Newsletter

BPO
we know how

March 2016
volume 23, number 1

In this issue: New infant formula pack for Danone Nutricia - Biodegradable coffin made of Bioplastic - Visit BPO at "ESEF 2016" in Utrecht, the Netherlands

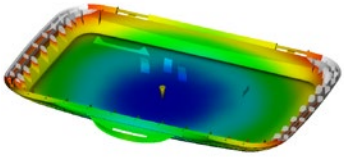
Innovative pack for infant milk powder

Danone Nutricia is market leader for early life nutrition, with brands as Nutrilon, Aptamil, Blédina and Dumex. At the end of last year, an innovative new pack for infant powder milk has been introduced globally. BPO co-developed the lid for the pack in close cooperation with Danone and its suppliers.

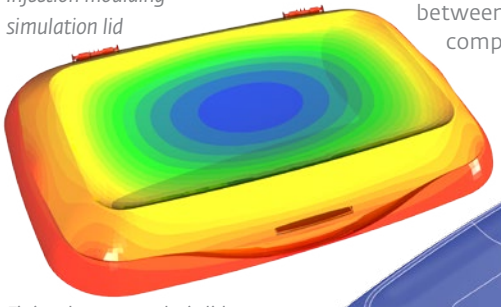
The aim of the project was to develop a premium pack that offers an improved level of food safety in combination with optimal user experience. BPO has been involved from the first concept to the serial tooling part validation: by development of the parts, CAD engineering, technical documentation, revision management, resin selection, simulations and advice on technical decisions.

The new pack offers optimal hygiene and convenient handling, thanks to the large, rectangular opening, relatively low height and a long-handled measuring scoop. Furthermore, the pack has a scoop holder to store the scoop after usage and two leveller bars for left and right handed people that help to dose the exact amount of milk per scoop. The content's quality is guaranteed by a flexible foil that covers the tub and a tamper evidence quality seal on the lid that offer optimal protection during storage in warehouses and shops. The "bug tight" closure of the lid has been designed to avoid entrance of unwanted particles, such as insects also after the pack has been opened for the first time.

During the development compromises between principal conflicting requirements needed to be made. A major challenge in this project was to find a shape and construction that offered the desired styling in combination with functional features that are needed for filling, automation, stacking, de-stacking, assembly and usage. The outside shape of the lid is organic and smooth, whereas the technical details facilitate a workable tolerance field and secure connections between all components.



Injection moulding simulation lid



Finite element analysis lid

Finite element analyses were used during the development to simulate and optimise the assembly steps as described above. Also, extreme conditions during transport and storage, such as high loads and elevated temperatures were simulated to assure the required product performance. Plastic processing knowledge and injection moulding simulations were used to optimise part quality during the development and trial mould production, to make the fine-tuning of the part geometry and process settings as efficient as possible.

Hinge construction

For more information see:
www.aptamil-profutura.de

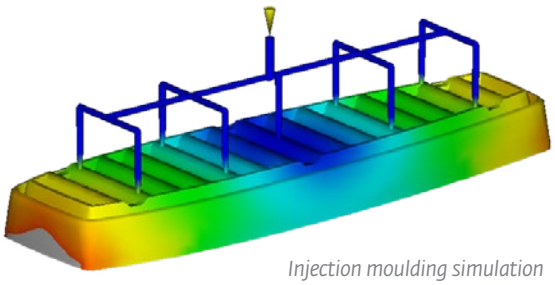
Outside shape and styling

BPO
we know how

BPO Nederland b.v.
Scheepmakerij 11
2628 AA Delft
the Netherlands
+31 (0) 15 362 0000
info@bpo.nl
www.bpo.nl

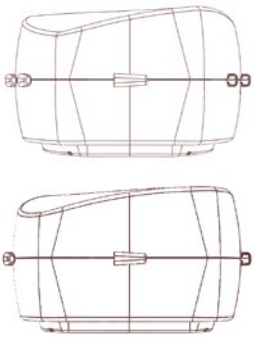
A biodegradable coffin made of Bioplastic

In the fall of 2015 Onora has introduced an ecological coffin onto the market. The coffin is made of the biobased GreenGran material. The ingredients of this material are locally produced, organic by-products of the potato- and seed processing industry. Onora's coffin is not only biobased but also biodegradable. If used in a burial the material of the coffin will be dissolved in the ground without leaving any hazardous remains. If used in a cremation, it will burn cleanly and much less toxic gases are released compared to the burning of traditional coffins.



