

# Development of Peelable body color (Peelable paint)

Nozomi Toya<sup>1)</sup> Kenji Yamaguchi<sup>1)</sup> Junya Ogawa<sup>1)</sup>

*1) TOYOTA MOTOR CORPORATION*

*1, Toyota-cho, Toyota, Aichi, 471-8572 Japan (E-mail: nozomi\_toya@mail.toyota.co.jp)*

**KEY WORDS: Materials, Paint, Color (D3)**

It is necessary to continually provide the valuable product for the customer while vehicle life cycle will become longer. As item to lead to more individual car life and body protection, we focus on "the color substitute" of vehicle. It is not usually easy to change vehicle body color. We developed "Peelable body color" so that the customer could enjoy the color change. The customer sometimes chooses a color which he/she doesn't really want because he/she is conscious of re-sale value. We developed "Peelable body color" to be able to choose a favorite color among various choices for a certain period of time.

The vehicle color is painted in order of e-coat, primer, base coat, clear coat on the steel. When a customer repaints his/her vehicle a color desired after the purchase, generally, one more base coat and clear coat are painted on the original clear coat. (Fig.1, left) It is not possible to peel the additional colored paint because the base coat and the original clear coat are reacted and adhered strongly. We apply "Peelable paint" which we developed between the original clear coat and the additional base coat. (Fig.1, right) A layer upper than the peelable paint can be peeled. It can meet the customer's needs to want to change a color willingly. The base coat and the clear coat to paint on the peelable paint are the conventional products. Paint application is possible at car dealers. They can make the colors more than 100 toyota colors. Furthermore, the dealers can use the owned facilities, and can take advantage of the painting skill that they cultivated so far. There are many engineers having the high painting skill in the dealers. We developed the paint as water borne for a paint engineer and environment.

The paint processes of the peelable body color are following. (Fig.2)

- 1) Degreasing the surface of the original clear coat
- 2) Masking the parts which we "do not" spray paint
- 3) Spraying "Peelable paint" ⇒ "Base coat" ⇒ "Clear coat"
- 4) Removing masking after drying

In development of "Peelable paint", the most important material property is adhesion. The normal paint has a strong adhesion by forming chemical bond with the original clear coat. On the other hand, the adhesion of the peelable paint uses other technology. We found the balance of adhesion that we could use without peeling and could peel when we want to change color.

As the conclusion, we developed "Peelable paint" with the good adhesion balance that we could use without peeling in the daily use and could peel when we want to change color. With peelable paint, the customer could enjoy a color substitute willingly.

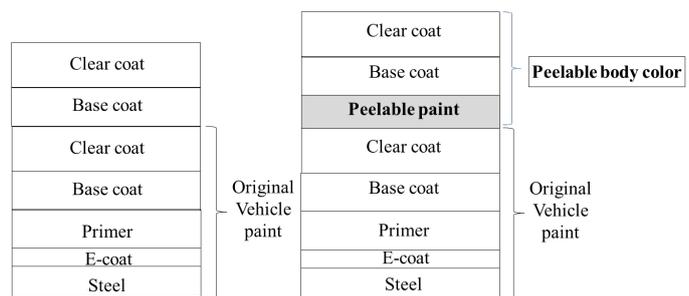


Fig.1 Paint structure in color change



Fig.2 Process of "Peelable body color"