Bostik
smart adhesives

Smart reseal for food packaging

FLEXIBLE LAMINATION

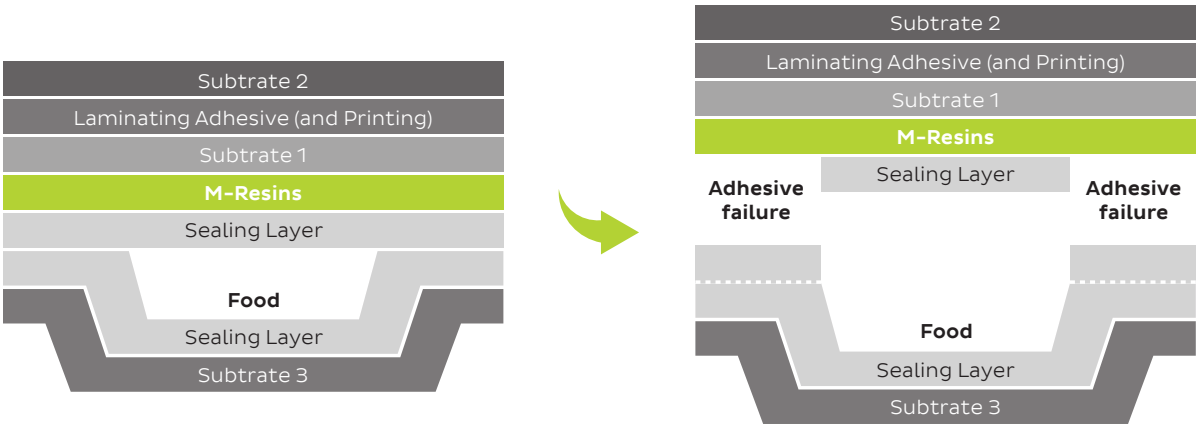
Introducing Bostik reseal technology

M-Resins are used in the food packaging industry to produce resealable films and lids. They are 100% solid, pressure-sensitive adhesives packaged in a protected, pelletized form that can be extruded on most standard blow and cast extrusion lines.

They are typically extruded into a multi-layer, co-extruded sealant film - minimum of three layers - with the M-Resins as the middle layer, The co-extruded sealant film can then be laminated to a reverse-printed, heat-resistant film to form the lidding web, similar to traditional coextruded materials such as PET or Nylon/Ink/ Laminating Adhesive/Coextruded Sealable Film.
After sealing the laminated lidding web to a rigid or thermo-formed rigid tray, the sealed tray is ready to use. After the consumer opens the package the first time, the coextruded sealant film breaks at the Hot Melt layer, revealing the pressure sensitive layer and, thus, can become resealed to the tray.

ORGANOLEPTIC PERFORMANCE.
If the M-Resins are to be used in reseal able multiple layer film for the food packaging industry, it is necessary to perform necessary organoleptic tests and regulatory review on the final film structure to ensure compliance with US, European or Local food contact regulations.

Reseal M-Resins technology



SEALED PACKAGE

AFTER FIRST OPENING

Processing guidelines

MATERIAL HANDLING

M-Resins are packaged in cartons weighing 20 kg and palletized 24 cartons per pallet weighing 480kg net.
All safety practices followed in the handling and processing of thermoplastic polymers should be followed for the M-Resins product range. The resin is not hazardous under normal shipping and storage conditions.

M-Resins are heat and pressure sensitive, thus storage is critical:
- Store in a cool, dry place at a temperature below 30°C
- Protect M-Resins from direct exposure to sun
- Never double stack pallets

HOPPER AND FEED THROAT

Typical 'flood-feed' set-ups provided on many single screw extruders work well with M-Resins. However, 'starve-feed' type extruders can also be used with good results as they deposit the formulation directly onto the extruder screw.

Since there is no material build-up in the extruder, feed-throat and feed problems, which are caused by bridging and funnelling in the feed hopper or by slippage on the barrel in the extruder, are eliminated.
Water cooling of the feed-throat is essential to prevent exces-sive heating of the resin as it enters the screw.

SCREW AND BARREL DESIGN

The screw conveys the M-Resins forward, contributing to the heating, melting, homogenizing and mixing of the melt, and of delivering it to the die.

