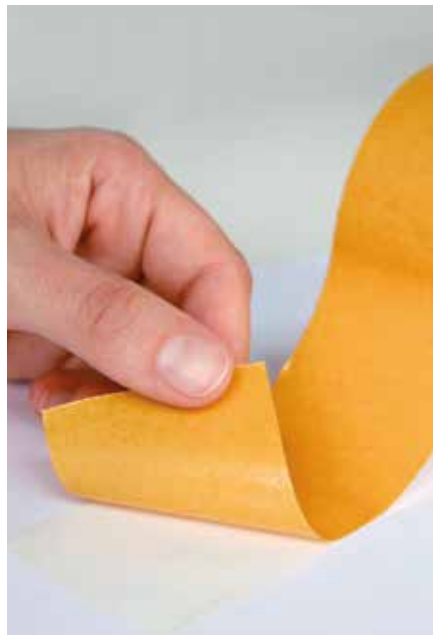


TEGO[®] RC Silicones

It's all about knowing when to let go





Pressure sensitive labels and tapes are the most important applications for release liners.

Technology Advantages of TEGO® RC Silicones

Our TEGO® RC Silicones generate new business opportunities. The cold cure allows for the use of heat-sensitive substrates. Film thickness of PE, PP or PVC films can be minimized to reduce cost. Paper substrates do not need to be re-moisturized and show absolute lay-flat performance. The very fast cure makes it possible to use TEGO® RC Silicones in inline processes together with adhesive coating.

It also makes very high line speeds possible. UV curing equipment is very compact, making it possible to retrofit existing coating and converting lines with siliconizing capabilities. Compared to traditional thermal ovens, UV curing equipment also saves money, space and energy.

TEGO® RC Silicones are suitable for release liners for all applications. Typical

fields of application are self-adhesive labels, graphic arts, tapes and hygienic products. Unusual substrates enable the manufacturing of new products and make TEGO® RC Silicones superior for many applications. Together with our customers, we will work to select the appropriate silicone technology and product formulation, either free radical curing silicone acrylates or cationic curing epoxy silicones.

Product Groups

The two UV curable silicone release systems offered by us are both solventless and produce release coatings without the use of heat, but differ in their underlying chemistries. Standard medium pressure

mercury UV lamps (arc lamps) or microwave engaged UV lamps (as used in normal UV printing and coating processes) can be used to cure both types of silicones. Our silicones are commonly applied by 3-roll,

5-roll or offset gravure coater heads, but also printing techniques such as flexo and direct gravure coating can be used. For good anchorage, especially to filmic substrates, in-line corona treatment is required.

Silicone acrylate components for standard applications

Product	Description
TEGO® RC 711	Tight release silicone and anchorage component. All RC silicone acrylates require the use of 30 % TEGO® RC 711 to ensure proper anchorage.
TEGO® RC 722	Anchorage component for better rub off performance and premium release in combination with TEGO® RC 922.
TEGO® RC 902	Easy release silicone. Suitable for most applications.
TEGO® Photoinitiator A 18	Proprietary photoinitiator especially designed for TEGO® RC Silicones. All RC silicone acrylates require the use of 2 % Photoinitiator A 18 to ensure fast and complete curing.

Silicone acrylate components to customize release coatings

Product	Description
TEGO® RC 922	Premium release silicone with low initial spike.
TEGO® RC 715	Controlled release silicone. Suitable for most applications.
TEGO® RC 719	Controlled release silicone with low extractables. Provides controlled release with low zip.
TEGO® RC 709	Tight release silicone. Provides tight release with low zip for differential release in high stripping speed applications.

Complementing our standard product range, we offer several components that allow you to adapt the silicone formulation to your specific needs.

Ready-for-use compounds (1-Component systems)

Product	Description
TEGO® RC 1002	Easy release RPS (Reduced Penetration Silicone). Lowers coat weight on porous substrates by counterbalancing the absorption of silicone.
TEGO® RC 702	1-Component silicone with easy release properties. This product needs no stirring before use.
TEGO® RC 1772	Controlled release compound for matte surfaces and soft-touch texture. Can be used as an additive to achieve reduced CoF-values.

We also offer a selection of ready-for-use compounds, where the anchorage component and the photoinitiator are already contained.

