



More than **polymers.** Proven **performers.**

Dependable copolyesters for your next project

REFERENCE GUIDE

EASTMAN

World-class plastics for worldwide markets

Make copolyesters. Not compromises.

Polyesters are combinations of diacids and diols. Copolyesters form when polyesters are modified. For example, by introducing other diacids such as isophthalic acid (IPA) or other diols such as cyclohexanedimethanol (CHDM) to PET, the material becomes a copolyester due to its comonomer content.

The parameters of copolyesters determine their properties. At Eastman, we design polymers by tailoring:

- **Composition**—the components of the polymer chain
- **Morphology**—the arrangement of the polymer chains relative to each other, making them amorphous, crystalline, or oriented crystalline
- **Molecular weight**—the average length of the polymer chip

By tailoring polymers to meet specific needs, we can create solutions that exhibit just the right thermal, mechanical, and rheological characteristics you need. The results are specialty plastics that offer superior toughness, clarity, color, flexibility, flow, chemical resistance, adhesion, printability . . . you name it.

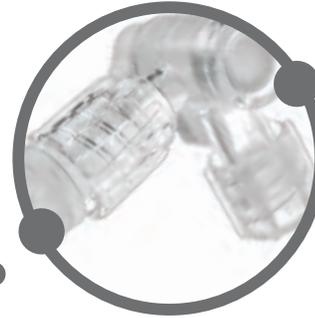
DuraStar	Eastar	Provista	Tenite	The Glass Polymer	Tritan	MARKET
•	•		•		•	Durables
	•			•	•	Packaging
•	•	•			•	Medical
						PROCESS
•	•		•	•	•	Molding
	•	•	•		•	Extruding



Break the mold.

You'll still find Eastman specialty plastics performing admirably in extrusion and blow molding processes. But we're also exploring new ways to process specialty copolyesters through melt-blown and spunbond nonwoven processes, powder coating, lamination, composite technology, and more.

That's why you'll find us working with some of the world's most innovative and pioneering brands. The true genius of Eastman's polymer design doesn't lie in where you'll find us today—it's where you'll find us tomorrow.



copolyester \(')kō-'päl-ē-,es-tər\
n

1: a modified polymer consisting of comonomer content

2: a specially designed copolymer from Eastman that fundamentally improves products and markets alike



DURASTAR™
polymers

Excellent aesthetics and functionality

Ideally suited for injection molded applications, DuraStar™ polymers have proven to be incredibly versatile and brilliantly clear polymers that deliver strength, chemical resistance, dimensional stability, low shrinkage rates, and other enhanced property advantages.

Key characteristics

- Outstanding impact resistance
- Exceptional clarity
- Good chemical resistance
- High gloss
- Not manufactured with BPA, BPS, or plasticizers
- Contains a mold release
- Fast drying times
- Ultraviolet light stabilization package

Major applications

Durables

- Appliance parts
- Floor care
- Furniture/furniture trim
- Toys/sporting goods
- Housewares
- In-mold decoration

Medical

- Medical devices

Durables

Medical

Molding





MEDICAL DEVICES & LAB EQUIPMENT

Brand	Product	Market
DuraStar	DS1010, Natural	Durables
	DS2010, Natural	
	DS1110UVI, Natural	
	DS1900HF, Natural	
	DS1910HF, Natural	
	DS2110UVI, Natural	
DuraStar	MN610, Natural	Medical
	MN611, Natural	
	MN630	
	MN631, Natural	



IMPACT RESISTANCE

EASTAR™
copolyesters

A longtime favorite that's still light-years ahead

Eastar™ copolyesters offer a unique combination of properties—aesthetics, chemical resistance, performance reliability, and economics—that give manufacturers what they need to successfully compete in today's marketplace. Eastar has a long tradition as the material of choice in the medical industry, matching various biological, regulatory, sterilization, and disposal requirements.

