

EASTMAN

Eastman™ medical polymers

Safe and sustainable alternatives
for the health-care industry

*Performance,
safety, and
sustainability*

Eastman™ medical polymers

Safe and sustainable alternatives for the health-care industry

“At Eastman, sustainability is creating value through environmental stewardship, social responsibility, and economic growth — now and for future generations. It is also our way of doing business. We deliver innovative solutions for our customers while operating our facilities safely to minimize environmental impact. And we’re constantly evolving to enhance the quality of life and demonstrate economic success. Our goal is to be transparent in sharing our story and the progress we’re making on our journey toward improved sustainability.”

Jim Rogers
President & CEO

Sustainability highlights

- Bisphenol A (BPA) free
- Halogen free
- *Ortho*-phthalate (DEHP) free
- Low energy consumption
- Low GHG emissions
- Ease of recycle in the medical waste stream
- Improved durability for harsh environments



Performance . . . without compromise

Medical devices and equipment

- Resistant to aggressive cleaners and disinfectants
- Outstanding clarity and color
- Extreme reliability for the harshest environments
- Design flexibility for complex shapes
- Ease of processing

Rigid medical packaging

- Tough and tamper resistant
 - high puncture and tear resistance
 - excellent seal strength
- Suitable for a variety of sterilization methods
- Ease of thermoforming for complex design and shapes
- Outstanding clarity and color

Aggressive cleaners and disinfectants

The use of new sustainable cleaners and more aggressive disinfectants can result in severe cracking for many materials used to make medical devices and equipment. The photo shown below demonstrates the excellent resistance of Eastman Tritan™ copolyester to a common disinfectant (Virex® Tb) used in hospitals and clinics.



Safety . . . no chemicals of concern

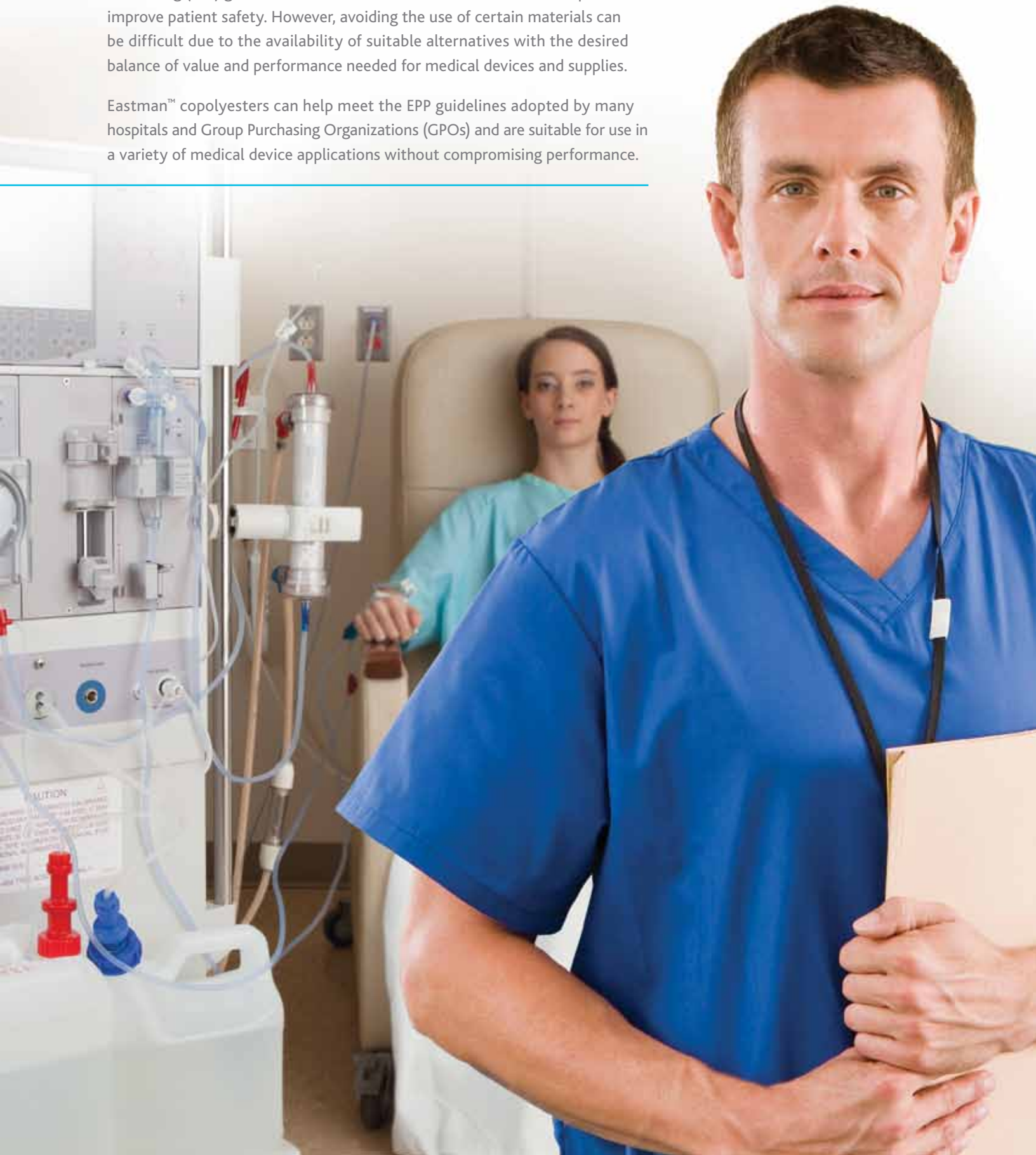
- Meets hospital Environmentally Preferred Purchasing (EPP) guidelines
 - Bisphenol A (BPA) free*
 - No halogens (chlorine, bromine, etc.)
 - Free of *ortho*-phthalate plasticizers
- Meets California Proposition 65 threshold limits
- Eastman Tritan™ copolyester is free of endocrine activity (estrogenic and androgenic)*
- Compatible with antimicrobial technology
- Complies with medical regulations
 - ISO 10993 (Part 1 – fluid contact <30 days)
 - United States Pharmacopeia (USP) Class VI
 - FDA Class I, II, and III (not suitable for implants)

