop and supply highly distinctive products unlike anything else available in the market.

Pressure-sensitive adhesive applications

Through the development of adhesives and substrates and the combination of related technologies, we are expanding the range of fields in which the basic functions of adhesive products are utilized.

Material quality and functionality enhancement

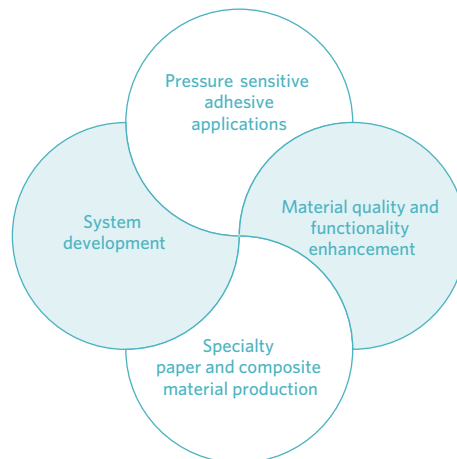
Through the chemical and physical processing of paper, film, and adhesives, we are enhancing their characteristics and adding new functionality.

Specialty paper and composite material production

We use original papermaking technologies and coating, impregnation, and laminating technologies to develop specialty papers and high-value-added materials that transcend traditional concepts of paper.

System development

Through systematizing machinery and equipment and building high-level systems that draw on the distinctive characteristics of materials, we are providing advanced solutions.



Intellectual Property

Basic Policy

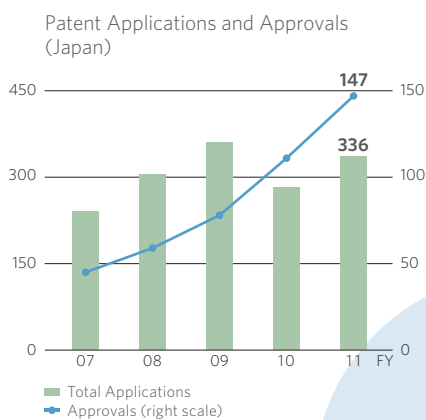
We aim to increase corporate value by supplying original products developed through our continuous R&D efforts. We therefore realize that intellectual property, such as patents, trademarks, and design rights, are important management resources.

Going forward, we will promote the development of intellectual property that supports our business activities. We will steadily acquire intellectual property rights for the products and technologies created through our R&D efforts around the world, thus reinforcing the intellectual property base that is indispensable to LINTEC's market competitiveness.

Management System

We have established the Intellectual Property Department within the Research & Development Division. The department supports operational activities through patent applications and builds barriers to protect intellectual property. Through these efforts, the department works to increase the freedom of operational activities, minimize the risks accompanying operations, and enhance motivation among technical staff. It prepares and submits patent applications, and also monitors for infringement of rights and consults with researchers in the early stages of product development and in the discovery stage at our R&D locations. In other words, the department is engaged in comprehensive and strategic activities to protect our intellectual property.

As well as increasing the number and quality of patent applications and rights acquisitions, we are working to supplement and rebuild our portfolio of patents for growth businesses and foundation businesses, to provide intellectual property support for operations shifting to overseas locations, and to train more employees with a view to advancing and accelerating development processes. Through those efforts, we aim to improve profitability based on our intellectual property.





Successful R&D Initiatives in the Fiscal Year under Review

In the fiscal year under review, the R&D expenses incurred by the Group amounted to a total of ¥6.0 billion. The following is an overview of the principal R&D activities conducted by each operational segment.

Printing and Industrial Materials Products

Printing- and information- related products

We have developed a new holographic label material that creates the appearance of a smoothly reflecting single sheet by hiding the seams between labels. This material greatly improves cost performance by reducing the loss of productivity during printing created by seams and eliminating the need for post-printing inspection. Going forward, we will continue to develop other new products that respond to market needs.

Moreover, in printing equipment related products, we are developing printing machines that are optimally suited to the special characteristics of the Company's label materials. In the year under review, we continued to improve the LPM-300, an intermittent letterpress, and develop low-priced printing machines for the China market. We also worked to develop equipment that combines roll-to-roll web handling technologies and processing technologies.

