

# Functional Chemicals Business

We are taking the lead in global trends such as environmentally friendly electronic components and electronic parts for automobile aiming to gain the No. 1 position in global niche markets.

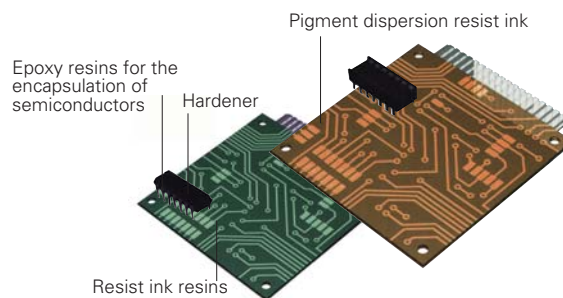


## Functional Materials Business

### Business Overview

**Our functional materials business includes the development, manufacture, and sales of epoxy resins used worldwide for the encapsulation of semiconductors, UV-curing resins, and other functional materials.**

This crucial business covers a broad range of functional materials, including epoxy resins used for the encapsulation of semiconductors, RC resins that cure under exposure of ultraviolet light, and polyimide/polyamide resins, the character of which is high durability. Our consolidated subsidiary in this field, Kayaku Chemical (Wuxi) Co., Ltd., produces and sells RC resins in the rapidly expanding Chinese market.



### Market Trends and Overview of Operations for the Fiscal Year Ended May 31, 2007

**We were able to achieve modest growth despite adverse effects of the declines in the PC and cellular phone industries.**

During the first half of the year ended May 31, 2007, the strong performance within the information/communications industry helped the Nippon Kayaku Group deliver good business results. However, the industry was struck by a subsequent fall in demand during the second half of the year, slowing it and limiting our growth over the full year to a more modest level.

In the field of epoxy resins, Nippon Kayaku is almost entirely specialized in the resins used for semiconductor encapsulation, and we were affected by production adjustments among semiconductor manufacturers.

Our RC resin business was similarly affected by production adjustments among semiconductor manufacturers and manufacturers of FPD (flat panel displays) and other digital home electronics. Because RC resins are also used as the hard coating that helps prevent scratches on cellular phones,

production adjustments of cellular phones had an adverse effect on this business as well.

## Business Objectives and Strategies

**We will actively introduce new products that are adapted to developing market trends, for example by expanding our business in environmentally friendly epoxy resins.**

As a top quality epoxy resin, environmentally friendly NC-3000 has established a position as the *de facto* standard in the market. In the future, we intend to introduce this environmentally friendly type epoxy resin to larger markets where specialized quality that matches the purpose of use is required.

In the field of RC resins, we have succeeded in developing photoresist dry film materials. In addition, as the broad transition to electronic parts for automobile continues, we are actively working to develop excellent new products in this field.

For polyimide/polyamide resins, we are expecting to increase sales by developing and producing products that meet customer needs.

## Electronic Materials Business

### Business Overview

**We develop, manufacture, and sell functional films, optical disc materials, and other materials that are used for essential parts of information/communications devices.**

Nippon Kayaku is actively expanding its business in the information/communications field, a sector we have identified as an important growth field. Our electronic materials business covers functional films, colors for inkjet printers, optical resins, and resins for LCD (liquid crystal display) panels – all products that are essential in the manufacture of information/communications devices.

Polatechno Co., Ltd. is a consolidated subsidiary of Nippon Kayaku that manufactures the special polarizing films needed for LCD displays. These polarizing films were developed using dye technology that is one of our specialized technologies. Unlike the iodine-type polarizing films used in the production of large LCD panels, these products manifest their strength in the niche market of mid- and small-size panels, such as for automobile displays, where high durability is required.

Nippon Kayaku also markets optical functional films for PDP (plasma display panels), colors for inkjet printers, and adhesives for DVD discs, as well as sealant for LCD panels,

pigment dispersion resins for digital camera CCDs, and numerous other products.



### Market Trends and Overview of Operations for the Fiscal Year Ended May 31, 2007

**Performance in the functional film and DVD adhesive fields was sluggish as a result of fluctuations in the information/communications industry, however sales of colors for inkjet printers were strong.**

Sales of the optical films marketed by Polatechno Co., Ltd. grew steadily, centered primarily on dye-type polarizing films. In the field of optical functional films for PDP, while there were severe demands for cost-cutting as the price of plasma televisions declined, there were also several factors that increased their cost, such as a stronger requirement for high quality. Under these conditions, because Nippon Kayaku was overly focused on profits and did not carry out an expansion strategy, sales fell below the plan targets.

In the same way as the functional materials business, sales of DVD adhesives were affected by production adjustments in the information/communications industry, and fell below the plan targets. However sales of LCD sealant and colors for inkjet printers showed robust growth.