Key characteristics

- Exceptional clarity
- Good impact strength and toughness
- Chemical resistance, including from IPA and lipids
- High gloss
- Exceptional colorability
- Complies with U.S. Food and Drug Administration (FDA) and Japanese (JHOSPA) requirements for use in specified food contact applications
- GREENGUARD Indoor Air Quality Certified®
- Not manufactured with BPA, BPS, or plasticizers
- Exceptional color stability after gamma and e-beam sterilization
- Ductility and flexibility, allowing snap-fit assembly to eliminate costly solvent bonding
- Swageability
- Processability in complex part designs
- Exceptional thermoformability and sealability



MEDICAL PACKAGING

Major applications

Durables

- Pen caps
- Toothbrushes
- Oral hygiene
- Cards
- Laminating
- Stock bottles
- Water filtration

Packaging

- Food packaging
- Cosmetics packaging
- Personal care packaging
- Fragrance containers
- Oral hygiene
- Cosmetics jars and caps
- Beverage containers
- Handle containers
- Industrial packaging

Medical

- Medical device components
- Suction and drainage
- Labware
- Surgical instruments
- Fluid administration
- Blood contact devices
- Syringe components
- Pump housings
- Disposable labware

HIGH GLOSS



Brand	Product	Market
Estar	5011	Durables
	6763	Durables, medical, packaging
	AN001, Natural	Packaging
	AN004, Natural	Cosmetics and personal care
	AN0014, Natural	
	BR001	Durables
	BR003	
	BR203	
	CN015, Natural	Cosmetics and personal care
	DN001, Natural	
	DN004, Natural	Durables and medical
	DN011	Durables
	DN114, Natural	
	EB062	Packaging
	EN001	Durables
	EN052	Cosmetics and personal care
	EN058, Natural	
	EN059, Natural	Durables
	EN067, Natural	
	EN076	
	GN007, Natural	Durables, cosmetics and personal care
	GN046	Durables
	GN071, Natural	
MB002	Medical	
MN005		
MN006, Natural		
MN021, Natural		
MN058		
MN211, Natural		
MN052		

THE GLASS POLYMER™

family of cosmetic materials

Creating astonishing good looks

The Glass Polymer™ family of cosmetic materials has a broad portfolio that delivers the design freedom and processing flexibility to create luxury packaging that reflects the quality and content of the product inside and has extraordinary shelf appeal. That's why many of the world's leading brands and top manufacturers prefer The Glass Polymer.

From mass market to prestige products, The Glass Polymer offers durability, glasslike clarity, and chemical resistance with a luxurious feel.

Key characteristics

- Luxurious look and feel
- Superb chemical resistance
- Ease of secondary processes: color, decoration, hot stamping
- Durable, tough, and shatter resistant
- Ability to mold thick parts

Major applications

- Cosmetics packaging
- Custom containers
- Skin care jars
- Fragrance caps
- Color cosmetics packaging

SHATTER
RESISTANT





Brand	Product	Market
The Glass Polymer	Eastar 5011	Cosmetics and personal care
	Eastar 6763	
	Eastar AN001, Natural	
	Eastar AN004, Natural	
	Eastar AN0014, Natural	
	Eastar CN015, Natural	
	Eastar DN011	
	Eastar EB062	
	Eastar EN067, Natural	
	Eastar EN076	
	Eastar GN007, Natural	
	Eastar GN071, Natural	
	Tritan LX101	
	Tritan LX151HF	

COSMETIC PACKAGING

Eastman PROVISTA™ copolymer

Extrusion of tubes

Eastman Provista™ copolymer is specifically developed for extrusion into profiles where aesthetics, such as high clarity and gloss coupled with design flexibility, drive demand. Compared to commonly used materials, Provista copolymer can often run on standard processing equipment at increased speeds. Extremely high melt strength makes the resin an excellent choice when extruding profiles into complicated shapes.

Key characteristics

- Sparkling clarity and high gloss
- Ease of processing
- Excellent chemical resistance
- Complies with FDA and JHOSPA requirements for use in specified food contact applications
- Toughness with flexibility

Major applications

- Tubing

Brand	Product	Market
Provista	MP001	Medical
	MP002	

MEDICAL TUBING



TENITE™
cellulosics

Exceptional performance since 1929

Derived from renewable wood cellulose, Tenite™ cellulosics have been used for more than 50 years in a variety of extruded and injection molded applications. Cellulosic plastic is generally selected for its excellent balance of properties: toughness, hardness, strength, surface gloss, clarity, and warm feel. This unique material is manufactured using natural, renewable softwood materials with significantly less petroleum-derived raw materials than traditional plastics.

