

DuPont polymers for the ultimate stroller

By Laurent Hanen, Development Consultant – DuPont Performance Polymers France



The BABYZEN™ has been designed with the purpose of providing parents and children (from birth to 20 kg) with luxury and functionality combined with the greatest operating comfort and safety. As a result the stroller has a patented, single-hand folding mechanism, allowing the stroller to be folded and unfolded again in a matter of seconds. Once collapsed, it is just 25 centimetres deep (including the seat and folded wheels), making it easier to fit into the boot of some of the smallest urban cars. The stroller weighs less than 10 kilograms and can be easily pulled along in its folded state, with two wheels on the handle bar acting as trolley wheels. Providing for the safety of parent and child is an internationally-patented safety warning light.



Many of the components used for the stroller's patented folding mechanism are unobtrusively hidden within the stroller's chassis.

The BABYZEN™ stroller designed by the French company Advanced Baby Concepts (ABC) is a new and innovative foldable stroller with a focus on comfort, practicality and safety containing over 80 components molded from DuPont engineering polymers.

Starting with an all-metal prototype in 2007, the design team invited DuPont to work with them from an early stage to look at which parts could be feasibly made using engineering polymers. “We wanted to create the market’s first premium branded stroller, and to therefore select from the best materials available,” recalls Julien Chaudeurge, CEO of Advanced Baby Concepts SAS. “We chose DuPont as our material supplier because of the truly technical nature of our design.”

The launch model of the BABYZEN™ now includes over 80 components made of either DuPont™ Delrin® acetal resin, DuPont™ Zytel® nylon or DuPont™ Zytel® HTN PPA. This includes, for instance numerous cams, pinions and shafts used within the stroller’s patented folding mechanism – unobtrusively hidden within the chassis of the stroller – which are made of dimensionally-stable, fatigue- and creep-resistant Delrin®, whose low-noise behaviour in components coming into contact with other parts was also key. Parts made with glass-reinforced Zytel® include the brake pedals, swivels arms of the wheels, the seat-base, footrest and handlebar, where the nylon’s renowned strength and stiffness come to the fore.

Production of the BABYZEN™, and its subsequent assembly, is undertaken by a dedicated supplier in Hong Kong, where the company has built a dedicated plant. As with any new pushchair, the BABYZEN is legally required to comply with the European Standard EN 1888:2003. This includes, for example, passing the stroller over an irregular test surface



72,000 times at a speed of 5 km/h to test how it will stand up to a life of uneven pavements, potholes and kerbs.

“DuPont helped us extensively in developing this innovative design,” concludes Julien Chaudeurge. “Their help included advice on the choice of the optimum resin for the parts, design guidance for rapid, trouble-free moulding, mould flow analysis and finite element analysis. We have been delighted with their support from the start of the project through to its completion.”

BABYZEN™ is a trademark of Advanced Baby Concepts SAS

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