



**ColorForm –
Unique One-Shot Process
Painting directly in the mold**

Engineering Passion

Krauss Maffei

ColorForm: A fusion of competences

The result: Finest high-gloss surfaces

The ColorForm process is based on an intelligent combination of injection molding and polyurethane processing. In collaboration with renowned industrial partners, the technology has been developed to the point that it is ready for large-scale production.

Innovative production concept for multi-component parts

ColorForm is based on the principle of multi-component injection molding, which has been proven for many years. The special characteristic here is the fact that the process does not use a second thermoplastic injection unit once the basic thermoplastic body has been injection molded. Instead, the second stage involves flow-coating the substrate of the basic body with polyurethane (PUR) or polyurea (PUA).

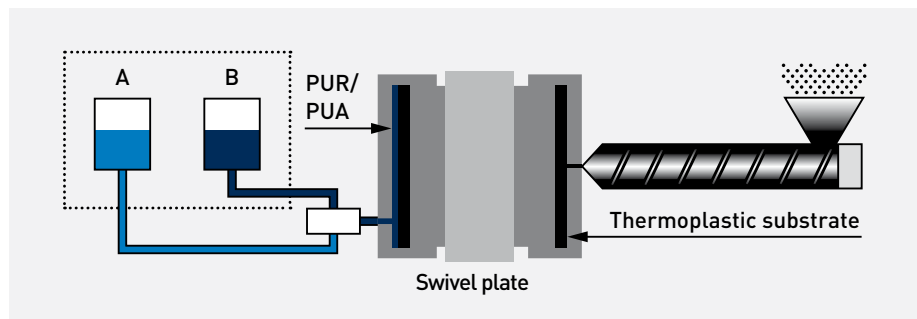


Diagram illustrating the PUR/PUA flow-coating process inside the mold

Intelligent combination of injection molding and PUR/PUA processing

The surface material (PUR/PUA) is injected directly into the cavity with the RimStar Flex ColorForm reaction process machine - which has been specially developed for this technology - and the mixing head. The RimStar systems are specifically designed for metering small volumes and are extremely compact.

Your benefits:

- Innovative production solutions
- Surface material is injected directly into the cavity
- Space-saving concept

Versatile solutions for parts with finished surfaces



Interior: functional surfaces



Interior: trim strips (source: Weidplas)



Exterior: pillar trims



Fully automated ColorForm production system



Consumer products: decorative finishers



Consumer products: front trims



Electronics: covers

The plastics painting technology of the future More design for less cost

Creating injection molded parts with a high-gloss hard-paint finish, refined depth effects or haptically impressive structured surfaces in a one-shot process is no longer a vision. With ColorForm, such demands can be put into practice with almost no waste.



High gloss completely without release agent

The very best is only just good enough - this is especially true in the automotive industry. ColorForm fully satisfies this demand since it is an innovative technology that allows you to create colored or transparent high-gloss surfaces just a few tenths of a millimeter thick. Its unique characteristic is a combination of thermoplastics and PUR/PUA paint that does not require a release agent.

Your benefits:

- High gloss directly out of the mold entirely without follow-up polishing
- No need to clean the mold, meaning longer maintenance intervals



New design freedom

Individuality is becoming increasingly more important for consumers – away from mass production toward more exclusivity. Designers therefore have to create ever more new effects. ColorForm gives you completely new options. For example elements such as design lines, lettering, symbols, high gloss, directly alongside matt effects, depth effects and different structures.

Your benefits:

- Cost-effective implementation of premium surfaces with new effects
- Sophisticated surface aesthetics and enhancement of visible parts and covers for increased turnover



One-step manufacturing process

Injecting. Painting. Hardening. All that can be performed in a single production step with ColorForm. This process entirely replaces the typical painting steps and all upstream and downstream working steps. You get ready-refined parts with finest high-gloss surface finish straight from your production system.

Your benefits:

- Reduced manufacturing costs
- Increased yield of OK parts



High yield of OK parts

With ColorForm, rejects can be reduced in several process steps. Firstly during painting, secondly due to the single-stage process and thirdly due to the extremely robust surface finish. High scrap rates in the painting process are now a thing of the past. The process-reliable one-step process and its high degree of automation provide you with more OK parts that also no longer need to be cleaned separately.

Your benefits:

- Increased cost-efficiency
 - High customer satisfaction
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Robustness in further processing

The excellent bonding of the PUR/PUA paint with the thermoplastic part creates an extremely robust manufactured part. It is insensitive to UV light and extremely scratch resistant, as proven by industry-standard tests. The short curing times ensure quick further processing, resulting in significantly reduced logistic costs and scrap rates.

Your benefits:

- Quick and easy further processing
 - Maximum efficiency
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Technologies of the future can only be implemented by powerful development partners who know exactly what the markets require. ColorForm technology was developed by KraussMaffei and is based on the intelligent combination of injection molding and PUR/PUA processing. It has been closely monitored by renowned leading corporations from the plastic and material industry.

The primary focus was on fully automated production efficiency. The result is an economical process solution for premium surfaces in paint quality which is entirely attuned to the needs of the customer.