Injection moulding simulation

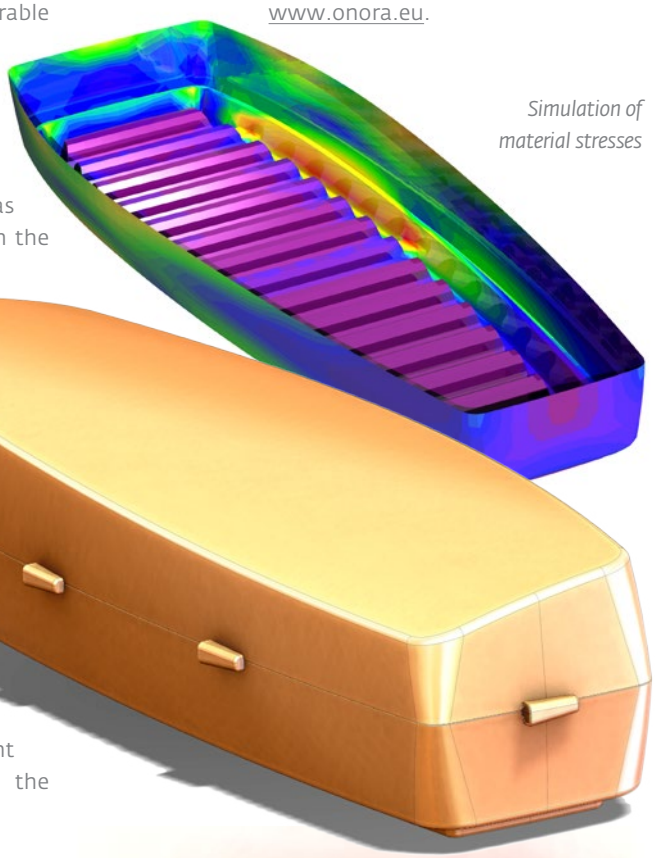
Two years of development preceded the market introduction of the coffin. BPO contributed to the realisation of the coffin using CAD-engineering, finite element analyses and injection moulding simulations. BPO optimised the main shape of the coffin and developed the clasps. The main shape had to meet a series of functional and esthetic requirements, that were translated with the help of BPO to a manufacturable product with reasonable tolerances. The clasps are made of the same biobased material as the coffin itself. BPO has developed the geometry and the fitment of the clasps. They can be opened and closed with only slight (hand)force. Besides, they are designed for the opening and closing to be as quiet as possible, they are also designed to fit with the design and shape of the coffin.



Front view and rear view of asymmetrical main shape

The geometry of the coffin has been optimised further using finite element analyses. It was simulated where the highest material stress will occur during the lifting and moving of the coffin. Also, the effect of placing heavy objects on top of the lid of the coffin has been looked at. Using these analyses the geometry and wall thickness were optimised.
The ecological coffin is the largest injection moulded bioplastic product ever made. This brought along some particular challenges concerning the production of the parts. BPO has used injection moulding (moldflow) analyses to advise on the required injection moulding machine, the best injection system and the positioning of the injection points.

Onora, a Dutch start-up company, has promoted its idea in the media since the start of the development. This has resulted in, among other accolades, winning the Marie-Claire Starters Award, de Startup of the Year Award 2015 and the MKB export award. For more information on Onora please go to: www.onora.eu.



Simulation of material stresses

ESEF Fair

From **Tuesday March 15th till Friday March 18th** the ESEF 2016 fair is being held in 'De Jaarbeurs' in Utrecht, the Netherlands. ESEF is the fair for suppliers, contractors, product developement and engineering. BPO will be present there at booth number **01-B070**. For information visit: **www.esef.nl.**

IOB 2016

On **Thursday March 17** BPO will be present at the yearly business fair of the faculty of Industrial Design Engineering at Delft University of Technology.
For information visit: **www.iobdelft.com**

Main shape and fasteners in 3D CAD