FY2006 (28th) Adhesion Society of Japan Technology Award

Development of RAPGARD®-F Protective Film for Automotive Coatings
(RAPGARD® is a registered trademark of Kansai Paint Co., Ltd.)

Date of Award

June 30, 2006

Recipients

K. Shibata (Nitto Denko Corporation)
M. Shirai (Nitto Denko Corporation)
T. Inoue (Nitto Denko Corporation)
Y. Akaki (Kansai Paint Co., Ltd.)

Outline of Award

Each year, the Adhesion Society Awards are presented by the Adhesion Society of Japan to honor people who have made a major contribution to the furtherance of adhesion technology. There are a total of six awards: the Society Award, the Technology Award, the Progress Award, the Achievement Award, the Incentive Award, and the Thesis Award.

Of these awards, the Technology Award is given in recognition of a company's products that have contributed to the furtherance of society. In FY2006, the only product to receive this award was RAPGARD®-F protective film for automotive coatings.

Reasons for Award and Product Overview

This product is an adhesive tape (surface protection film) that is used to protect the paint of new vehicles from various environmental factors, such as acid rain and bird droppings, during transportation from the factory to the customer.

Damage due to acid rain, which has increased since the 1980s, causes a deterioration in the quality of automobile coatings due to corrosion and requires costly repairs. In light of this situation, for many years automakers searched for an effective way of protecting paint during the curing process and also during transportation. Although most of their ideas were centered around the use of wax-based materials, in the end it was clear that such products were unable to offer adequate levels of protection. The adhesive tape method used with RAPGARD®-F provides a surface protection film that covers the surface of the paint. As the film itself is strong, it provides adequate protection from acid rain and external environmental influences. Furthermore, when wax is removed, as it is necessary to use organic solvents, problems arise with regard to the working environment and the disposal of waste. By contrast, there are no such concerns with the adhesive tape method. In fact, by going as far as proposing an environmentally friendly recycling system, Nitto Denko is, in effect, acting as a solution provider.

Our efforts to cover vehicles with a protective film actually predate the development of RAPGARD®-F, going back about 30 years. In our efforts to bring such a product to market we had to overcome challenges such as durability and the issue of tape residue after adhesive tape removal, both of which posed serious technical problems.

By separating physical and chemical properties, substrate material from adhesive, and constituent elements according to function, the recipients of this award succeeded in developing RAPGARD®-F, the world's first protective film for automotive coatings. In terms of chemical factors, they paid close attention to adhesive and paint compatibility while considering physical factors such as the dynamic modulus of elasticity until they finally succeeded in achieving a standard where tape residue no longer posed a problem. Moreover, although conventional films had the limitation of only being able to be used outside for approximately six months, despite only having a thickness of 50μm they were able to guarantee a product life of three years. As automakers continue to develop overseas, a global supply chain is continuing to evolve. Protective film for automotive coatings is one of Nitto Denko's global niche top products and in FY2006 achieved a global market share of 55% (according to in-house surveys). While we expect gifts from department stores, to be wrapped, when it comes to the purchase of expensive items such as automobiles, no such service is provided. It was with this in mind that we gave the product the name RAPGARD®-F, which originated from the English "Wrap-Guard". Now, an increasing number of people throughout the world are familiar with that name. Originally conceived as a way of protecting automobile paint from being damaged by acid rain, RAPGARD® is now an indispensable tool for protecting expensive automobile paint from a wide range of environmental factors. In the future, it is our desire to deal with the remaining challenges associated with protective films and develop products that make the lives of our customers easier.

Mssrs. Shibata and Inoue are the fourth and fifth from the left respectively in the back row of this photograph