AF-Color® – Injection Moulding Caps and Closures

AF-COLOR
Think Masterbatch

AF-COLOR
Branch of AKRO-PLASTIC GmbH

Color Design – Inspiration and Inventiveness

Good design lies in the eye of the beholder. Industrial designers face the daily challenge of appealing to as large a group of buyers as possible with their designs. This is especially so when it comes to packaging design, because in this more price-driven segment it is less important to have an overly extravagant, expensive design. The appearance of shampoo bottles, shower gels or the trendy closures of beverage bottles is often similar. Apart from the label, the main distinguishing feature in this sector is the color design.

These products of daily use are especially associated with emotions. Here the task of the designer is to balance the simplicity of the packaging with an attractive color design, such as on the lid.

From Color Design to Plastics Application

Mood board: Derivation of a Color Scheme Catalogue from a Design Idea

A designer finds his inspiration through external impressions – that is, he has the talent to concentrate his individual perception in the process of finding trends.

A certain color scheme that meets the current zeitgeist is applied to a product line by means of so-called mood boards. In this way, the rather abstract design process is transformed into a very concrete procedure. Now the task is to transfer the color ideas, which are usually realised in paint or print, to a plastics application.

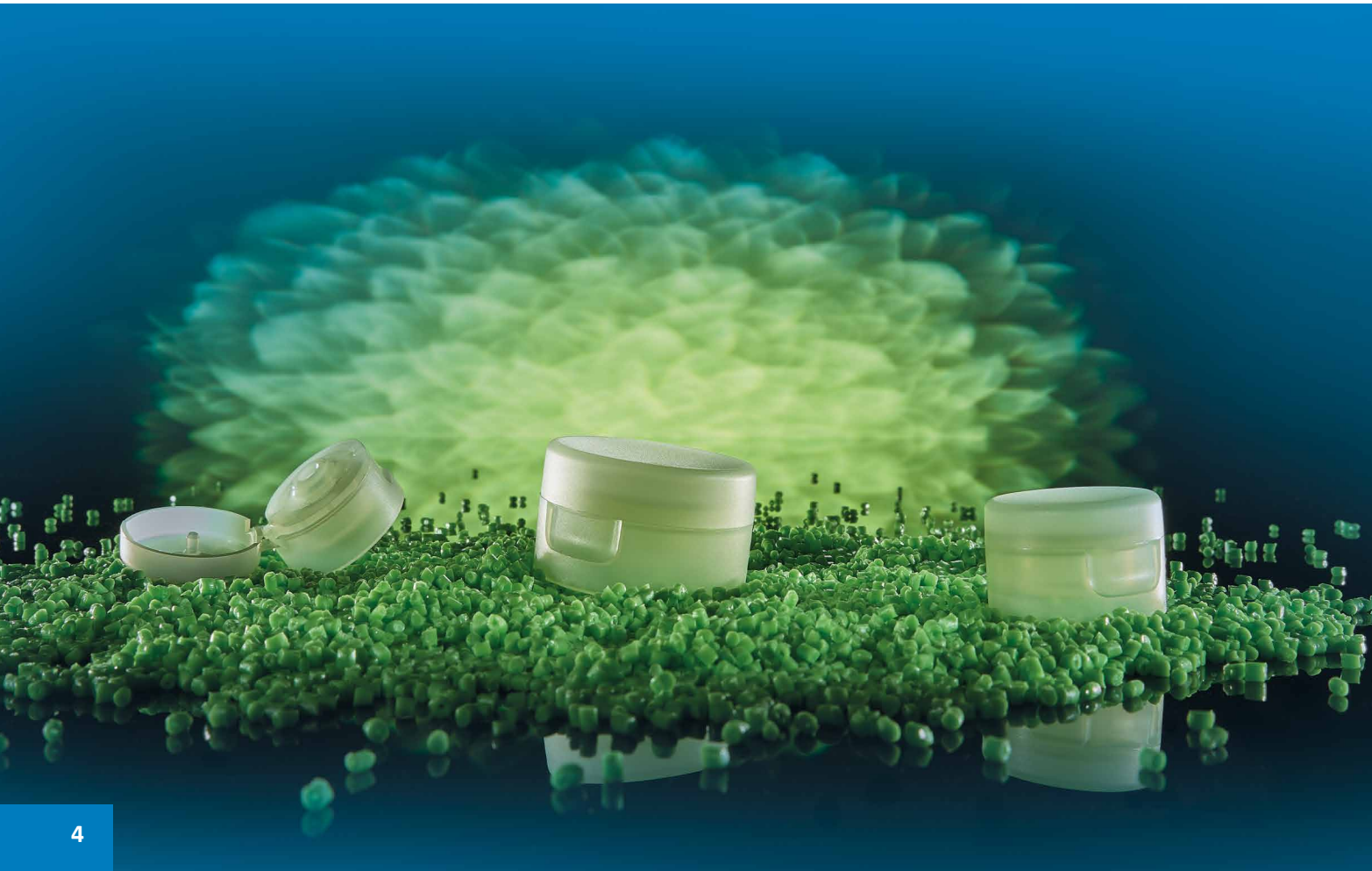
Color Design Versus Technical Feasibility

