

RESEARCH & DEVELOPMENT

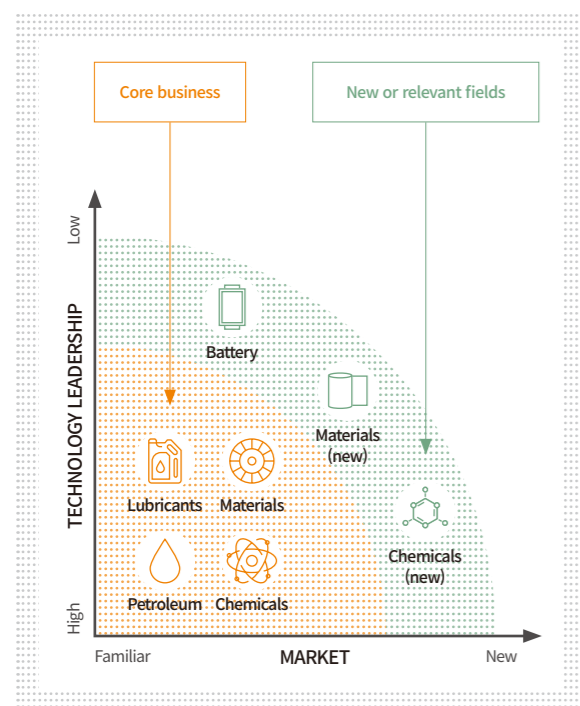
Innovative performance through R&D is our core strategy that secures our unique competitive edge. SK innovation is strengthening its competitiveness based on the technology accumulated through its energy and petrochemical business. In addition, SK innovation is discovering new growth drivers through open innovation and new technology development for sustainable growth in the future.

R&D Structure

R&D Strategy

The Institute of Technology Innovation provides a Tech Solution for core businesses in oil, chemicals, lubricants and materials to secure sustainability and speed up global growth. It also aims to develop, improve and expand on our strong business capabilities to maintain a differentiated competitive edge. Furthermore, we obtained competitiveness for both social value (SV) and economic value (EV) by methods such as securing future generation technology for core businesses and prospective environmental technology. We also support business model innovation and will continue to pursue innovation by creating and completing a global open R&D system.

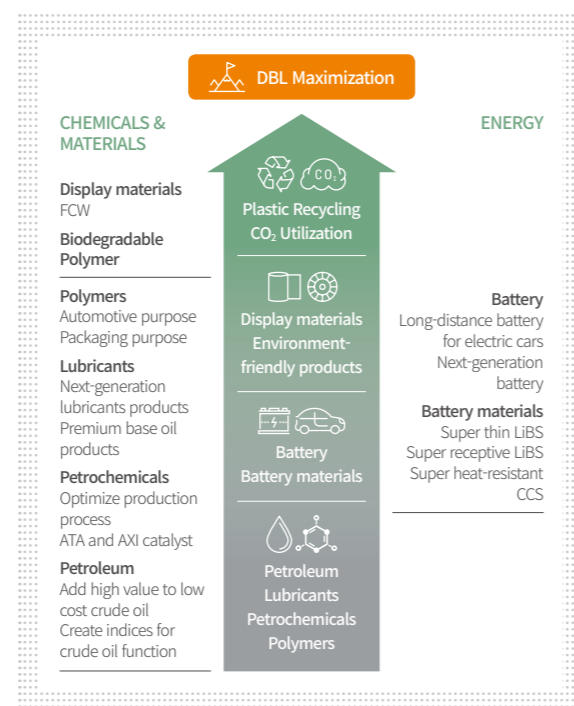
R&D Direction



Institute of Technology Innovation

Since the establishment of SK Daedeok R&D Park in 1995, SK innovation has been pursuing technology leadership through technology innovation. The complex includes our Institute of Technology Innovation, which is in charge of our R&D projects, and the Battery R&D center, which supports the battery business. The Institute of Technology Innovation is composed of: petroleum and lubricants center, petrochemicals center, base technology center, materials center and center for R&D innovation. We actively promote R&D collaboration by connecting and consolidating with outside infrastructure based on our technology and assets. Through this method, we will secure competitive technology for existing businesses: petroleum, chemicals and lubricants as well as secure next-generation technology for future growth.

R&D Growth Plan



Major R&D Activities and Performance

Development of environment-friendly asphalt products

Environmental impact during asphalt production and paving process as well as safety and recyclability of wastage were issues to be addressed. SK energy developed and commercialized a premium asphalt with groundbreaking improvement in water-resistance and workability. Our premium asphalt not only minimizes potholes but can also be used to produce and construct asphalt concrete at low temperatures in order to reduce harmful substances like carbon dioxide and fine dust. In addition, we are developing an asphalt suitable to reuse the asphalt pavement waste. We will extend the use of our environment-friendly products from the domestic market into the global market such as China to achieve financial performance as well as maximize social values.

carbon emissions and air pollutants, and ultimately contribute to protecting the environment. In the future, we will develop batteries for electric cars with improved power density and rapid charging capability.



Environment-friendly asphalt

Super solid, high impact-endurance material

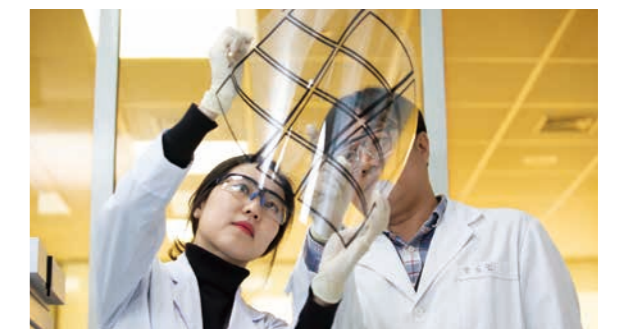
The ultra-solid quality of High Crystalline Polypropylene Plastic (HCPP) and extreme endurance to impact are essential qualities to create lighter cars. SK innovation optimized the properties of HCPP components; Homo PP (Polypropylene) and EPR (Ethylene-Propylene Rubber) which allowed us to cut 10kg off the weight of automobiles based on medium-sized vehicles and improve fuel efficiency by 2.8%.



HCPP applied product

Core material for flexible display

As interest in flexible display applied on smartphones, tablet PCs and televisions is peaking, demand is growing for cover window products made of flexible film. SK innovation began R&D on polyimide (PI) using the technology we accumulated since 2006. In particular, we completed trial production of flexible cover windows (FCW) which met the product properties demanded from domestic and global display panel manufacturers: flexibility, solidness and anti-scratch quality. We are building a mass production plant for FCW targeting commercial operation from 2019. We plan to extend the use of transparent PI and create higher-value-added products by creating diverse products with our technology. We will also construct a second plant to meet forecast market growth.



Flexible Cover Window

High power-density battery

As market demand is growing for electric cars to drive longer distances, safe, high power-density batteries are becoming more and more important. In response, SK innovation developed an ultra-storage, high-power-density cell and its model product. We also completed developing the material and production technology to achieve the product. With this development, we will spread the use of electric cars, reduce



Battery Cell