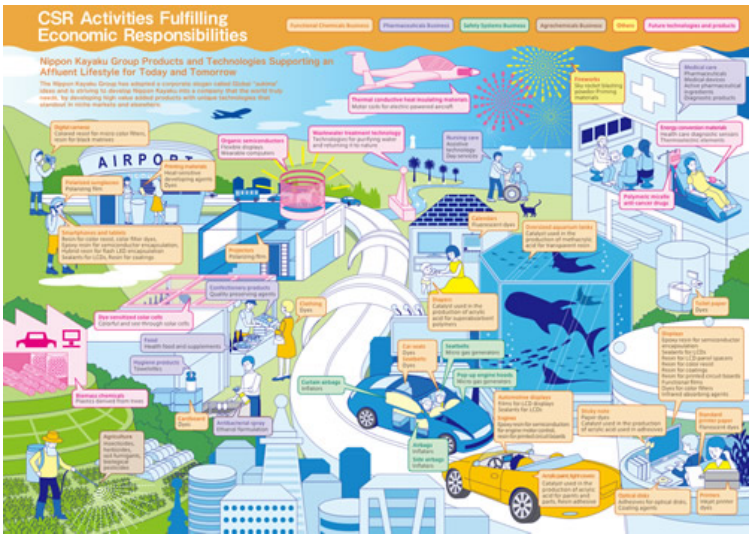
CSR Activities Fulfilling Economic Responsibilities

Current Nippon Kayaku Group Products and Future Technologies and Products Supporting an Affluent Lifestyle

The Nippon Kayaku Group has adopted a corporate slogan called Global "sukima" ideas and is striving to develop Nippon Kayaku into a company that the world truly needs, by developing high value added products with unique technologies that standout in niche markets and elsewhere.



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The Nippon Kayaku Group's Businesses

This section will take a closer look at the 4 core businesses of the Nippon Kayaku Group as well as products that it developed with unique technologies that contribute to the betterment of society.

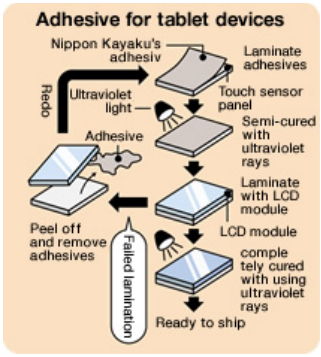
Functional Chemicals Business | Pharmaceuticals Business | Safety Systems Business | Agrochemicals Business | Research and Development

Functional Chemicals Business

Developed the KSP series lamination technology for touch sensor panel and LCD module

Nippon Kayaku developed the KSP series of solvent-free acrylic adhesives that greatly improve product yield*1 in the touch sensor panel and LCD module panel lamination process for tablet devices.

The KSP series are acrylic adhesives that are cured by irradiation with to ultraviolet (UV) light. During the lamination process, KSP series adhesive is coated on a touch sensor panel with proper thickness, then is pre-cured by irradiation with UV light until it partially hardens. This makes it re-lamination possible simply by peeling off the touch sensor panel and LCD module if there are bubbles or dust particles. Only perfect laminated pieces are cured completely by irradiation with UV light again.



The KSP series enhances yield by approximately 30%*2 compared to conventional processes and greatly reduces waste material caused by defective products, whereby helping to conserve precious resources. The KSP series is also environmentally and people friendly because it is completely solvent free.

Functional Chemicals Business

*1 Yield: Refers to the percentage of production volume (quantity) compared to the expected production volume based on the amount of raw materials (materials) input.

*2 Approximately 30% improved compared to conventional processes: In-house comparison

Pharmaceuticals Business

Specialty, Biosimilar & Generic Plus IVR Pharma

Nippon Kayaku was among the first to commercialize biosimilars that play an important role in the treatment of cancer and rheumatoid arthritis after focusing all of its efforts on the field. These biosimilars are helping patients and their families as well as healthcare practitioners.

By providing an extensive lineup of biosimilars, Nippon Kayaku is helping to ensure that all of society can have equal access to sound, high quality medical treatment options anytime and anywhere.