A shampoo bottle is made of various materials: the bottle body consists of polyethylene (HDPE) or polyethylene terephthalate (PET), the screw cap or snap-on cap is usually made of polypropylene (PP), whilst polystyrene (PS) or styrene-acrylonitrile copolymers (SAN) are used less frequently.

In the next step, all colorations are transferred to the respective plastic grades in a kind of feasibility study. It often turns out that not all color designs can be applied equally well to the different plastics, so that it may be necessary to choose from the best possible approximations. Since the product life cycle of cosmetics packaging is extremely short (<2 years), this process must be very fast, because the start of series production is imminent in this phase.

Color Trends

The possibilities of achieving color effects through the use of special effect pigments are becoming more and more diverse. AF-COLOR is in constant dialogue with renowned manufacturers, so that we can always provide you with comprehensive advice on the latest trends. In addition to the established effect pigments, all new developments are available to you at short notice.



Application of a Color Design to Various Polymers

The implementation of the color design often already takes place at the plastics converter, i.e. the manufacturer of the caps and closures.

In this process, the support of an expert in both color and plastics who also knows how to assess the effects of the processing on the envisaged colorants (pigments and dyes) is indispensable.

The following criteria in particular play a decisive role here:

- Processing temperature of the polymer
- Morphology of the plastic: Soft or hard, opaque or transparent, crystalline or amorphous.
- Rheology of the plastic to be colored: We only use carrier materials for our masterbatches that are individually tailored to your specific application. We resort to universal carriers only at your express request.
- Sensory quality: A beverage cap must not develop any traces of taste or odour that might be transferred to the product. By using colorants that are approved for use in the food/beverage sector, we can minimise this risk.
- Physiological requirements for the raw materials to be used: Various standard specifications must be taken into account here, which, for example, comply with the requirements of the Federal Institute for Risk Assessment (BfR) or the FDA. This is of the utmost importance to us. Our corresponding documentation is regularly updated, so that our material confirmations are in accordance with the current and applicable regulations. It goes without saying that we do not use any toxic substances, such as heavy metal compounds.

Our Catalogue of Services

A special masterbatch recipe is used to transform a color design into different formulations for various plastic types.

Often other polymers to which the respective color series is to be adapted are used in the later implementation phase. Flexibility and rapid feedback are then required. AF-COLOR has broad expertise in a wide range of polymer types and the masterbatch carrier systems required for them. In this way, we can guarantee you swift implementation. We work with your color samples or adapt your mood board to the required plastic types.

Support During the Introduction of the Masterbatch into the Production Process

Every manufacturing process has a certain influence on the color result. In the vast majority of cases, this situation can be countered by adjusting the machine parameters. If color matching becomes necessary nevertheless, it may make sense to carry it out directly in the production line, for example on the cus-tomer's injection moulding machine on site. The formulation in various polymers is tested for migration, temperature stability and metamerism.

Metamerism

Not all colorants are suitable for every type of polymer. When adapting a color design to a particular type of plastic, the color result often has to be achieved using alternative colorants. In general, a color objective can be achieved in many different ways, i.e. by using different colorants. However, this results in so-called metamerism effects, where the perceived color differs depending on the incident light source. Usually, a solution can be found, but this demands great skill of the colorist. We are happy to provide you with our service package to solve these individual challenges.

