



CO-INJECTION

IMPROVING EVERYDAY PRODUCTS

Preserving Freshness • Maintaining Flavor • Extending Shelf Life



PET (DRINK BOTTLES/PREFORMS)



CAPS & CLOSURES



THIN WALL PACKAGING



MEDICAL

**#1 Systems Supplier of Single Use Coffee Capsules,
Bio-Resin Sustainable Capsules,
Recyclable (5) Injection Molded Capsules.**



MOLD MASTERS CO-INJECTION TECHNOLOGY

Creates opportunity for molders to open up complimentary markets by expanding their production capabilities. By injecting material into a components mid-layer, you now have the ability to enhance product protection and package design, bringing new alternatives and value to your customers.

Mold-Masters Co-injection can be delivered with the same high-volume production efficiency and cycle time as a mono-layer part.

Mold-Masters Co-injection technology is proven to deliver high performance molding capabilities including precise barrier placement, uniform distribution, customizable barrier properties and economical use of barrier materials.

INNOVATIVE OPPORTUNITIES

Co-Injection Technology is useful for a variety of applications.

Coffee/Tea Pods, Food/Fruits, Beverages, Closures, Dairy, Medical, Personal Care, Technical



CO-INJECTION REQUIREMENTS VARY BY APPLICATION

Enhancing product performance properties depends on your choice of material combinations for specific applications



Small format CSD



Sensitive beverages



Milk and alternatives



Beer

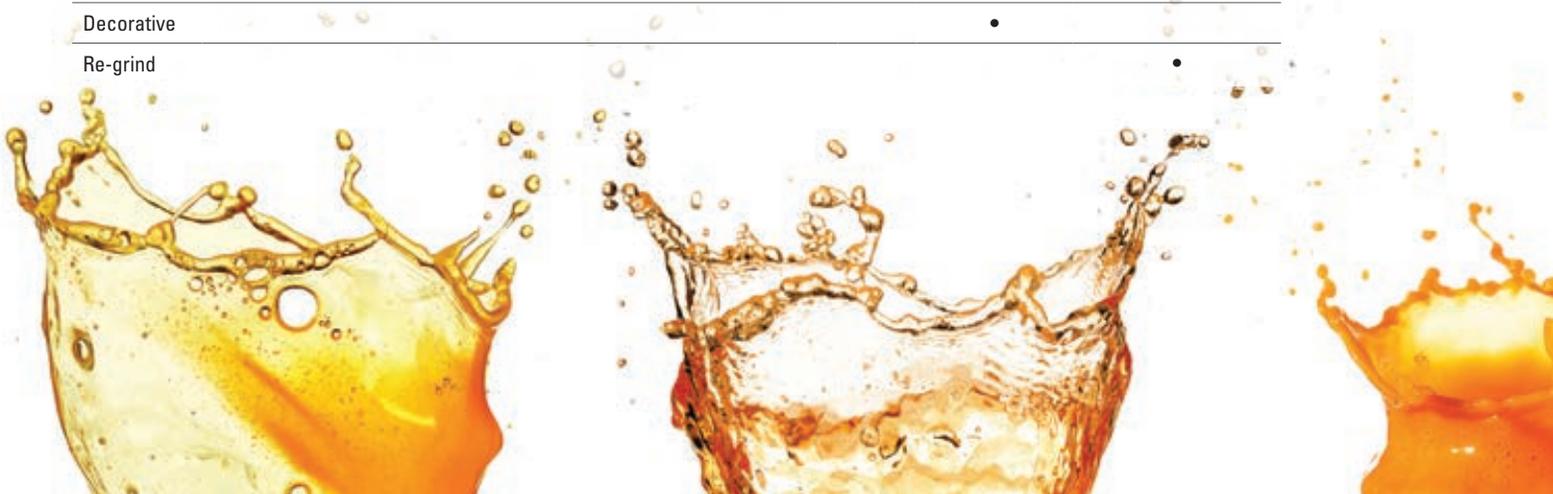


All packaging

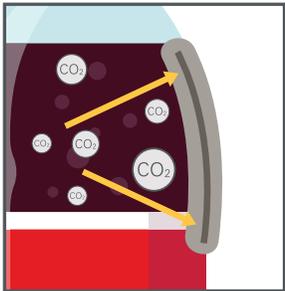


Technical/Industrial

CO ₂	•			•		
O ₂		•		•		•
Light			•	•		•
Decorative					•	
Re-grind						•



EXTENDING SHELF LIFE

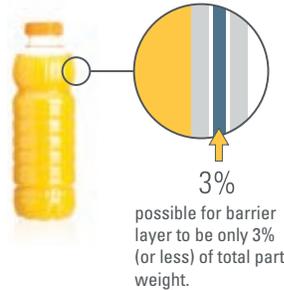


Mold-Masters Co-injection
for barriers

A concentrated, more effective protective barrier layer of additive positioned in the mid-layer extends shelf life by up to **5x** compared to conventional mono-layer blended options.

