EASTMAN

Plastic cards that perform

The results of **insight**™

The benefits of using Eastman™ copolyesters

Eastman Chemical Company produces more than 1,200 products that impact the lives of people worldwide. One way that Eastman is meeting people's needs is in the transaction card industry where there is a call for better security and "smarter," environmentally friendly cards.

Eastman™ thermoplastic polymers used in transaction cards provide **excellent gloss** and **clarity,** and they can be **colored, transparent, translucent** or **opaque** to meet customer's requirements.

Eastman™ copolyesters offer a unique combination of plastics used for laminated and injection-molded cards. They provide premium performance in all card technologies — contact, contactless or magnetic — and all card types, including credit cards, bank cards, phone cards, key cards, ID cards, loyalty cards, warranty cards, health cards, drivers licenses and membership cards.

Longer card life

Cards made of Eastar™ copolyesters offer enhanced performance properties that allow them to flex many more times before breaking than cards made of other commonly used plastics. In addition, cards made of Eastar have excellent chemical resistance, so they tend to last longer.

Fewer card replacements mean less inconvenience for users and savings for you that include the time and cost to produce, ship and handle a new card.

Compatibility with existing equipment

Eastman™ copolyesters require little or no modification of equipment used in injection molding or laminating. Commercial laminating with Eastar™ copolyesters can decrease cycle time and increase output, saving energy and production costs. And the cards punch and die-cut easily and cleanly.

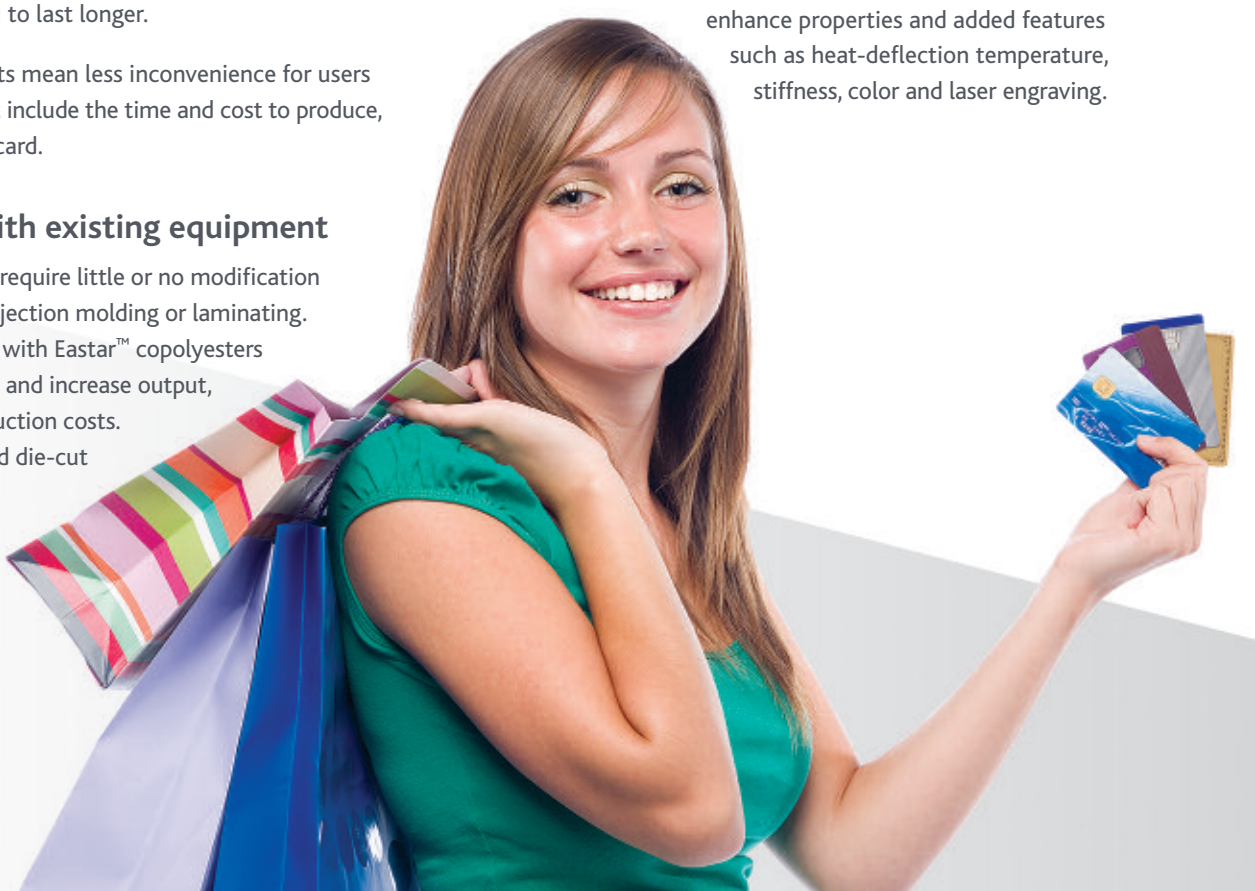
Wider temperature-processing window

Eastman™ copolyesters process easily over a wider range of temperatures than other plastics, yet maintain their clarity.

Versatility

Cards made of Eastman™ copolyesters can be offset- and screen-printed with crisp, vivid images. They maintain excellent character height retention when embossed. When used as an overlay, the sparkling clarity of Eastar™ copolyesters allow your design to shine through.

Eastman™ copolyesters can be customized for your specific application by using color concentrates and additives to further enhance properties and added features such as heat-deflection temperature, stiffness, color and laser engraving.



Environmental responsibility

Using Eastman™ copolyesters can help you make a positive environmental statement. Due to their low density, less material can be required. Since cards made of Eastar™ copolyesters last longer, fewer replacements are required.

Winning performance

Eastar™ copolyesters offer a unique combination of benefits. If you're in the market for a long-lasting, versatile, environmentally responsible plastic, consider Eastar™ copolyesters for plastic cards that perform.

Eastman™ products for transaction cards

Eastman Cadence™ copolyester GS2 and GS5

Eastman Cadence™ GS2 and GS5 are high-clarity amorphous copolyesters for film calendaring. Calendered films of Cadence copolyesters are non-crystallizing and halogen-free. They offer wide calendaring and thermoforming windows and have good low-temperature toughness. Cadence is cooperative in secondary operations such as solvent-bonding, lamination, decoration, cold-forming, punching/cutting and embossment. Cadence resins require no pre-drying or additional stabilizers.

Eastar™ copolyester GN071

Eastar™ copolyester GN071 is used for injection molding applications. It is sparkling clear, tough, chemical-resistant, odor-free, versatile, easy to work with and affordable. Cleaning solutions will not turn Eastar GN071 white.

Comparsion of common plastic materials and films used for transaction/ID cards

Capabilities/usage	Eastman™ copolyesters	Biax PET (APET)	PVC	ABS	PC
Lamination	Excellent *30% faster than PVC*	Poor *Requires adhesive for lamination*	Excellent	Fair	Fair *Requires high lamination temperatures*
Printing	Excellent	Fair *Requires special inks*	Excellent	Poor *Requires corona treatment*	Good
Laser engraving	Good *Requires special additives*	—	Poor	Poor	Excellent *Requires special additives*
Flex crack resistance	Excellent	—	Good	Poor	Excellent
Chemical resistance	Excellent	Excellent	Excellent	—	Fair

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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.

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