Eastar™ copolyester is at the heart of Cardian BCT's blood therapy system

A front-runner in the blood bank technology industry, Cardian BCT was intent on finding a way to dramatically increase the frequency with which donors could donate blood. Because donor deferrals are on the rise, blood banks need to maximize blood donations from a shrinking donor base.

James Ladtkow, a Cardian BCT senior engineer explains, "Our Trima™ Automated Blood Component Collection System separates blood into platelets, plasma, and red cells by a process known as aphaeresis. It automatically harvests only the needed components and reinfuses the unneeded ones back into the donor. Since it takes the body longer to replenish its supply of red cells than to regenerate platelets or plasma, returning the red cells to the donor shortens the time required between donations."

Increasing blood donations by lowering donor exposure

Compared to whole blood collections, the Trima™ system allows more patients to be helped by separating and supplying only the specific blood components they need. By optimizing component collections, patient risks are lowered by reducing donor exposure.

At the heart of the Trima™ device is a plastic cassette which is molded from Eastar™ copolyester and assembled in-house. The blood therapy system can be programmed to harvest any combination of blood components, allowing a blood center to fulfill its blood collection needs with 25% fewer donations, reducing its costs, and increasing its blood supply.

Approaching the challenge intuitively

Cardian BCT's challenge was to find a plastic solution that worked well with the cyclohexane that bonds the PVC tubing to the cassette. From the get-go, Eastman's design services team was committed to more than specifying the right plastic. Eastman took the intuitive approach to proper part design, mold design, and required processing parameters.

"We evaluated both polycarbonate and Eastar™ copolyester for this application. We selected the copolyester for several reasons. One, of course, was cost. It also compares quite favorably in impact resistance. But more importantly, we selected the copolyester for its solvent compatibility," notes Ladtkow.

Trima™ plastic cassette

Making more than a Material Difference™

Eastar™ copolyester is available in a variety of grades, each with a slightly different balance of properties designed to meet the needs of different applications. All offer superior ease of processing and chemical resistance compared with polycarbonate and, because of their low heat-deflection temperature, can be easily molded into complex shapes.

Choosing a supplier who can provide the right material for your medical application is critically important. Choosing a supplier who will take an intuitive approach to proper part design, mold design, and required processing parameters is transforming.

Find out more about Eastar™ copolyester and how our capabilities in injection molding design can help make the Material Difference™ in your medical application.
Visit www.eastman.com/medical or call
1-800-EASTMAN (1-800-327-8626).

EASTMAN

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Material Safety Data Sheets providing safety precautions, that should be observed when handling and storing Eastman™ products, are available online or by request. You should obtain and review the available material safety information before handling any of these products. If any materials mentioned are not Eastman™ products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

It is the responsibility of the medical device manufacturer ("Manufacturer") to determine the suitability of all component parts and raw materials, including any Eastman™ product, used in its final product in order to ensure safety and compliance with requirements of the United States Food and Drug Administration (FDA) or other international regulatory agencies.

Eastman™ products have not been designed for nor are they promoted for end uses that would be categorized either by the United States FDA or by the International Standards Organization (ISO) as implant devices. Eastman™ products are not intended for use in the following applications: (1) in any bodily implant applications for greater than 30 days, based on FDA-Modified ISO-10993, Part 1, "Biological Evaluation of Medical Devices" tests (including any cosmetic, reconstructive, or reproductive implant applications); (2) in any cardiac prosthetic device application, regardless of the length of time involved, including, without limitation, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass assisted devices; or (3) as any critical component in any medical device that supports or sustains human life.

For manufacturers of medical devices, biological evaluation of medical devices is performed to determine the potential toxicity resulting from contact of the component materials of the device with the body. The ranges of tests under FDA-Modified ISO-10993, Part 1, "Biological Evaluation of Medical Devices" include cytotoxicity, sensitization, irritation or intracutaneous reactivity, systemic toxicity (acute), subchronic toxicity (sub-acute), implantation, and hemocompatibility. For Eastman™ products offered for the medical market, limited testing information is available upon request. The Manufacturer of the medical device is responsible for the biological evaluation of the finished medical device.

The suitability of an Eastman™ product in a given end-use environment is dependent upon various conditions including, without limitation, chemical compatibility, temperature, part design, sterilization method, residual stresses, and external loads. It is the responsibility of the Manufacturer to evaluate its final product under actual end-use requirements and to adequately advise and warn purchasers and users thereof.

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