No liner – No waste

Linerless labels with TEGO® RC Silicones

EVONIK
POWER TO CREATE

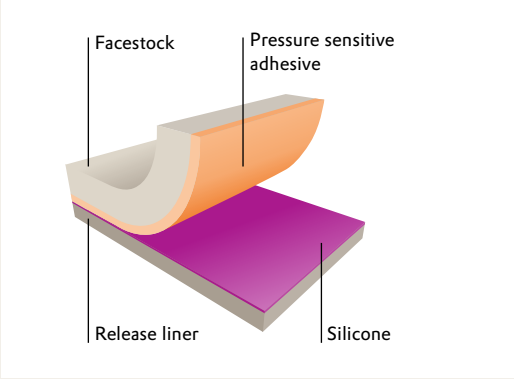
NO LINER – NO WASTE

LINERLESS LABELS WITH TEGO® RC SILICONES

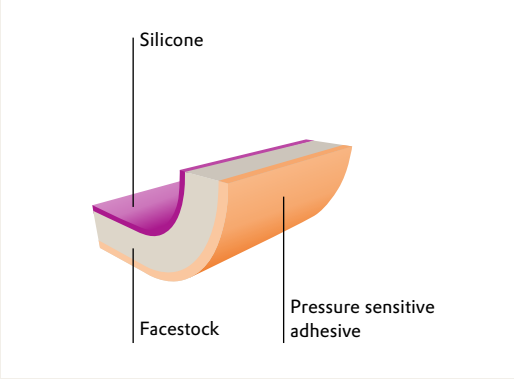
Labels play an important role in today's economy. The global production of pressure sensitive labels is approximately 25 billion square meters and is expected grow with more than 4–5% a year. A standard pressure sensitive label consists of a silicone coated release liner, an adhesive and the face-stock. The release liner allows for a high speed and high precision label application process. But let´s face it, the release liner has two important disadvantages – it adds to costs and becomes waste after label dispensing. The annual consumption of release liner is estimated to be greater than 1.000 kt. The majority of this is going into landfills. Reusing and recycling the release liner only apply for a minor portion.

This cannot be the answer to the requirements today for sustainability, preservation of natural resources, energy efficiency and waste prevention standards.

LABELS WITHOUT A RELEASE LINER – THE CONCEPT OF LINERLESS



TRADITIONAL PRESSURE SENSITIVE LAMINATE
Today pressure sensitive labels consist of a silicone coated release liner, an adhesive and the facestock. After the label has been applied, the release liner becomes waste.



THE LINERLESS CONCEPT – NO WASTE
The idea is simple, get rid of the release liner and get the release by coating Evonik UV silicones on the printed face-stock. This simple idea offers significant advantages:

- No release liner waste
- No release liner cost
- More labels per roll
- Less transportation costs
- Less storage space needed
- Less downtime in label production

Linerless pressure-sensitive labels have been around for many years and yet, only in recent time this technology has been gaining importance and therefore is rapidly growing. Costs and sustain-ability are well addressed. Progress and new developments on materials and equipment to print and apply these labels facilitate the application. Various concepts on the market offer solutions to different labeling requirements. Linerless labels are especially suitable for thermal labels and wrap around labels. Also prime labels can be produced linerless. Many good reasons for the increasing interests in linerless labels.

The label industry is ready for the next step – get rid of the release liner.
No liner, no waste.

Linerless wrap-around labels

Linerless thermal print label

Linerless prime label

TEGO® RC FOR LINERLESS LABELS

The very robust free radical curing mechanism of TEGO® RC Silicones can be a key for linerless label applications on a wide variety of filmic or paper surfaces. Since the silicone curing is completed in fractions of a second, adhesive can be applied inline on one coating line.

TEGO® RC advanced curing technology allows film and paper labels to be siliconized on top of the print, no interference with the substrate and printing. The reverse side of the label is coated with adhesive and the label is rolled up without a liner, just like a tape.

The TEGO® RC portfolio includes products specially dedicated to linerless label applications. By adding TEGO® RC 1772 to the TEGO® RC Silicone formulation excellent release properties can be achieved. At the same time contamination of printing head and cutting tools is prevented.

Newly developed TEGO® RC 1717 provides optimized barrier properties which allows the use of economical thermal paper grades which come without a top coat.

THERMAL LABELS

Variable Information Print (VIP) thermal labels represent the majority of pressure sensitive labels. They are an excellent example to apply the linerless label concept. Standard VIP thermal labels can be easily adapted to liner free labels. The release coating is applied on top of the thermal sensitive facestock, the adhesive is coated on the backside when the label is wound on itself like a tape. The thermal printing of the image appears underneath the translucent silicone coating. Especially suitable for labels used in weigh scale systems, transportation, warehousing, point of sale solutions and business form applications the linerless label concept shows highest growth as many advantages are apparent.

CHARACTERISTICS AND ADVANTAGES

- Up to 40% less material costs
- Variable label size
- More labels on a reel
- Savings in handling, transportation and application
- Silicone coating protects against grease stains
- Premium surface feel and look
- Improved resistance against scratches and abrasion
- High accurate scan read rates

WRAP/SLEEVE LABELS

For this kind of application, the label performs as a brand promoter and provider of functional details. This technology is mainly represented by carton board sleeve labels. Pre-printed (one and two side print labels with pattern/stripe coating of silicone and adhesive are ideal for packaging of fresh food (poultry, meat, fish, deserts). In-line variable data can be added with laser print during the dispensing process on the container. Only little change-over waste is produced.

