



Deputy Director
Mobility Business Headquarters

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Hitachi Chemical Products Contributing to Mobility Business

Hitachi Chemical began the manufacture of insulating varnishes for domestically made motors as a division of Hitachi, Ltd. in 1912. It broke away and became independent in 1962 with these varnishes as their original product. Subsequently, we expanded our business around electronic materials, and now provide optimal solutions to customers, centered on the four focus business areas of Information & Communication, Mobility, Environment and Energy, and Life Sciences.

The Mobility Business Headquarters was established in 2019. By adding two products (inorganic material products and resin products) to the five products (molded resin products, sheet-formed products, brake friction materials, powder metallurgy products, heat insulation components) handled by the Automotive Parts Division up to the previous fiscal year, sales accounted for over 30% of the sales of the Hitachi Chemical Group overall. As a result of this organizational change, the expanded material technologies for organic, inorganic, and metal materials were merged with design expertise for automobile parts to provide flexible solution proposals from a broader perspective. In the mobility field, the automobile industry is said to be undergoing a major, once-every-100 year revolution. By quickly grasping technical issues that differ from conventional ones, we can make proposals that lead to the creation of new value for our customers.

Electrification, Automation, and Connection are the driving forces behind the transformation of the automobile industry^{1) to 3)}.

In comparison with internal combustion engines, Electrification delivers advantages including (1) low fuel cost, (2) no odor, noise or vibration, (3) low air pollution, and (4) CO₂ reduction effect. In particular, (3) and (4) are related to large cities and global warming, and their introduction has been accelerated by policy measures. Automation offers advantages such as (1) reduction of traffic accidents and (2) reduction of traffic jams. Driver error (recognition error, judgment error, operation error) is the major cause of traffic accidents, and there are high expectations of automation as a solution to this in our aging society. Congestion due to traffic capacity and driver behavior (such as deceleration) is also a major social problem in large cities. Automation such as the installation of ADAS (Advanced Driver Assistance System) is progressing in stages. Connection is partly related to Automation, such as car following. However, connecting the vehicle to a network outside the vehicle via a communication module changes the

“human-to-society interface” and how vehicles are used to give the capacity to provide various services. This is known as MaaS (Mobility as a Service), and it is said to present business opportunities in many industries besides transportation, including real estate, medicine, and events. In fact, new businesses are emerging one after another, such as car sharing; Uber, DiDi and other ride-hailing services; and collaboration with railways and local governments⁴⁾.

Technical issues and requirements related to progress in Electrification, Automation, and Connection are as follows: (1) weight savings (body, battery, motor, inverter, etc.), (2) bonding and joining of dissimilar materials, (3) control of sound and electromagnetic waves, (4) thermal management (heat storage, heat dissipation, etc.), (5) high battery capacity, (6) improved sensor and camera accuracy, and (7) processing large amounts of information. The Mobility Business Headquarters conducts research and development into these issues through close cooperation with customers and external research institutions. Examples include resin back doors to save weight, resin gears that combine silence and strength, and low dielectric constant, low VOC resin materials related to motors and inverters for electrification. In addition, with the aim of improving the speed of development and the accuracy of commercialization, we are also focusing on development process management, such as using a “virtual catalog” that introduces our ideas and technologies to promote dialog with customers from the concept stage.

The mobility business is a business that truly embodies Hitachi Chemical’s corporate vision of contributing to society through the development of superior technologies and products. I feel very fortunate to be able to be involved in this project during this period of change. Through technical innovation, we will continue to focus on reducing the environmental burden and improving the quality of life of each and every individual.

【References】

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