In 2010, Nippon Kayaku entered the Interventional Radiology (IVR)* field as the third pillar of its Pharmaceuticals Business, and in fiscal 2013 we had a lineup of three products. In this manner, Nippon Kayaku is making contributions to society as a whole by delivering IVR treatments that reduce the physical burden of patients and particularly those battling cancer.

MINK Web – Nippon Kayaku's informative website for healthcare professionals.

Pharmaceuticals Business

* IVR: IVR is a method of treating illness with a narrow catheter or needle inserted inside the body that is manipulated while monitoring X-ray, ultrasound, or CT images.

Safety Systems Business

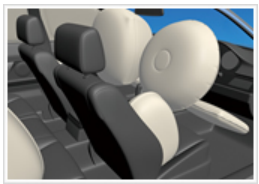
Safety Components Manufacturer under NCAP

Safety technologies used in automobiles are evolving at a rapid pace. In recent years, together with environmental performance, safety performance has become a major deciding factor behind the selection and purchase of an automobile.

Automotive safety technologies comprise preventive safety technologies to avoid accidents before they occur, and collision safety technologies that lessen the impact during a car accident.

Several elements are necessary for collision safety technologies that protect passengers in the event of an accident. The most important of these are the vehicle's airbags and seatbelts.

Given this environment, Nippon Kayaku has leveraged its long-standing explosives technologies to develop, manufacture and market a host of different products for the world, including airbag inflators, seatbelt pre-tensioners, and micro gas generators for pop-up engine hoods. These are protecting the lives of automobile passengers around the world.


Air bags inflated using explosives technology

Safety Systems Business

Agrochemicals Business

50th Anniversary since the Launch of Diazinon Granules

In 2014 diazinon, one of the core products in our Agrochemicals Business, will celebrate its 50th anniversary since first being registered as a pesticide. Over the past five decades diazinon granules have been used to protect a wide range of agricultural crops from insects as the formulation of choice among farmers, gaining widespread and deeply rooted support from the agricultural community. To mark this occasion Nippon Kayaku has launched a commemorative campaign to express its thanks for customers' patronage over the years and to expand sales further.

Air bags inflated using explosives technology

Currently, our lineup of diazinon products include the mainstay 5% granules as well as 3% granules, 10% granules, emulsions, wettable powder, micro capsules, and emulsion formulations. This lineup has been expanded over the years to ensure diazinon can be used in a broad range of applications.

The key to the creation of new products in the Agrochemical Business has more to do with just history. This success has been made possible by long-standing pest control technologies and formulation technologies passed down as the spirit of learning from the past have been combined with the creative thinking of the recent youth movement at the Agrochemicals Research Institute.

Nippon Kayaku's technologies are hard at work in pesticides meant to protect crops from disease, pests and weeds, while reducing the labor of farmers and helping improve

Agrochemicals Business

*1 Diazinon granules: Kayaku Diazinon Granules 3 was registered as a pesticide by Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF) on May 4, 1964 (Registration No. 6193). Today, the product name has been changed to Diazinon Granules 3 (MAFF Registration No. 7288).

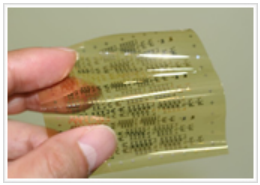
Research and Development

Researching the Needs of Tomorrow: R&D for Organic Semiconductor Materials

Electronics have drastically improved living standards since the 20th century. Today, electronics occupy an indispensable presence in many of the products we use every day, including computers, smartphones and medical equipment. One of the core components of these electronics are inorganic semiconductors.