MORE EFFICIENT USE OF MATERIAL

As an industry leader, Mold-Masters recognizes the importance of introducing more economical capabilities without sacrificing product protection to ensure our customers maintain a competitive edge. Precision layer placement and high-capability barrier materials allows molders to reduce their barrier material usage by up to 50% than conventional barrier technologies.



40%–50% less barrier material with high capacity multi-layer vs mono-layer blends.

MORE ECONOMICAL ALTERNATIVE MATERIALS

As transportation and handling costs increase over time, product weight continues to be an area where opportunities exist to save on costs. More than ever before brands are moving away from traditional heavy and fragile glass containers in favour of lighter and more economical plastic alternatives. Metal cans are also falling out of favour due to their rising material costs.



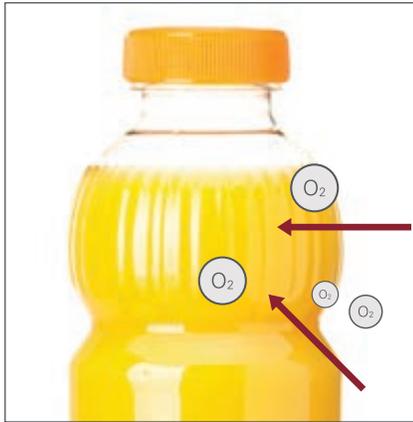
DESIGN FREEDOM FOR MAXIMUM SHELF APPEAL

Mold-Masters Co-injection Technology provides increased design freedom and flexibility to create packaging with more innovation than ever before. Stand out on store shelves more than ever by integrating various colors, sizes, shapes and unique decorative capabilities.



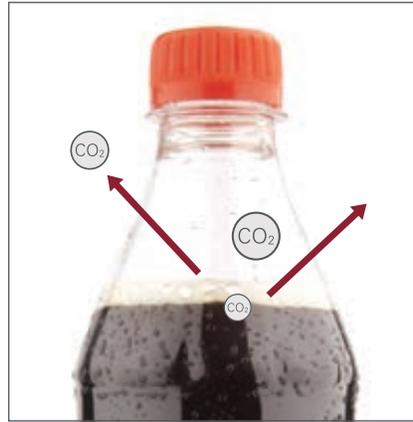
MAINTAINING FRESHNESS

Juices, Teas and Sauces



To maintain freshness, packaging must prevent O₂ ingress.

Carbonated Soft Drinks



To maintain freshness, packaging must prevent CO₂ loss.

Dairy



To maintain freshness, packaging must prevent light transmittance.



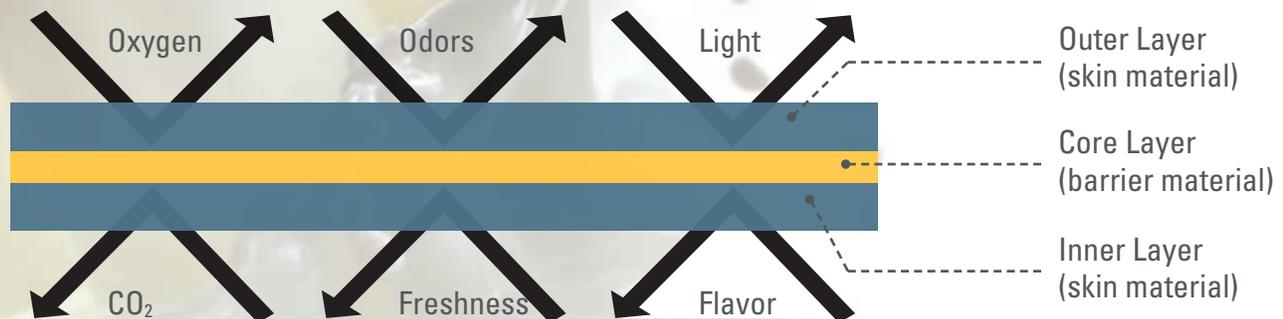
Mold-Masters Co-Injection Technology for barriers provides a more effective, lower cost O₂ barrier solution.