*Third-party data available on request



Many health-care facilities have implemented Environmentally Preferred Purchasing (EPP) guidelines to reduce their overall environmental impact and improve patient safety. However, avoiding the use of certain materials can be difficult due to the availability of suitable alternatives with the desired balance of value and performance needed for medical devices and supplies.

Eastman™ copolyesters can help meet the EPP guidelines adopted by many hospitals and Group Purchasing Organizations (GPOs) and are suitable for use in a variety of medical device applications without compromising performance.

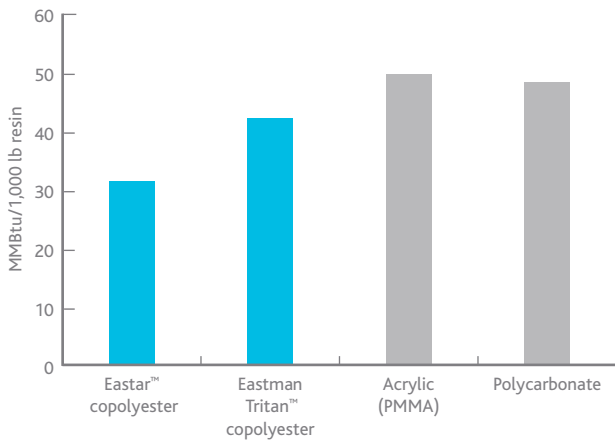


Sustainability . . . reduce, recycle, reuse

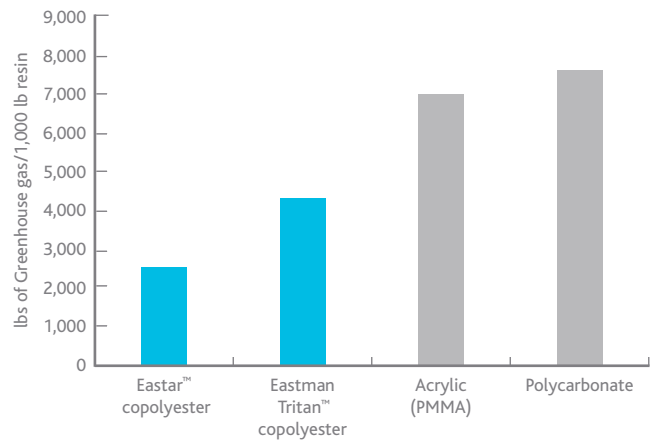


- Lower energy consumption and greenhouse gas emissions versus polycarbonate and acrylic
- Longer product life resulting in less waste due to failures
- Eastman™ copolyester 6763 is compatible with established rigid medical packaging recycle streams
- Suitable for reuse in postindustrial waste streams
- Reduced potential for hazardous emissions during incineration of medical waste

Cradle-to-pellet energy data



Greenhouse gas emissions



■ Preliminary LCA, conducted by Franklin Associates, Ltd. (comprehensive assessment underway)
■ Plastics Europe LCA

For every 1 million pounds of Eastman Tritan™ copolyester used in medical devices over polycarbonate or acrylic, the equivalent of approximately 48,000 gallons (181,700 liters) of gasoline are saved.^a

Greenhouse gas emissions are also reduced by the amount equivalent to taking approximately 260 cars off the street per year.^b

This can have a significant impact on the environment considering an estimated 303 million pounds of polycarbonate and acrylic will be used in medical applications in 2012.^c

^aUS LCI Database

^bFrom the EPA Greenhouse Gas Equivalency Calculator

^c2009 Medical Plastics Report, The Fredonia Group

Environmentally preferred product for a variety of medical device and packaging applications

For brand owners

- Lower system cost
- High quality appearance
- Improved performance
- Safe and sustainable

For hospitals and clinics

- EPP compliant products
- Products with improved reliability and accuracy
- Reduced environmental impact
- Improved sustainability

For patients

- Peace of mind
- Low toxicity
- Reliable performance
- Sustainable alternative

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For more information on Eastman™ medical polymers,
call 1-800-EASTMAN or visit www.eastman.com/medical.



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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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