Product Sheet

DuPont™ Crastin® Streamlines Manufacturing and Reduces Waste for Luxury Lipstick Cases

Buyers of premium lip color expect a luxe look and feel for both their lips and lipstick case. DuPont innovators have collaborated with cosmetics brand owners and their manufacturing partners to create delivery devices and packaging with this luxurious look and feel, while also optimizing manufacturing steps for efficiency and economy.

In one recent project, a plastics processor used injection molding to fabricate the spiral mechanism that moves the lip color out for application and retracts it when not in use. After the mechanisms were molded, the manufacturer then dipped them in a liquid slip agent bath to add the lubricity required for the mechanisms to easily turn.

Fewer Processing Steps, Material Cost Savings

Engineers from the molder collaborated with the team from DuPont to optimize their process. DuPont's experts were able to propose a grade of Crastin® PBT that, when used in combination with DuPont™ MULTIBASE™, enabled the manufacturer to reduce processing steps and avoid the costs of purchasing, storing, and disposing of the slip agent.

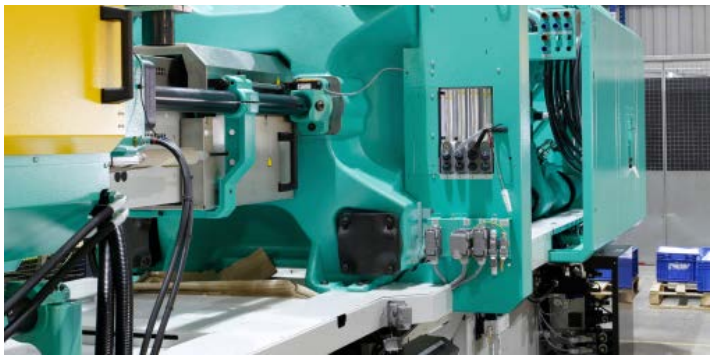
Plus, Crastin® PBT provided comparable stiffness and strength to the material the molder had been using, a carbon fiber reinforced engineering plastic.

Built-in Lubricity

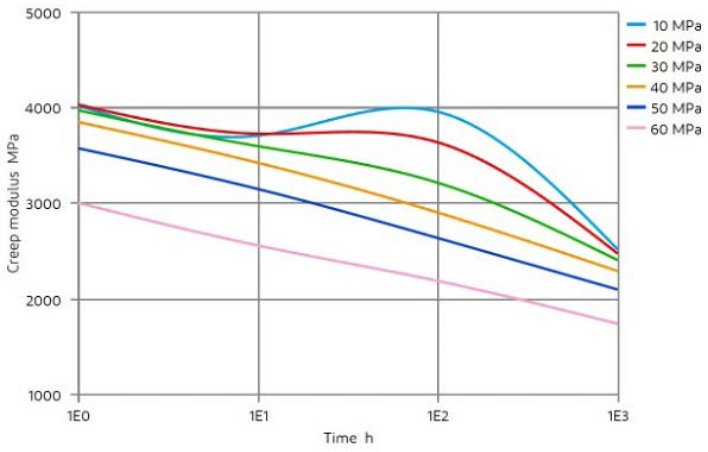
Use of MULTIBASE™ silicone additive masterbatch in the spiral mechanism provides lubrication so there is no longer a need for the liquid slip agent or bath step. Smooth operation of the mechanism contributes to a luxe experience for lipstick users. Depending on the project, the masterbatch can even be compounded into the Crastin® PBT for further process optimization.

Tooling Remains the Same

The team at DuPont finetuned the proposed grade of Crastin® PBT so that its dimensional stability matched that of the previous material. This formulation expertise meant that the molder did not have to invest in expensive new tooling.



Crastin® SK601 NC010 Creep Modulus Over Time at 23°C



Crastin® SK601 NC010

Thermoplastic polyester resin, PBT

Rheological properties		
Melt volume-flow rate	15 cm3/10min	ISO 1133
Temperature	250°C	ISO 1133
Load	2.16 kg	ISO 1133
Melt mass-flow rate	18 g /10min	ISO 1133
Melt mass-flow rate, Temperature	250°C	ISO 1133
Melt mass-flow rate, Load	2.16 kg	ISO 1133
Viscosity number	110 cm3/g	ISO 307, 1157, 1628
Molding shrinkage, parallel	0.7%	ISO 294-4, 2577
Molding shrinkage, normal	1.2%	ISO 294-4, 2577
Postmolding shrinkage, normal, 48 h at 80°C	0.4%	ISO 294-4
Postmolding shrinkage, parallel, 48 h at 80°C	0.15%	ISO 294-4
Mechanical properties		
Tensile modulus	4500 MPa	ISO 527-1/-2
Stress at break	90 MPa	ISO 527-1/-2
Strain at break	4.7%	ISO 527-1/-2
Flexural strength	140 MPa	ISO 178
Tensile creep modulus, 1h	4000 MPa	ISO 899-1
Tensile creep modulus, 1000h	2500 MPa	ISO 899-1
Charpy impact strength, 23°C	40 kJ/m2	ISO 1791eU
Charpy notched impact strength, 23°C	6 kJ/m2	ISO 179/1eA
Poisson's ratio	0.36	

Source: DuPont

Ideal for Many Cosmetics Applications

Cosmetics applications for Crastin® include:

- Pumps
- Spray valves
- Lipstick mechanisms
- Lip gloss applicators
- Eye liner mechanisms
- Housings

Safety You Can Rely On

In addition to being extremely versatile, Crastin® PBT is available in grades meeting FDA and EU standards for food and cosmetics applications.

Why Choose Crastin®

With more than 100 grades, Crastin® PBT is the resin of choice for cost-effective high performance across a wide range of consumer and industrial applications.

Crastin® PBT offers manufacturers the advantage of superior flow qualities, making it easy to process on injection molding machines, even with complex molds. Plus, formulations are available that are optimized for:

- Low warpage
- Hydrolysis resistance
- Blow molding
- Extrusion

With Crastin®, customers can maximize manufacturing efficiency without compromising on performance.

For more information about Crastin® solutions for cosmetics, contact your DuPont representative.

dupont.com

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