How can you create a new generation of thinner and greener smart devices?

Make magic with plastic

Your challenge: meeting the growing demands of regulators and consumers for slimmer, lighter products free from halogen and other hazardous materials.

Our offering: At DSM we work hand-in-hand with the world’s leading manufacturers of smart phone and tablet to make magic with plastic. Our portfolio of performance materials – supported by comprehensive design expertise - enables you to build smart components with outstanding strength, durability, look, touch and feel in everything from connectors and cables to frames, enclosures and antennae.

Let’s connect:
Start thinking about the new kinds of materials you need to make it happen earlier in the design process.

Working with the industry for a greener future

“Designing the future: As the demand for greener electronics grows companies should prove their ability to innovate, building on their progress so far and going beyond what we think is possible now”

Greenpeace Green Gadget report
Attractive devices
From frames to covers and antennae, the look, feel and overall physical experience of electronics is more important than ever to customers who take great pride in the brand they buy. Our portfolio of plastics are silky in touch, coming in a broad portfolio of light and stable colors. At the same time these materials provide an even increased performance compared to alternative mineral oil based solutions.

Thinner devices
On average, smart phones are getting 12% thinner every year. How much thinner - and lighter - you go depends on the materials you use – a critical point as material parameters become ever tighter. Our portfolio of plastics has excellent processing properties that enable you to produce lighter, more compact parts with thinner walls that can be more easily integrated together and provide precious flexibility for designs with ever-decreasing space – and all with no compromise on performance.

Halogen-free is the industry standard. Next the components need to be small, versatile and durable - and manufactured at speed with a processes that use less energy and materials. To make this particular type of magic happen, you need a material that delivers outstanding mechanical strength, with good processing (high flow) qualities: Stanyl or Stanyl ForTii.

Greener devices
With product lifecycles ever shortening, e-waste is a bigger challenge for our industry than ever with over 65 million metric tones per year predicted by 2017 as written in a United Nations (UN) report. Our entire portfolio is free of halogen and red phosphorous – enabling you to satisfy regulators and consumers – as well NGO's. Meanwhile materials like our Arnitel® Eco, ForTii® Eco and EcoPaxx® are derived from renewable bio-resources partly bio-based, further reducing your carbon footprint due to higher recycling content. At the same time these materials provide an even increased performance compared to alternative mineral oil based solutions.

Our portfolio of materials helps you address the big trends in electronics

2007

2015
<table>
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<tr>
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<th>ForTii Eco®</th>
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<th>Stanyl®</th>
<th>Arnitel®</th>
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| SMT connectors | •Highest flow  
•Low moisture uptake  
•Bio-based  
•High mechanics | •High flow  
•High Tg  
•High mechanics | •High Tg  
•High mechanics  
•Good processing | | |
| Cables and streps | | | | •Silky touch&feel  
•No allergic reactions  
•Bright colors | •Silky touch&feel  
•Bio-based |
| Frames&enclosures | •High Stiffness/structural rigidity  
•Excellent weld line strength  
•Good thermal management  
•Low warpage  
•Very low reduced moisture absorption | •High Stiffness/structural rigidity  
•Excellent weld line strength  
•Good thermal management  
•Low warpage | | | |
| Smart covers, feet, covers | | | •Great touch&feel  
•Excellent chemical resistance | | |
| Antennas | •High flow  
•Stable dielectrics while having excellent mechanics  
•Superior plating performance | | | •Great touch&feel  
•Excellent chemical &UV resistance  
•Good low temperature elasticity  
•Good high temperature mechanics  
•good broad portfolio of bright colors | |

Table 1: Our portfolio of materials

Three ways how our magical materials make specific component challenges disappear

Improve processing in SMT Connectors with ForTii Eco

This 20% bio-based material gives you a broader processing window compared to other PPAs, along with high flow, outstanding ductility, and very low moisture uptake. It’s also ideal for SMT connectors as well as other reflow components like relays, bobbions and camera sockets.

Get a silkier touch and feel in watch straps with Arnitel

This unique material is very comfortable to wear, causes no allergic skin reactions and is resistant to perspiration and other oils and liquids.

Tougher, higher performing LDS antennas with Fortii LDS

We developed this material specifically to enable a new generation of more durable LDS antennas. Alteneratively, our Stanyl ForTii Eco grades offer improved flow, toughness and stable dielectrics, better mechanics and superior plating performance.
The big picture: What do components with our materials look like?

Frames
Slimmer, stiffer and more sustainable frames made with our Stanyl ForTii.

Antennae
A wider yet slimmer display for antennae made with super-stiff Stanly ForTii.

Smart covers
Excellent look, feel and durability with Arnitel and bio-based Arnitel Eco.

USB-C cable
Thinner, smaller, lighter connectors made with our Stanyl and Stanyl ForTii.

Earphone cables
Longer lasting performance with a superb look, feel and sound, made with Arnitel.

Audiojack
A greener audio jack connector that looks good and performs for longer, with Stanyl.

Making magic together with smart design
Innovative materials are only part of the picture. We also know how to apply them, working hand-in-hand with the world’s leading brands, OEMs and EMS providers in detailed application design and development.

Our material science centers include not only a team of people who know electronic products (and how they are manufactured) inside out. It supports them with technology and equipment that delivers major efficiencies for our customers. For example we can do mold flow analysis or heat sread simulations across a connector; and we perform a whole set of tests for the manufacturer covering insertion/extraction, blockage, sideways pull-out, and electrical continuity.

So is now the right time for you to Make Magic with plastics?

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DSM materials are approved by the main global component suppliers.