Epoxy silicone components for standard applications

Product	Description
TEGO® RC 1401	Premium release silicone. Suitable for most applications.
TEGO® RC 1403*	Easy release silicone. Suitable for most applications.
TEGO® RC 1412	Tight release silicone. Provides high release values for special applications.
TEGO® PC 1467	Photocompound especially designed for TEGO® RC Silicones. All RC epoxy silicones require the use of 1-3 % TEGO® PC 1467 to ensure fast and complete curing.

* Note: RC 1403 is not available in the Americas

Test Facilities

Today, the Evonik RC Silicone technology is widely recognized in the PSA market and enjoys a market leadership position. This is driven by our extensive practical experience and the extraordinary service offered to our customers through our global organization. An integral part of this service is the global availability of mobile UV equipment and fully equipped Technical Centers.

Essen Pilot Line

In addition to UV siliconizing (with or without inerting), the pilot line in Essen, Germany is also capable of in-line adhesive coating (dispersion, hot melt or UV hot melt adhesives). This makes the line a viable tool for product development and pre-production trials. The pilot line offers a working width of 500 mm at a line speed of 20-100 m/min.

Richmond, VA Pilot Line

In the US our Technical Center in Richmond, Virginia offers a 3-roll offset coater with an enclosed doctorblade applicator, in-line corona treatment and a nitrogen inerted UV station. This 610 mm wide line is capable of running 250 m/min.

Shanghai Pilot Line

Our Technical Center in Shanghai, China is equipped with a pilot line that allows for inerted or non-inerted UV-siliconizing with in-line corona treatment. The silicone is applied with a gravure roll with a working width of 336 mm. The maximum line speed is 150 m/min.



Essen Technical Center



Richmond Pilot Line



Shanghai Pilot Line



Evonik Corporation, USA recognizes the importance of environmental issues to our customers, and is proud to be a certified member of the TLMi L.I.F.E.® program since 2015.

Silicone Acrylates (Free Radical Curing)

The curing mechanism of silicone acrylates is very robust and unaffected by impurities in the substrates. The free radical curing reaction requires nitrogen inerting during UV exposure. Inerting is the exclusion of oxygen from the surface of the substrate and the area under the UV source. In practical terms, it means introducing nitrogen into a specially designed curing chamber. The proportion of oxygen remaining on the surface of the substrate as well as at any

place in the inerted chamber should not exceed 50 ppm.

The current generation of TEGO® RC silicone acrylates covers the whole range of release levels (premium/easy/controlled/tight release applications). This is based on a complete system of various silicone acrylate components which can be mixed with each other to adapt the release characteristic to a specific application.

Benefits of free radical curing

- Unlimited choice of silicone base papers (SCK, Glassine, CCK and PEK)
- Use of alternative low cost papers (printing, label face, magazine papers)
- All filmic substrates (even colored films, PVC)
- Siliconizing of printed surfaces, thermal papers, office papers, aluminum foils
- Extremely fast cure without post-curing

Epoxy Silicones (Cationic Curing)

Also for our cationic curing TEGO® RC epoxy silicones, we provide a complete system of silicone components and a photocalyst. The cationic curing silicone epoxies cure in the presence of a cationic

photocalyst. Substrates, especially papers, must be checked for impurities that might affect the cure. Oxygen does not disturb the reaction, so there is no need for inerting with nitrogen.

Benefits of cationic curing

- No nitrogen inerting required
- Very simple UV curing units
- Low extractables

Applications and Substrates

Applications where TEGO® RC Silicones are superior

- ▶ Diaper Tapes
- ▶ Electronics
- ▶ Envelopes
- ▶ Insulation Tapes
- ▶ Business Form Labels
- ▶ Layflat Labels
- ▶ Linerless (Thermal) Labels
- ▶ Protective Films
- ▶ Sanitary Napkins
- ▶ Security Tapes

Unlimited substrates enable new products

- ▶ Aluminum & Foils
- ▶ Foams
- ▶ Non-Woven & Textiles
- ▶ Office Papers
- ▶ Printed Surfaces
- ▶ PVC
- ▶ Recycled Materials
- ▶ Renewable Films
- ▶ Thermal Papers
- ▶ Thinnest Films

www.evonik.com/tego-rc



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