

TEGO® RC Silicones

Tailor-made Release Coatings for Labels



TEGO® RC SILICONES

HIGHLY FUNCTIONAL RELEASE COATING FOR ALL KINDS OF PRESSURE SENSITIVE ADHESIVE (PSA) LABELS.

Everyday we have multiple label experiences as labels play an important role in our lives and in today's economy. PSA labels range from the simple logistic label to decorative labels with highly aesthetic appeal. It is no surprise that the global production of pressure sensitive labels exceeded 25 billion square meters with on-going growth pace of approximately 5% annually. A several micron thin silicone coating turns a paper or filmic material into a release

liner. TEGO® RC Silicones can be applied on all kinds of material including biodegradable polymer films and metal films, as the technology is widely applicable. There is no stress to the substrate involved as no heat for curing is needed. While today a standard pressure sensitive label consists of a silicone coated release liner, an adhesive and a facestock, new innovative solutions are available which do not need a liner any longer. Linerless labels have the

reverse side of the label adhesive coated and the silicone coated on the top face; the label is rolled up without a liner, just like a tape. Linerless labels are not only a contribution to our environment, but also help to save costs as less material is used. Evonik UV radical curing silicones offer many advantages for the production and application of label products, both with or without liner.

SUSTAINABLE LABEL SOLUTIONS

A RELIABLE RELEASE COATING IS KEY FOR THE EFFICIENT PROCESSING AND PERFORMANCE OF PSA LABELS WITH REDUCED MATERIALS

Evonik TEGO® RC Silicones offer many advantages for the production and application of label products, both with or without liner. Due to energy efficient UV technology, **curing of the release coating takes place at room temperature.** This means no stress to the substrate allowing for the use of all manner of heat sensitive materials, like thin filmic liners or thermal papers. Paper substrates maintain their humidity to ensure excellent lay-flat behavior.

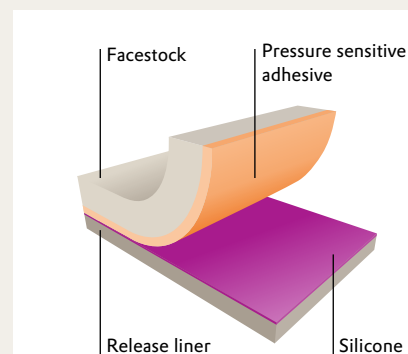
The free radical UV **curing mechanism is very robust and offers high quality and reliability.** TEGO® RC Silicones can be used on a wide variety of filmic or paper surfaces including recycled materials, bio-based films and printed substrates. Since the silicone curing is completed in fractions of a second, post curing effects are at a minimum and adhesives can be applied inline on one coating line.

The label industry is driven by different trends: Cost saving and sustainability led to label constructions with reduced material use. Individualization generates the need for more customized products paving the way for narrow web in-house siliconizing. Compact UV technology is widely used with these machines, as investment and needed space is limited. TEGO® RC offers user-friendly products easing storage and handling.

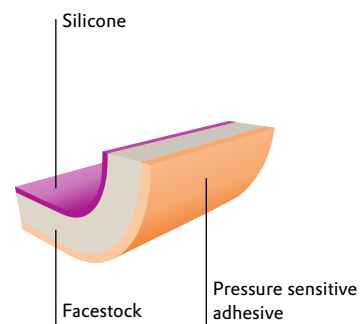
STANDARD LABELS

Designing a label sets different requirements on the release coating as this is key to ensure robust production process and application of the labels. The release force is important, which typically was in the range of medium to easy. However with reducing material, labels are getting thinner. Thinner label faces are prone to be more fragile and demand for even lower release proper-

ties for matrix stripping after die cutting. In addition, the reduced stiffness of the facestock requires premium release forces for a safe automatic label dispensing. TEGO® RC Silicones provide premium release to ensure safe high speed converting and label application, especially for automatic label dispensing. In addition, they are compatible with a broad range of adhesive types.



