Editorial corner – a personal view

Medical plastics: Serving healthcare

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Recently, plastics containing phthalates and bisphenol A have been criticized for their possible toxicity and harmful effect on human health. To be fair, it is worth underlining that healthcare industry also takes huge benefits from plastics. The promising potential of polymers was identified a long time ago and is actually not denied.

Plastics are commonly used for a wide range of medical applications such as surgical implants, bioresorbable items (closures, tissue patches and scaffolding ...), tubing (heart and brain catheters ...) or packaging (sterile barriers to gases and fluids, protection from touch and airborne contamination ...). Besides, polymeric materials allow progress in medical devices development (blood containers, inhalers ...) and drug delivery. For instance, plastics may be ideal candidates for replacing metal in minimally invasive medical devices, compatible with medical imaging thanks to their X-ray transparency and nonmagnetic properties. Also, polymeric foams are used to manufacture oral drug delivery systems that are expected to increase the pharmaceutical ingredients' release rate. Novel bioresorbable, edible and non toxic biopolymers allow active ingredients such as beneficial bacteria to be administered orally as food components. New polymers resistant to bacterial attachment (stopping biofilm formation), therefore able to prevent hospital-acquired infections, are in the research stage. Several other examples could be mentioned, such as innovative polymer systems with outstanding retention of aesthetic and mechanical properties after repeated ster-

ilization. However, in medical/healthcare applications as in other high-tech domains, the challenge is also to reconcile competing complex requirements, to face growing demands on performance and quality while keeping cost-efficiency. Here, new manufacturing technologies or optimised equipments and processes are helping to achieve tight precision, down-sizing of parts, elimination of assembly labour costs, or warrant increased production speed or better process reliability. At last, as medical plastics are often quite expensive, design of products and devices using the least material possible is also an issue.

In spite of ever more stringent regulations and requirements for marketing authorization, medical technology and healthcare industry undoubtedly constitute an attractive business field, offering interesting high added-value outlets for the plastics industry, and a fertile ground for scientists and engineers.

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