Commercial- and industrial- related products

In the fiscal year under review, we worked to develop printing materials compatible with large-sized printers using environmentally friendly water-based inks. Further, these materials have been approved as flame resistant and can be used for a variety of applications, such as outdoor signs, advertising signs, and interior finishing.

In industrial equipment related products, meanwhile, our development activities are centered on labeling systems for the automated application of adhesive labels using LINTEC's label materials. In the fiscal year under review, we continued to focus on the development of equipment for the automotive-related, distribution, and mail-order industries.

Healthcare products

We advanced the basic technology for film pharmaceutical products, which are easy to swallow without water because they become a jelly on contact with small amounts of saliva. Through this advancement, we have adapted this technology to be used in next-generation oral film formulations jointly developed through an operational and technological tie-up with ASKA Pharmaceutical Co., Ltd. We continue to move forward with research into the use of this technology as a new drug delivery system that contributes to improving the quality of life of patients.

Electronic and Optical Products

Electronic and optical devices products

We developed a DBG + LE system that combines DBG (dicing before grinding) system technology, which supports the production of thinner LSI chips, with LE tape technology, which can create tape that functions as both dicing tape and die bonding tape, and introduced LD tape into the market. By making possible multilayer LSI chips, this system contributes to the realization of higher-density LSI packages. In this way, the system supports the creation of higher-capacity memory cards.

In electronic equipment related products, our development activities are centered on application equipment that facilitates the efficient use of the backgrinding tapes and dicing tapes used during semiconductor back-end process. In the fiscal year under review, we launched various new pieces of equipment compatible with the manufacturing of silicon wafers with through-silicon vias (TSVs) and power devices.

Optical-related products

In the fiscal year under review, we developed a specialty adhesive with significantly increased stress relieving properties in order to improve its ability to be attached to uneven surfaces, a feature that is currently in high demand. In the functional coating field, we are developing completely unique light control film by fusing our anti-glare coating technology with new manufacturing technologies.

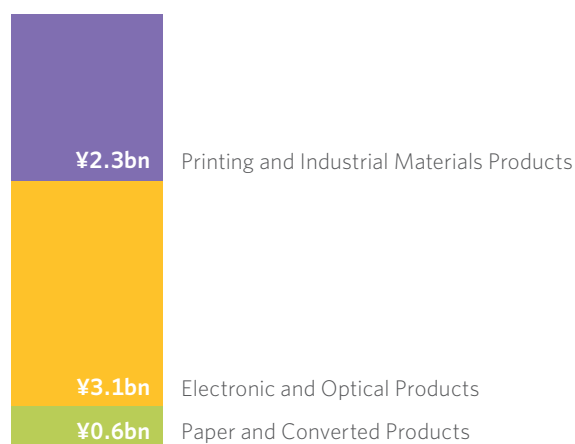
Paper and Converted Products

In the fiscal year under review, we were able to achieve steady sales from major convenience stores and fast food restaurants due to our constant innovation of oil- and moisture-resistant papers for food packaging. Additionally, there is a growing demand for paper-making utilizing materials previously incapable of being included in paper, such as reeds, cocoa bean shells, and ingredients used to make Kampo (traditional Chinese medicine), as a form of recycling. We are therefore considering means of addressing this demand.

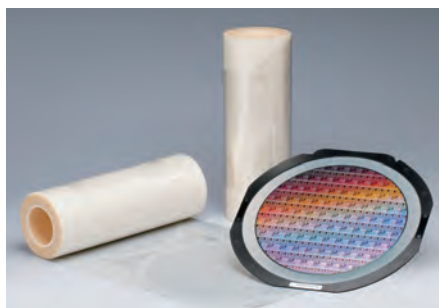
In release materials, with the goal of enhancing our lineup of environmentally friendly products, we eliminated formaldehyde and organotins from the formulas of release materials for the manufacturing of flexible printed circuits and resin films. Further, we developed two new formulations for release papers that transform from solvent types to non-solvent types.

Total R&D Expenses in FY2011

¥6.0bn



New holographic label material



LD tape