The world which uses an inorganic semiconductor

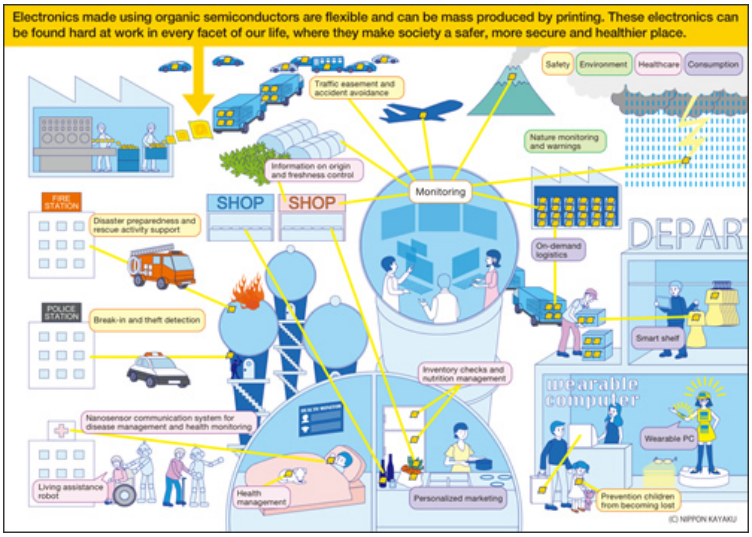
Nippon Kayaku is researching and developing organic semiconductors as an alternative to inorganic semiconductors. Organic semiconductors can be used in a host of different products (products that bring our live new and greater convenience) because they make it possible to make electronics softer. In addition, organic semiconductors can be printed, making the semiconductor manufacturing process more environmentally friendly and use less energy. Organic semiconductor materials are garnering much attention from academia and industry alike as a material that represents the key to the future of electronics.


The world which uses an organic semiconductor

Nippon Kayaku's organic semiconductor materials boast among the best performance in the world. We are also working closely with other leading research institutions in Japan and abroad to accelerate the commercialization of these technologies through our involvement in NEDO's consigned research project, the Japan Advanced Printed Electronics Technology Research Association (JAPERA).

Going forward, Nippon Kayaku will seek to research new themes that capture the needs of tomorrow and to systematically develop businesses in the segment in order to make sustainable contributions to society.

Learn more about our research laboratories



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Involvement in the NEDO Biomass Project

A majority of the chemicals produced in Japan are made from raw materials derived from crude oil and today some 23% of the country's total oil consumption is used as a raw material for chemicals. This means the chemical industry uses a large amount of Japan's oil resources. With worldwide consumption of oil continuing to increase, to overcome the challenges of rising oil prices, depletion risk, and global warming caused by CO2 emissions, society will need to shift to various non-oil-derived raw materials in the future. Non-edible biomass is one such material.

The New Energy and Industrial Technology Development Organization (NEDO) launched the Development of Manufacturing Processes for Chemical Products Derived from Non-edible Plants with the goal of building an integrated, high cost competitive manufacturing process spanning from non-edible biomass to final chemical product and shifting consumption toward non-edible biomass raw materials.

Nippon Kayaku's joint proposal with other companies and research institutions was adopted for the project and research began in September 2013.

Nippon Kayaku's role in this project will be to leverage its core resin synthesis and assessment technologies to develop a process for manufacturing thermally-cured epoxy resin from lignin, a type of unused non-edible biomass.

CSR Activities Fulfilling Economic Responsibilities

Functional Chemicals Business | Pharmaceuticals Business | Safety Systems Business | Agrochemicals Business | Others | Future technologies and products

Nippon Kayaku Group Products and Technologies Supporting an Affluent Lifestyle for Today and Tomorrow