A single screw extruder typically has three sections:
- The feed section has deep flights to transport the pellets away from the feed throat.
- The transition section changes gradually from deep flights with unmelted pellets to shallow flights containing the melt. Resin is compressed in the transition section during the melting process.
- The metering section is the last screw section and has the shallowest flight depths.

M-Resins work well on universal screw design with the following properties:
- L/D of at least 24 : 1
- Diameter between 50mm and 70mm recommended
- At least three heating zones
- Water-cooled feeding zone

It is necessary to use a screen when extruding M-Resins, and we suggest a 100 mesh screen. Screens need to be replaced regularly to avoid excessive pressure drops developing across the screen pack and consequent loss of flow.

PROCESSING CONDITIONS

A typical processing temperature profile for M-Resins is given below:

ZONE	TEMPERATURE SETTING
Feeding	25°C
Zone 1	100°C
Zone 2	130°C
Zone 3	150°C
Adaptator(s)	150°C
Die	170°C - 210°C

Ensure adequate ventilation and wear protective clothing when processing M-Resins.

START-UP/SHUT-DOWN PROCEDURES AND PURGING

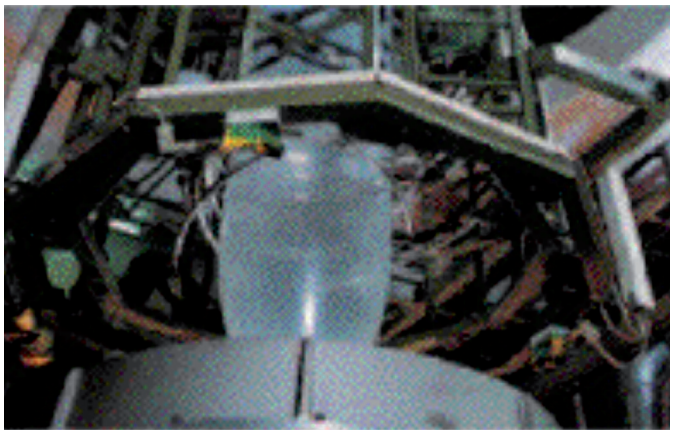
It is recommended to start the extruders with LDPE in all layers. Once the bubble is stabilized, begin to change the material within the screw to M-Resins to a high MFI LDPE. A MFI of 5 g/1 0 min (190°C - 2.16 kg) is suggested. After the first step of stabilization, mix with 50% of M-Resins and stabilize. Finally, switch over to 100% M-Resins.

M-Resins are thermally stable up to 170°C. However, they should not be exposed to temperatures above 170°C for more than 30 minutes or severe degradation will occur.

Low density polyethylene can be used as the purge resin. The LDPE should be introduced while at process temperature and rate of production. Varying the polymer output rate during the purge process can be effective. Never shut down the extruder with the M-Resins in the extruder as this can cause mechanical damage to the extruder. Always shut down the extruder with only LDPE in the extruder.

Typical polymers to be used with M-Resins

Numbers of polymers used as sealing layers and tie layers grades have been tested and indications can be given upon demand. Please contact us for more details.



PRODUCT RANGE DESCRIPTION

REFERENCE	M3156/T	M650	M651
Melt Index*	10	45	45
Tackiness	Good	High	High
Failure Mode	Adhesive	Adh./Cohesive	Adh ./Cohesive
First Opening**	6.8	4.4	4.4
Resealing**	0.8	1.1	1.1
Odour	Medium	Low	Low
Type of coating	Mineral	Mineral	Mineral

*Melt Fow Index (g/15 mn), NF EN ISO 1113, cond 6 at 190°C and 2.16 kg ** N/cm, T Peel at 300 mm/mn (Internal test method) *** M651 is a version of M650 coated with a slightly higher % of mineral

Bostik's reseal M-Resins are an innovative solution answering to consumers conveniency and providing sustainability by offering considerable material source reduction.

The reseal M-Resins, a patented technology by Bostik can be converted on existing co-extrusion line without any significant investment and the reseal-able films can be used on existing packaging equipment by food producers with only minor adjustments.

