Pursuit of Ultimate Performance in High Value-added Products in Growth Business Fields

In the films business, we are advancing the expansion of business and increases in revenue and profit with polyester (PET) films and battery separator films (BSF) as the two supporting pillars of the business, in conjunction with broadening polypropylene (OPP) film sales by their use in capacitor and packaging material applications. Polyphenylene sulfide (PPS) films and aramid films are one-of-a-kind, high-performance film products. We are also widely deploying a lineup that includes processed film products, such as self-adhesive protective films and clear metallized films. Based on the “polymer, design, and polymerization technologies,” “film design and control technologies,” and “film manufacturing process technologies” that underpin these products, we are pursuing properties, such as heat resistance, dimension stability, transparency and surface smoothness demanded of film products, and cost reductions to the utmost limits.

PET Film Focusing on MLCC and DFR

The PET film LUMIRRO™ is a core growth-driving business that boasts manufacturing and sales bases at six hubs located around the world and a No. 1 share of the market. This film is used in a wide range of applications, such as information and telecommunications, general industries, and packaging materials. Especially during the “AP-G 2022” period, armed with high quality control expertise in addition to the surface forming technologies cultivated with magnetic tapes in the 1990s, we are promoting business expansion of high-performance release PET films in fields where market growth can be expected, for example in multilayer ceramic capacitor (MLCC) release film and dry film photore sist (DFR) applications.

In addition to the increase in the number of ceramic layers and the number of units installed due to downsizing and higher capacity, further growth in MLCC demand is expected in the years to come against a backdrop of the increased functions of smartphones and the installation of additional base stations with the spread of 5G, expansion of xEV and automatic driving. We are also anticipating that demand for DFR will increase due to the downsizing of circuit substrates and increases in fine-pitch in wiring circuits. A photoresist formed by a photosensitive resin in a film form, DFR is a material used to form circuit boards for electronic components. Strict quality is required of the PET film used for DFR, such as high transparency that does not inhibit light, reduced surface micro-scratches, and the control of foreign substances inside the film. We will proceed with product differentiation and maintain a high market share by anticipating the increasing sophistication of those quality requirements.

Toray’s proprietary nano-layering technology enables about 1,000 layers in PICASUS™ film. Stacking layers of different types enable this film to selectively reflect and transmit light of various wavelengths including ultraviolet, visible light and infrared rays. We will promote PICASUS™ film in a wide range of fields, such as blue-light reduction, sensor cover applications, such as in-vehicle emblems, and heat reflecting window frame applications.

Enhanced Addressing of Sustainability

In the films business, we are working to establish a recovery system for release films to enhance sustainability. At the present time, removing the coating materials and resins from the release PET films has difficulties, and thus mainly waste treatment and thermal recycling are utilized. By establishing a recovery system, however, we will advance the construction of a circulation-type recycling system by utilizing the films for other materials, such as fibers, and encouraging their reuse as films.

In the market for packaging materials, needs are becoming more diversified and efforts to reduce food waste are increasing across the world, and thus the functions and quality required of packaging materials are becoming more sophisticated. By combining our film products and film processing technologies, we are providing optimal products for all packaging applications and contributing to the extended shelf lives of food products.

Strengthening Production Facilities of BSF in Europe for xEVs

Its strengths lying in a uniform fine pore structure based on polymer technology and an advanced film structure based on film fundamental technology, our SETELA™ battery separator film (BSF) contributes to the outstanding safety and high performance of lithium-ion batteries. In addition, our unique technologies in heat resistance and adhesive coatings have led to high safety, high reliability, and longer battery life. Since the demand for BSF in automotive applications is growing due to the expansion of xEVs in the European market, Toray plans to strengthen its production facilities in Hungary and start operations in 2021. In addition to IoT devices, the range of consumer applications is also expanding to include stationary fuel cells and power tools.

Demand for Battery separator films

OPP Film: Strengthening Production Facilities in Automotive Capacitors

Combining the contradictory characteristics of thinness and the high voltage resistance, TORAYFAN™ polypropylene (OPP) film captured the top share in the automotive capacitor film market. There are strong needs for smaller and lighter power control units (PCUs) that drive xEV motors and film capacitors, and by 2022 we will increase the production capacity of films for automotive capacitors to 1.6 times the current scale. In addition, we will focus on high-functional packaging materials, having introduced the latest five-layer laminated, high-speed film production facility in the U.S.A. to meet the increasingly diverse and sophisticated customer needs in the food packaging market.