## Business Objectives and Strategies

**With products such as colors for inkjet printers and products for next-generation DVDs, we are actively working to identify and enter new markets.**

In the PDP film field, in August 2006 we constructed a trial model line for high-performance optical films at our Fukuyama Plant, and are aiming to expand business in this field by producing higher-performance films. We are also conducting research related to UV-curing sealants for large LCD panels to permit us to expand into this field as well. The polarizing films sold by Polatechno Co., Ltd. are increasingly used for automobile instrument panels and other purposes, and continued strong sales are expected.

As the size of the market grows, we are also focusing on expanding our business in the field of colors used in inkjet printers.

In addition, with the launch of the next-generation DVD market, we expect growth in the DVD adhesive field as well.

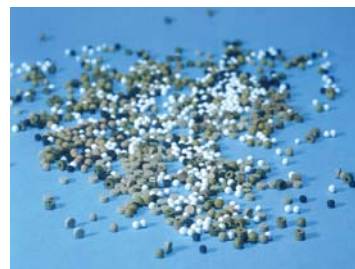
## Catalyst Business

### Business Overview

**We develop, manufacture, and sell catalysts used in the production of acrylic acid and methacrylic acid.**

The Nippon Kayaku catalyst business comprises the development, manufacture, and sales of catalysts that play a fundamental role in the production of acrylic and methacrylic acid. Acrylic acid serves as a raw material for a large number of products, including SAP (super absorbent polymers) that are utilized in consumer items such as disposable diapers, and also in acrylic paints, adhesives, and RC resins for automobile production and other purposes. Methacrylic acid is used in FPD light-guide plates and other optical applications, as well as in products such as transparent plastics used for giant aquarium tanks, automotive parts, and artificial marble. Both acrylic acid and methacrylic acid (utilizing the direct-oxidation method) require catalysts for their production, and Nippon Kayaku catalysts are highly popular thanks to their high performance.

In this field, we are also engaged in the plant licensing business, in which we provide the necessary technologies for the start-up and operation of plants that produce acrylic acid and methacrylic acid. In this way, we are putting our catalyst-related expertise to good use.



## Market Trends and Overview of Operations for the Fiscal Year Ended May 31, 2007

**With increased first-time use of our catalysts by overseas customers, we achieved sales that were significantly higher than the previous year.**

The number of plants producing acrylic acid and methacrylic acid has been increasing overseas in recent years, and the Nippon Kayaku catalyst business has adopted a global business strategy. In particular, we have been successful in increasing the use of our catalysts by overseas customers, and this year achieved sales that were significantly higher than the previous year.

## Business Objectives and Strategies

**We will expand our catalyst business in coordination with our plant licensing business.**

We will continue dedicating our efforts to the plant licensing business in the future. We will also complete our third catalyst plant, improve our production capacity, and further expand our business.



**Keizo Shimomiya**  
Member of the Board  
Managing Director  
Director of Functional  
Chemicals Group

## Topics

### Start of in-house production of films for plasma display

In August 2006, Nippon Kayaku's Fukuyama plant completed the construction of facilities for trial production and in-house production of optical films used for plasma display panels.

Until recently we have produced inks for optical films in-house, and have contracted outside sources to process the films. Now, by having our own preproduction and production facilities, we have created new film processing techniques and established facilities that can carry out consistent development and production, from ink manufacture to film processing. These facilities will be effectively utilized to keep pace with the flat panel television market, which is rapidly expanding worldwide. In the future these preproduction and production facilities will also be used to develop next-generation materials, perform speedy product development, and operate as a model line.



Newly built facilities for optical films

### Facility buildup aimed at increased production of LCD films for automobile

By the summer of 2008, Dejima Optical Films B.V. of Holland, a subsidiary of Polatechno Co., Ltd., plans to increase its capacity to produce special phase difference films by four times the current level to at least 200,000 square meters annually to meet rising demand for these films in automobile LCD components.

As well, by the fall of 2008, Polatechno will expand its head office plant facilities in Niigata Prefecture by building a new plant for dye-type polarizing films used in LCDs for automobile. This facility expansion in Japan will boost production capacity, including for iodine-type polarizing films, by one and a half times the current level to 6 million square meters per year.

These enhancements are being made to meet expanding global automobile production as well as widening adoption of LCDs for information panels and other products. Since LCDs installed in automobiles display speed and other important basic information, automotive components are expected to be highly durable.

Production of special phase difference films requires special technical capabilities, which makes it difficult for other companies to participate in its production. In particular, the dyes required to manufacture dye-type polarizing films are a specialty of Nippon Kayaku. In such ways, Polatechno is developing this important business by harnessing the strengths of companies and key specialties within the Nippon Kayaku Group.

### Nippon Kayaku products used in constantly evolving cell phone technology

Cell phones are among the most obvious examples of communications devices that are ever increasing in functionality. Our company's functional materials and electronic materials have become absolutely essential for their production.

