ABS That Beats EU Food Contact Standards

CHIMEI
a step up

KEY CLIENT / INDUSTRY / APPLICATION INFO

European Chocolate Maker

OPPORTUNITY

Increase the safety of plastic toys included with the customers' chocolate product

CHALLENGES

- EU policy sets high bar for food contact materials
- Potential adverse health effects
- Potential huge costs to mass produce ABS that meets new policy

SOLUTION

CHIMEI developed a cleaning process to mass produce ABS with acrylonitrile monomer residue below 5 ppm — an industry first

RESULTS

- Customer complies with EU law and its even higher internal QC standards
- Protected customer's brand reputation and end-customers' safety

Chocolate-Maker Turns To CHIMEI For Safe Toys & Containers

A European chocolate-maker faced a daunting challenge, both to protect its customers' safety, and its brand reputation. The EU had updated its food contact materials legislation (Commission Regulation (EU) No.10/2011) limiting acrylonitrile monomer residue to below 10 parts per million (ppm) in food contact plastics, to prevent harmful chemicals leaching into the food. This particular company uses acrylonitrile butadiene styrene (ABS) to make the toys that come with its chocolate products, to take advantage of the polymer's physical strengths. Therefore, the chocolate-maker needed an ABS manufacturer that could meet the new limits.

Because of its own high standards, the company had also reduced its internal monomer residue limit even further to 5 ppm. Yet, the chocolatier soon found that very few manufacturers could maintain a consistent quality below even 20 ppm. After testing its various global ABS suppliers, CHIMEI was the only one to achieve a result below 5 ppm. However, consistently mass producing that high quality seemed impossible.

How Best To Clean The ABS?

At CHIMEI, we took on the challenge to help our customer achieve their ambitious goal. At first we considered optimizing the cleaning process that other manufacturers had already attempted and abandoned.

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That involved simply re-processing the ABS until it met the right standard. However, the rigidity, and tensile and impact strength of the resulting ABS was insufficient, not to mention the process itself was costly, inefficient, and created excessive waste water. We went back to the drawing board, to formulate a new approach that would be feasible and sustainable on a mass scale. After a lengthy R&D process, we developed a pioneering system that cleans the individual input materials — acrylonitrile, polybutadiene, and styrene — before combining them into the final ABS. This allows us to consistently control the monomer residue levels, without negatively affecting the physical properties of the final ABS.

Meeting The New Regulations

With CHIMEI's consistent supply of clean ABS, the chocolate-maker can now comfortably adhere to the EU regulations. In addition, the know-how we gained from this innovation process also allows us to help other companies meet and exceed the EU's high standards, which are now beginning to be accepted in other regions.

> ***"Our client is happy. In fact, lots of toy manufacturers now see they can use CHIMEI's POLYLAC, because the toy industry is growing, and EU standards are gradually being accepted globally. So they need our materials too."***
>
> **Wayne Lin,**
> General Plastics Department Manager
> at CHIMEI

POLYLAC PA-757F

Low residual monomer ABS

Would You Clean Your Clothes Twice?

If your clothes are heavily stained, you might decide to wash them twice, or put them on a higher setting. But, you run the risk of washing out the color or losing a few buttons in the process. CHIMEI's Wayne Lin, General Plastics Department Manager at CHIMEI, says reducing the monomer residue in ABS is a similar balancing act.

To meet the EU's high requirements, ABS manufacturers must remove the monomer residues, but doing so also runs the risk of reducing the material's structural performance. This is the balancing act we undertook to help our customer achieve their goals.

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