Temperature Stability

We can check the temperature stability for you in advance as part of a thermal stress test. In our data sheets, we also give you corresponding processing instructions. Please note that the processing method has a decisive influence on this. The temperature settings on the production line, and also the geometry of the component, are decisive.

Migration

In contrast to pigments, dyes can migrate because they form a solution with the polymer. Migration should therefore be tested in advance.

Please also note our disclaimer.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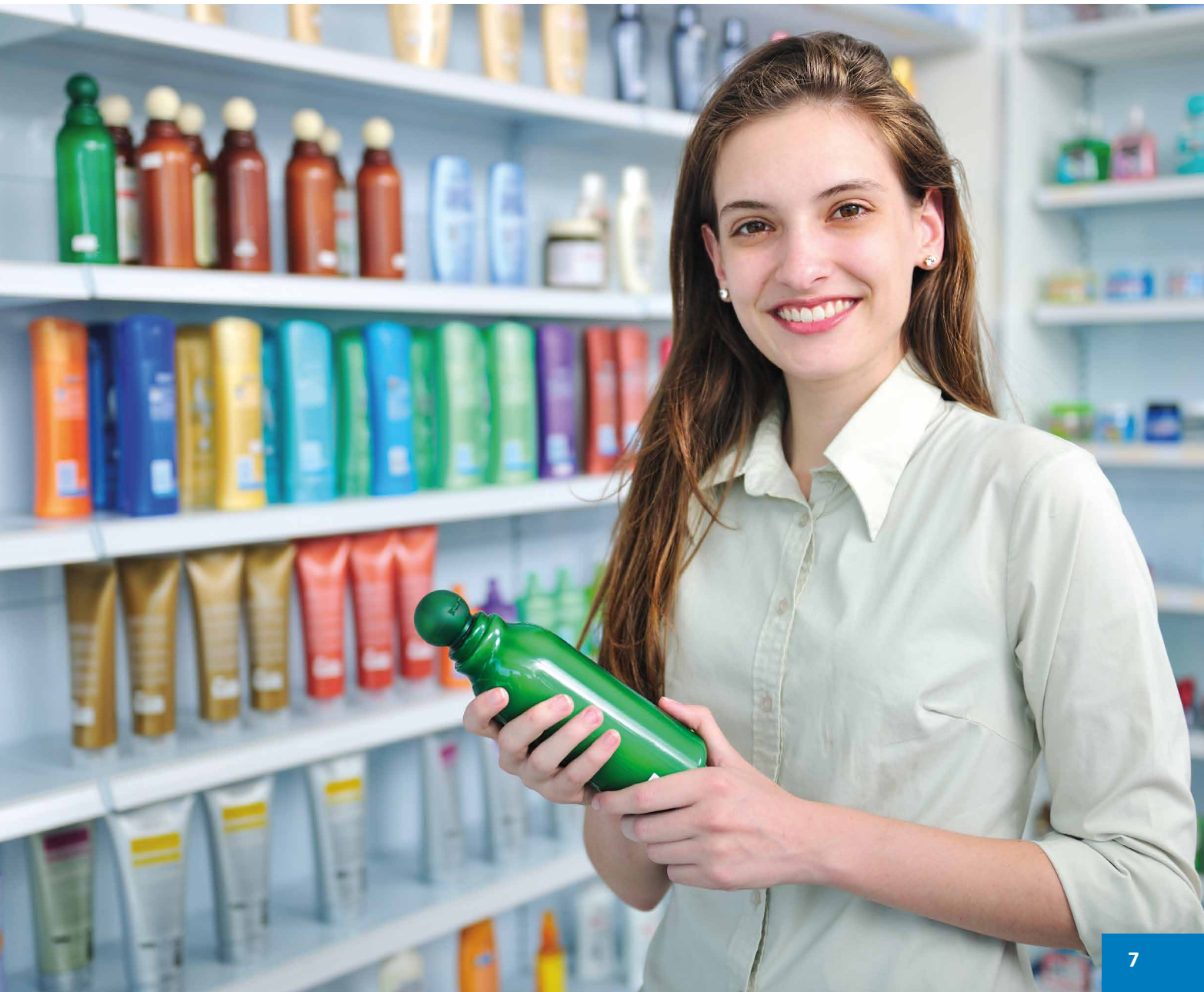

We Will Be Pleased to Meet You!

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