Key characteristics

- Derived from 100% renewable softwood material
- Contains more than 40% renewable content
- Tough and durable—designed to last
- Warm to touch
- Higher heat resistance
- Exhibits exceptional clarity
- Excellent chemical resistance
- Molds and extrudes easily
- Colorable—color concentrates available
- Can be scented
- Available in a variety of formulas, plasticizer levels, and additives

Major applications

Durables

- Furniture/furniture trim
- Recreational

Brand	Product	Market
Tenite	Standard Inventory	Durables
	360E4861312, Clear	
	375E4000012, Clear	
	377E4861312, Clear	
	380A000010, Clear	
	575E3720010, Clear	
	576E720010, Clear	
	Standard Make-to-Order	
	105E3V45728, Clear	
	307A4000015, Clear	
	307E4000022, Clear	
	360E4861316, Natural	
	360E4861316, Clear	
	380A4000015, Clear	
	380A4000018, Clear	
383A2R30010, Natural		



SURFACE GLOSS

Eastman TRITAN™

copolyester

The new standard in copolyester

Eastman Tritan™ copolyester is BPA-free. It offers the kind of chemical and heat resistance and durability required for use in dishwashers. This enables a viable and attractive alternative to polycarbonate and opens a world of exciting possibilities.

Bridging material and design for the medical market

Tritan is an innovative, clear medical grade polymer that delivers a unique balance of design, processing, and physical properties. It provides outstanding lipid and chemical resistance and is free of all bisphenols (BPA and BPS) and halogens. It also offers greater toughness, heat resistance, and processability than heritage polymers.

Key characteristics

- Toughness
- Heat resistance
- Chemical resistance
- BPA and BPS free
- Excellent clarity and gloss
- Ease of processing—wide thermoforming window
- Endocrine activity (EA) free
- Shatter and scratch resistant
- Excellent hydrolytic stability
- Compatibility with sterilization methods such as gamma irradiation, e-beam irradiation, and ethylene oxide (EtO) gas



Major applications

Durables

- Small and large appliance parts
- Sporting goods
- Reusable water bottles
- Commercial and consumer housewares
- Food storage containers
- Transaction cards
- Infant care
- Large-volume water containers
- In-mold decoration
- Water filtration

Packaging

- Cosmetics

Medical devices

- Electronic medical device housings
- Blood contact and nonimplantable medical devices
- IV components
- Single-use bioprocessing equipment
- Minimal invasive surgical devices
- Drug delivery devices
- Fluid and respiratory canisters

Brand	Product	Market
Tritan	EX401	Durables
	GX101	
	LX101	Packaging
	LX150HF	
	LX151HF	
	LX201	
	MX710	Medical
	MX711	
	MX730	
	MX731	
	MX810	
	MX811	
	TX1000	Durables
	TX1001	
	TX1500HF	
	TX1501HF	
	TX1800	
	TX1801	
	TX2000	
	TX2001	
TXF1021		

CHEMICAL RESISTANCE

If you can imagine it, we'll help you mold it.

Whether you're a seasoned molder of Tritan-made parts or considering Tritan for the first time, the Tritan Technical Information Center (TritanMoldIt.com) can provide you with ideas and engineering solutions. Maybe there are capabilities for secondary operations that you haven't yet discovered. Gain insight into optimizing your machines and run Eastman Tritan™ copolyester in your molds with minimal challenges while achieving an efficient process and producing a part that meets the needs of your customers.

Inspiration discovered daily

The Eastman Innovation Lab is a website created for the savvy individual interested in product design and its impact on the future. Have fun exploring the innovative designs made from Eastman plastics. At Eastman, we're helping people make connections to tomorrow's innovations.

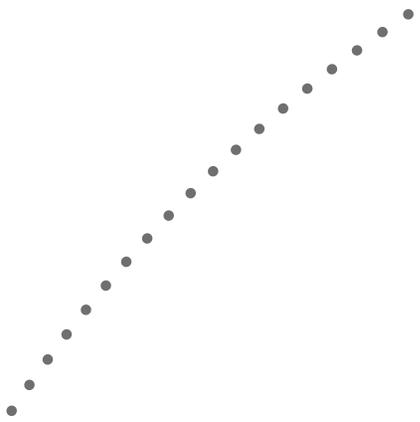
eastman.com



Tritan mold it.
www.tritanmoldit.com



EASTMAN
innovation lab



About Eastman

Eastman is a global specialty chemical company that produces a broad range of advanced materials, additives and functional products, specialty chemicals, and fibers. Today, the world depends on our insights to create the materials found in thousands of household and industrial products. To do this, we work with customers worldwide to innovate, discover, and implement practical solutions that meet persistent and emerging needs in ever-changing global markets.

With manufacturing sites across North America, Latin America, Europe, and Asia, we are putting our chemistry to work, creating “The results of insight™.”

EASTMAN

The results of **insight**[™]

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