CHARACTERISTICS AND ADVANTAGES

- Printed paper or film for the label face
- For decorative and informational printing
- Pattern coating of silicone and adhesive possible
- Produced as a linerless roll label
- Label is cut on a special dispensing tool
- Variable information printing prior to dispensing possible
- Different label formats (top, one/two sided/C-wraps) are possible

PRIME LABELS

Recent advances in technology and equipment helped to broaden the opportunities for linerless technology even for prime labels for packaging containers and for consumer products. In standard prime labels the release liner plays an important role in the production for both hand applied and automatically dispensed labels, i. e. for die cutting or during the dispensing.

In the production of prime linerless labes a process liner is laminated to allow for die cutting and removal of the matrix. Separation of single labels can be also achieved through a laser perforation step. After dispensing the labels with a standard label dispenser, the process liner is rewound and can be reused multiple times before being recycled.

CHARACTERISTICS AND ADVANTAGES

- Applicable for, but not restricted to rectangular shaped labels
- For decorative and informational printing
- Labels to be separated by cutting tool or via perforation
- Die cutting and dispensing through reusable process liner
- In case of microperforated labels no process liner for dispensing is needed
- Full in-line label finishing
- Laser printing of variable information prior to dispensing possible

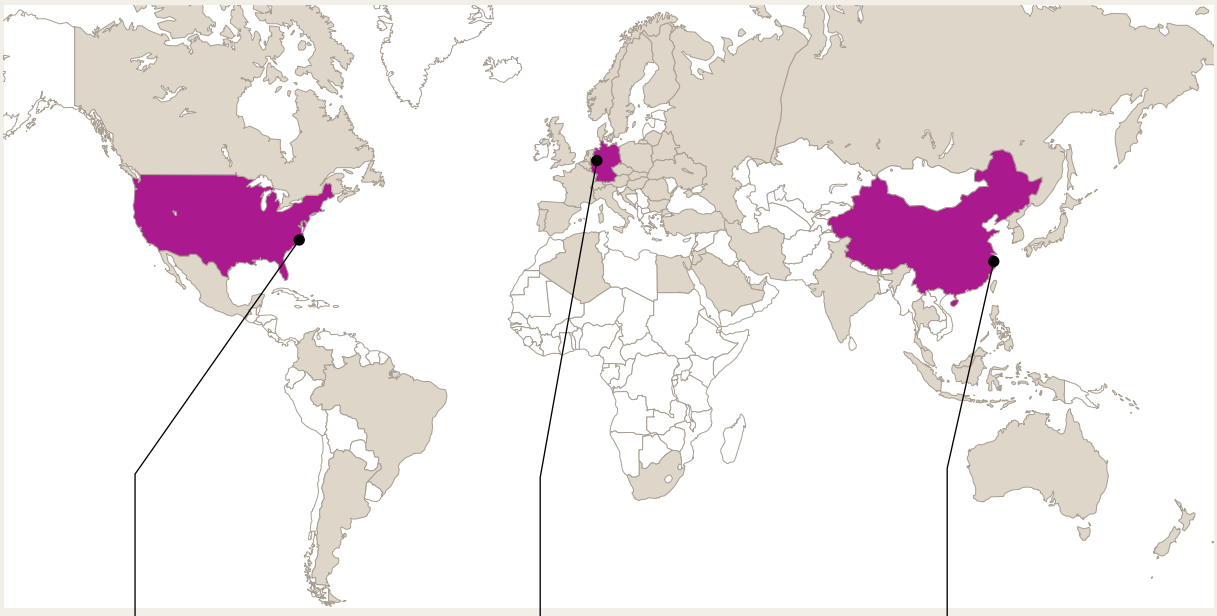
TEGO® RC SILICONES STAND FOR FACE-TO-FACE PERFORMANCE

With Evonik's multiple global locations of pilot lines and laboratory testing facilities we assist your developments and specific formulations. Our team offers close consultation to enter the innovative world of linerless labels.

OUR GLOBAL RC-SILICONE TEAM WILL ASSIST WITH

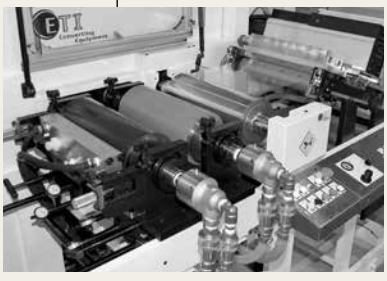
- Training and assistance in application & processing of the TEGO® RC Silicones coating
- Technical service during start-up phase and on-going production
- Utilize our wide network of contacts to equipment and machine suppliers
- Innovative developments for future challenges
- Long-term relationships based on trust

More information can be found on the global web page: www.evonik.com/tego-rc



Richmond, VA USA
- FAUSTEL 3 roll offset gravure coater
- ELTOSCH inerted UV unit with 2 x 160 W/cm UV lamps
- Web width 610 mm
- Substrate on 3" or 6" core
- Line speed: 25-250 m/min

Essen, Germany
- COATEMA 5-roll-smooth coater
- In-line silicone and adhesive coating (dispersion or hotmelt)
- IST/HOENLE inerted UV units for silicone and hotmelt curing with 1 x 200 W/cm UV lamp each
- Web width 500mm
- Substrate on 3" or 6" core
- Line speed: 20-100 m/min



Shanghai, China
- ETI 3 roll offset gravure coating line
- ETI inerted UV unit with 160 W/cm UV lamp
- Web width 336 mm
- Substrate on 3" core
- Line speed: 150 m/min

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