Pressure sensitive label laminate



Pressure sensitive linerless label



Matrix stripping

TEGO® RC – IT'S EASY TO LIFT OFF



A premium release level is important for paper liners to guarantee the label performance even at storage under higher humidity. Existing silicones often offer premium release at the expense of the curing degree.

Sufficient curing of the silicone coating is important to ensure tack and adhesion of the label even in a wide range of temperature over the lifetime of a label.

Evonik TEGO® RC Silicones offer solutions to all kinds of performance parameters needed in the final label applications. An overview is provided in the product table. For more information, please consult with our experts.

BENEFITS OF THE LINERLESS CONCEPT

- Saving of material cost
- No waste
- Lower disposal cost
- Less machine stops due to less roll changes in the manufacturing process
- Cost savings in shipping and storage
- Lower handling costs due to less roll changes in the application

LINERLESS LABELS

More than 30% of the weight of traditional labels are the release liner and end up as waste. A consequent way to increase the sustainability of labels is to get rid of the liner. This is realized with the linerless concept: The label face is siliconized, the reverse side is adhesive

coated and the label is rolled up without a liner, just like a tape. There are cost savings due to less use of material and more labels on a reel. In total, costs for production of linerless labels are estimated to be 14% lower than for standard labels.

Linerless labels are especially suited for direct thermal labels and wrap around labels. Also, prime labels can be produced linerless: Direct thermal linerless technology is widely used in retail and hand applied logistic labels.

LINERLESS DIRECT THERMAL LABELS

The thermal sensitive paper is siliconized with a UV curing silicone. The variable information print is applied through the silicone layer to the thermal paper.



For hand held printers in logistic application.



For print and apply in retail.

LINERLESS WRAP AROUND LABELS

For groceries: The label has adhesive stripes coated only and silicone stripes on the top side. This label concept is gaining popularity for tray and skin packed food.



LINERLESS LABEL FOR PRIME LABELS

A more advanced linerless label concept involves micro perforation for easy label cutting on the dispenser. Suitable machinery can be retrofitted to most label application lines.





**TEGO® RC –
FACE TO FACE
PROTECTION**

Labelling of postal packages with variable information print (VIP) is a fast and automated process with high demand on reliability for print and apply. The VIP printing has to be accurate to guarantee barcode readability. In addition, this process requires cost competitive and globally available materials. Logistic labels are still a domain of thermal top coated laminates. However, innovative linerless solutions now meet the techni-

cal requirements of this application. Very compact dispensers with innovative cutting tools are available in the market and offer consistent dispensing processes for linerless labels. Existing linerless labels in retail and hand applied logistic applications are mainly based on premium top coated thermal papers. Eco grade thermal papers as an economic alternative were not appropriate due to the lack of bar-

rier properties. Novel Evonik TEGO® RC Silicones offer not only **protection against migrating substances** but also provide **stable release over time**. In combination with suitable non top-coated thermal papers, they offer a **cost competitive** solution, ensure **accurate direct thermal printing** and a large potential for **avoiding liner waste**.

GENERAL INFORMATION

TEGO® RC Silicones are one-hundred percent active materials as they are solvent free. TEGO® RC silicone release coatings consist of a release component, anchorage component and a photoinitiator. By changing the ratio of the individual components, the release values can be adjusted. In addition, one component systems are available offering a convenient handling as no up-

front blending is required. Eliminating this step in the process avoids the risk of impacting the quality. All TEGO® RC Silicones are suited for high speed coating, in-line processes, lamination, and slitting operations. For more information, please consult with our experts.

HEALTH & SAFETY

As required by labelstock manufactur-

ers, many of our products have food contact approval (ISEGA, FDA/ FCN) when formulated as specified.

With Evonik's global locations of pilot lines and laboratory testing facilities, we assist your developments and specific formulations. Our team offers close consultation to optimize the release force and other attributes for your specific needs.

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

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

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