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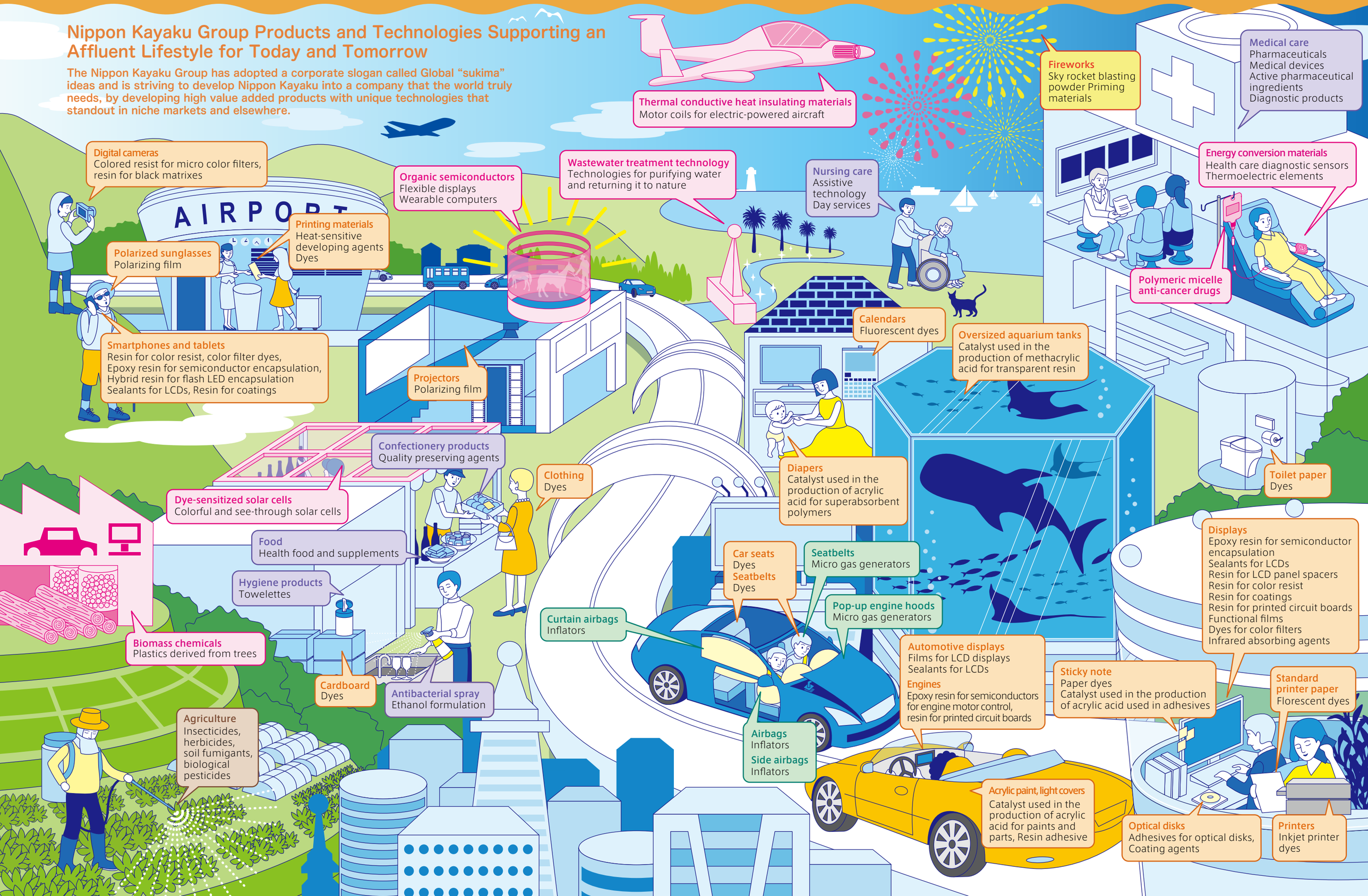

Electronics made using organic semiconductors are flexible and can be mass produced by printing. These electronics can be found hard at work in every facet of our life, where they make society a safer, more secure and healthier place.

Safety
Environment
Healthcare
Consumption

Traffic easement and accident avoidance

Nature monitoring and warnings

Information on origin and freshness control

Monitoring

FIRE STATION

Disaster preparedness and rescue activity support

SHOP
SHOP

On-demand logistics

Smart shelf

POLICE STATION

Break-in and theft detection

Inventory checks and nutrition management

HEALTH MONITOR

wearable computer

Wearable PC

Nanosensor communication system for disease management and health monitoring

Living assistance robot

Health management

Personalized marketing

Prevention children from becoming lost