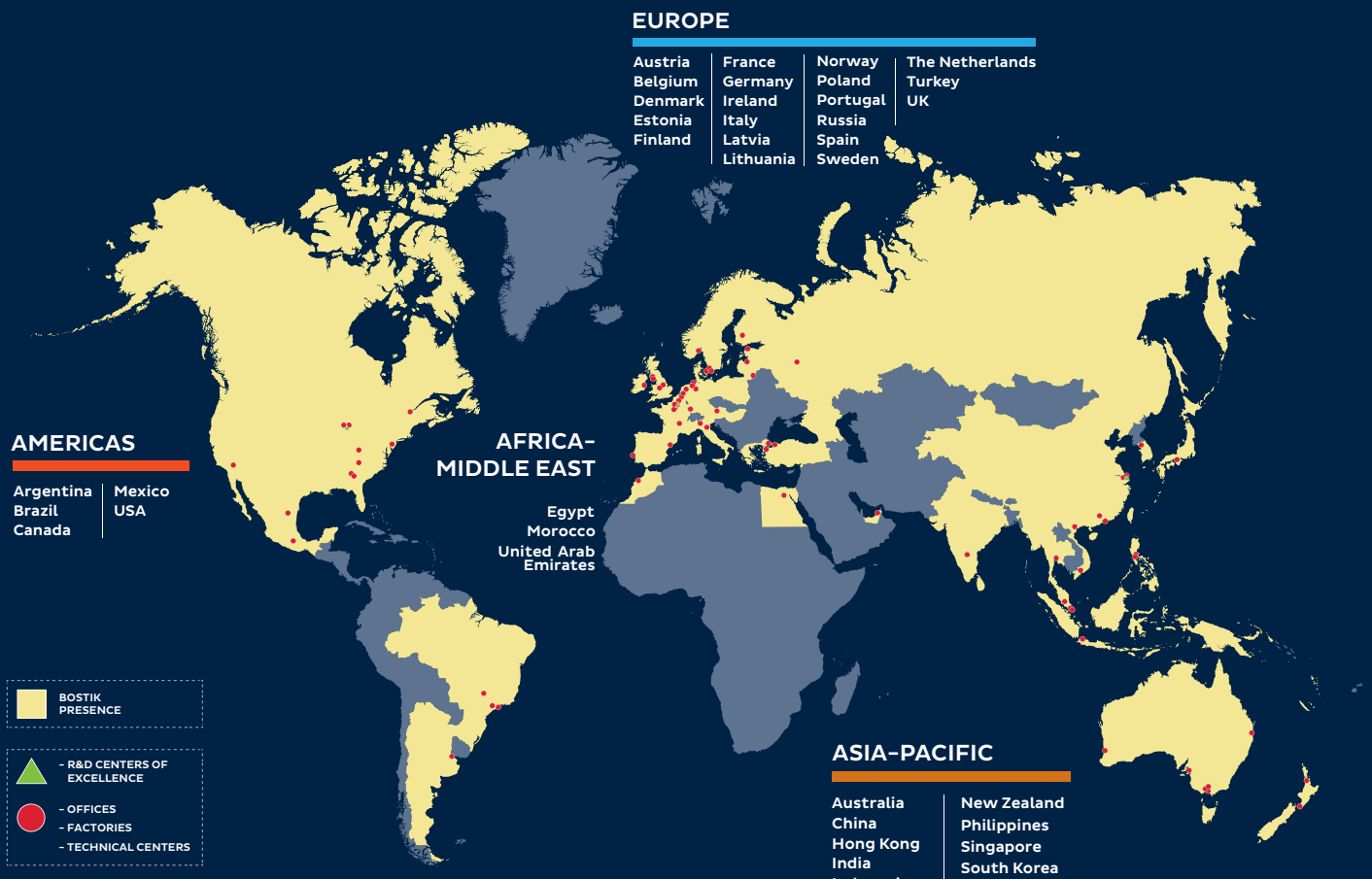
The multilayer plastic film used as a resealable lid can be easily peel off the thermoformed tray by the consumer and Food items can be taken out of. Then reclosed and no more thrown in the trash, the packaging start a new life.

Bostik's innovation strategy is focused on developing new solutions and processes which meet societal and market expectations for more sustainable development.

Contact

ABOUT BOSTIK

Bostik is a leading global adhesive specialist in industrial manufacturing, construction and consumer markets. For more than a century, we have been developing innovative adhesive solutions that are smarter and more adaptive to the forces that shape our daily lives. From cradle to grave, from home to office, Bostik's smart adhesives can be found everywhere. With 2013 sales of 1.6 € billion, the company employs 4,972 people and has a presence in more than 50 countries.



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SMART HELP

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