Mold-Masters Co-Injection Technology for barriers provides a more effective, lower cost CO₂ barrier solution.



Mold-Masters Co-Injection Technology for barriers reduces light transmittance by 99.9% that can preserve freshness and flavor for months.



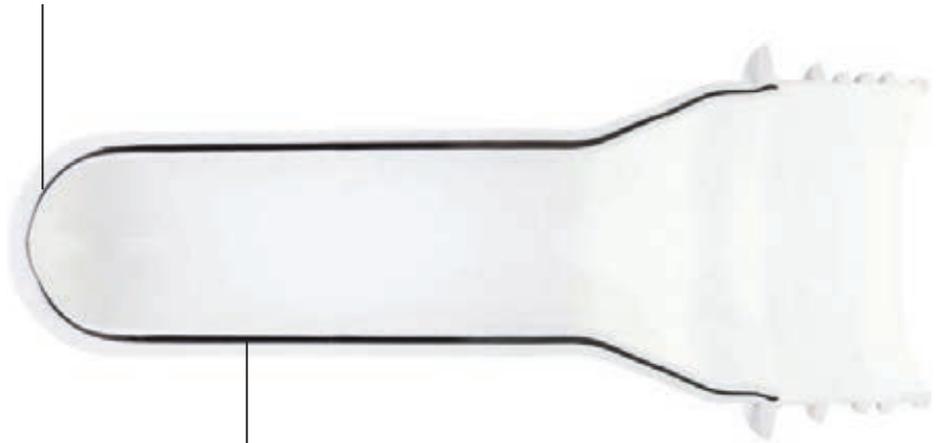
PET PREFORMS AND CLOSURES

Mold-Masters Co-Injection Technology can precisely dose and distribute the barrier material.



Mold-Masters Co-Injection Technology precisely positions barrier material exactly where it is needed. An advanced melt delivery system delivers unrivaled balance, allowing flexibility to vary the barrier layer position and fully encapsulate the dome using the same hardware.

Fully encapsulated dome provides complete package protection.



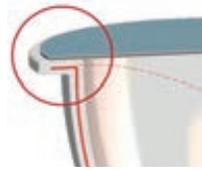
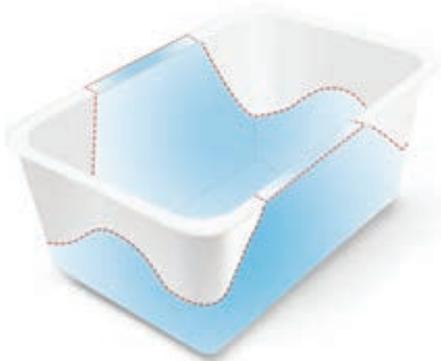
Layer bias control allows barrier layer to be positioned away from the surface to the core for improved bottle appearance.

Accurate barrier position enables excellent leading edge position control.

PATENTED BARRIER CAPABILITIES

Mold-Masters holds many of the patents required to deliver the barrier performance your application demands. Only Mold-Masters can prevent core layer breakthrough by compensating for molding variables and directing flow to assure full barrier coverage of containers, even those with non-symmetrical shapes and designs, to meet target barrier performance standards.

Conventional



No Fold Over

Improper Leading Edge Control on asymmetrical parts leads to incomplete barrier coverage/distribution

Mold-Masters



Fold Over



Precise Leading Edge Control allows for complete barrier coverage and even barrier distribution



GO GREEN - REACH YOUR SUSTAINABILITY TARGETS

Make Mold-Masters Co-Injection systems part of your sustainability strategy.

In addition to extending freshness, co-injection technology provides molders the opportunity to use re-grind or recycled resins as the core layer up to 50% of total part weight.

An opportunity that is an ideal solution for thick parts that utilize expensive materials and require high quality finishes.

Mold-Masters Co-injection Technology is also useful for eliminating scrap (thermoforming) and other manufacturing inefficiencies related to secondary functions.

Help protect the environment through greater process efficiency and recapture lost profits.



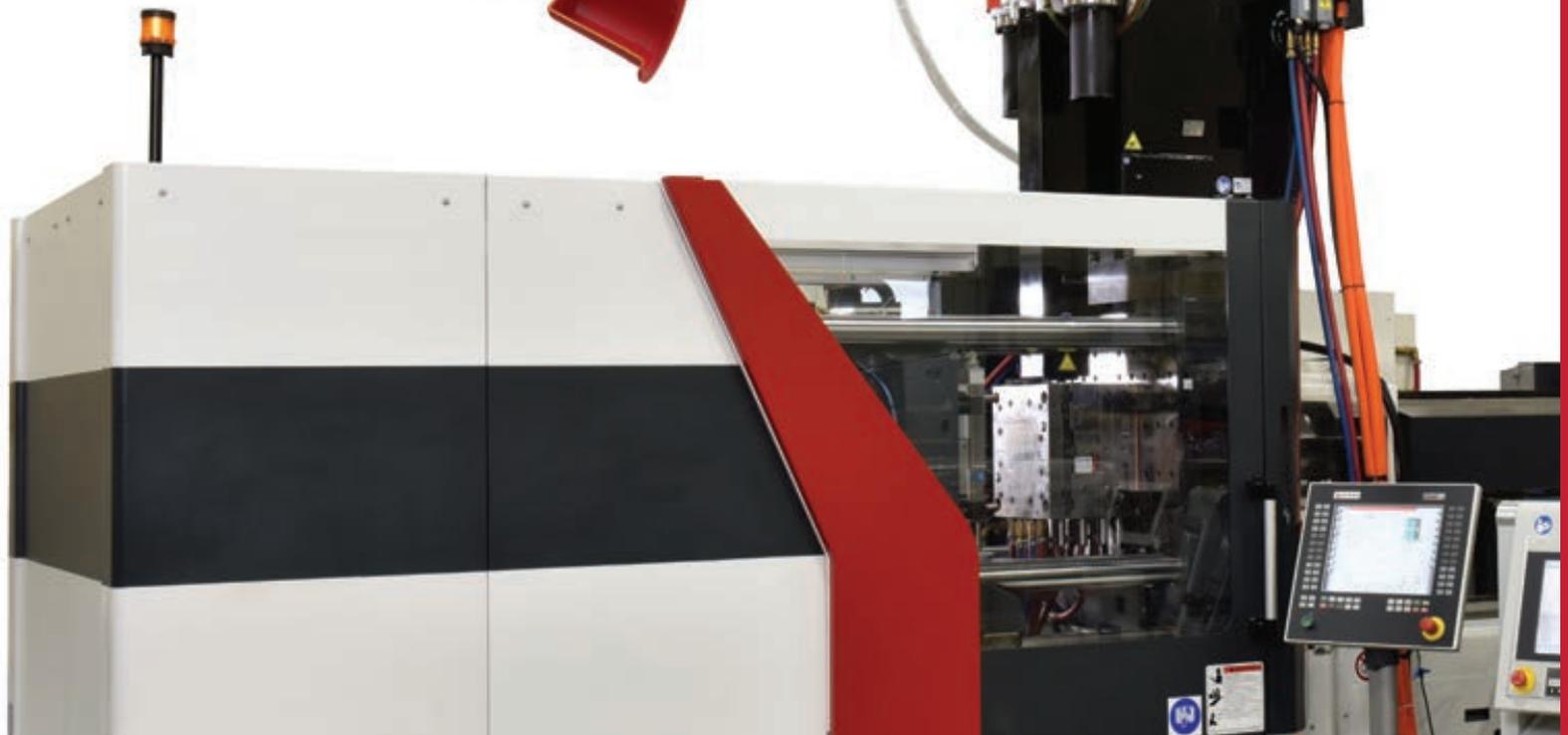
CO-INJECTION CONNECT

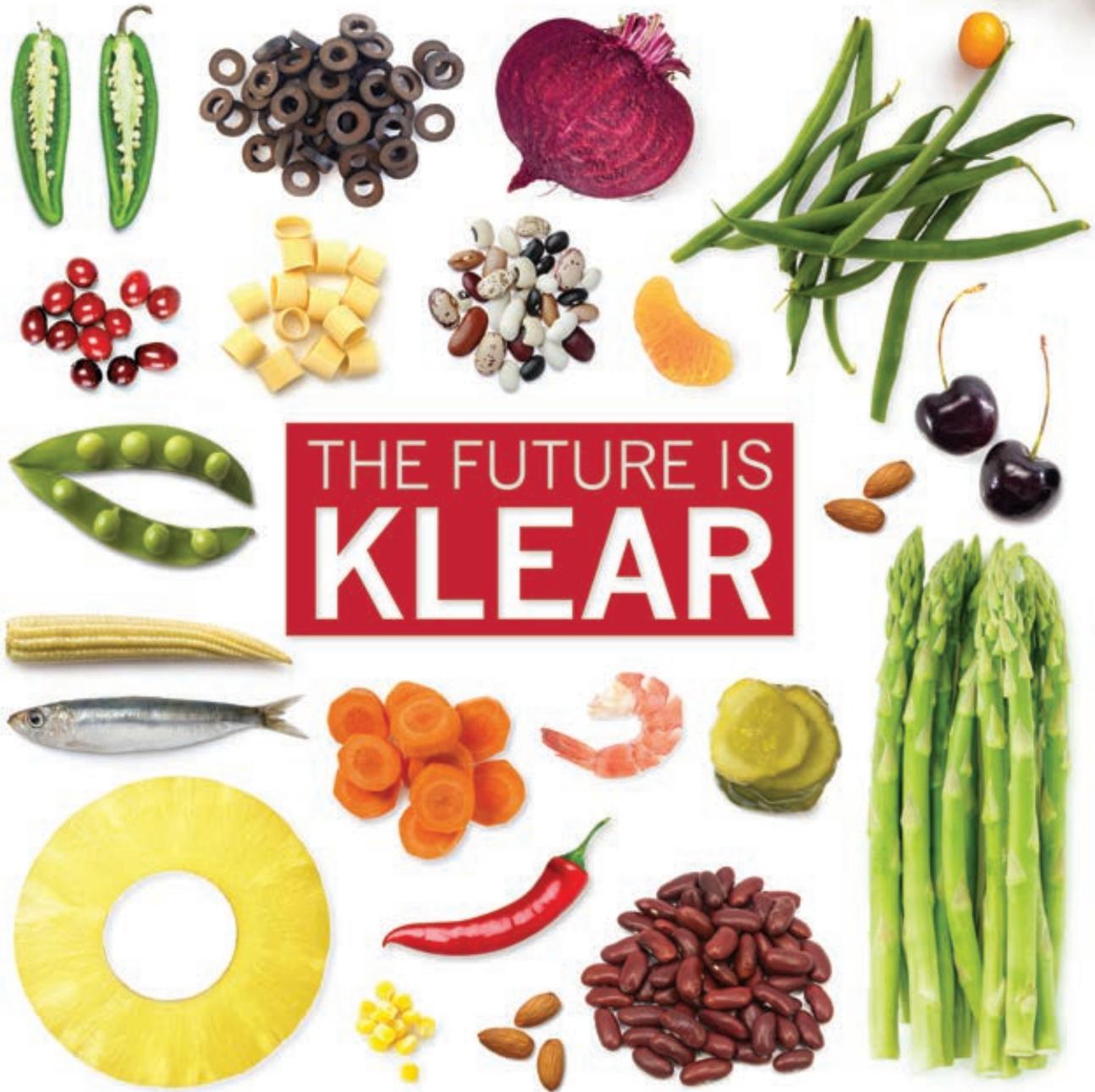
MOLD HIGHER QUALITY, ECONOMICAL CO-INJECTED PARTS FOR LESS

The proven Co-Injection CONNECT Solution includes everything you need to easily and economically convert your existing single shot injection molding equipment over to produce co-injected parts. Reduce your capital investment requirements by up to 84%. Mold-Masters Co-Injection Technology is fully customizable to create a moisture, gas or light barrier for containers of all shapes and sizes for applications across any industry. Take advantage of our extensive experience and successful track record. Mold with confidence knowing our global support network is with you every step of the way.

CO-INJECTION CONNECT INCLUDES:

- > Mold-Masters Co-Injection Hot Half
- > E-Multi Co-Injection Auxiliary Injection Unit
- > E-Multi Controller with 15" Touch Screen
- > Engineering
- > Testing Validation
- > Start-up Support
- > Training





THE FUTURE IS
KLEAR

You make a great product – why hide it? We've seen the future of canning and it's Klear. Milacron's Klear Can technology gives manufacturers a cutting-edge, cost-competitive alternative to metal cans for fruits, vegetables, soups, meats and other products – and it's transparent, so you can show off your goods.

Using the same machinery as metal cans, going Klear requires minimal investment. With the option to use colored plastic cans, in-mold labels, or standard labels, the possibilities are endless.

For more information on Mold-Masters Co-Injection please contact us at:
co-injection@moldmasters.com

