

## UV Lab-Line (Essen/Germany)

### Test Facility

For more than 15 years now our pilot facility has helped interested companies to gain experience with Goldschmidt RC Silicones. Today, not only is the 4<sup>th</sup> generation of TEGO® RC products already available for the market, but our UV unit and the inerting design have also undergone constant improvement. Our Essen pilot facility helps to share our experiences with interested parties.



#### **The Coater**

Our pilot facility is equipped with a 5-roll-coater from Polytype (CH). The line speed can be varied between 10 and 30 m/min., but the standard speed is 20 m/min. Although the normal coating width is 14.5 cm, an alternative coating roll with 11.0 cm width can be installed. The application of a print block enables the coating of stripes, geometric forms or texts on a coating width of max. 17.5 cm depending on the substrate width.

#### **Coat weights**

The 5-roll-coater allows for low coat weights of 0.5 up to 3.0 g/m<sup>2</sup>.

#### **Corona pre-treatment**

The corona pre-treatment (necessary for good adhesion of the silicone to the substrate) is applied in-line with a corona treater.

#### **Necessary roll dimensions**

Standard substrate width is 15.0 cm but other widths are possible (min. 11.5 cm; max. 18.0 cm). A minimum roll length of 150 m is required and the outer diameter of rolls shall not exceed 45.0 cm. If requested, we can also silicone coat substrate sheets.

#### **The UV unit**

The UV unit the most important part of our Technicum. As is well known TEGO® RC Silicones are sensitive to the oxygen in the air. Therefore, curing must take place in an inertable UV unit. Nitrogen is used for the inerting (supplied with a max. oxygen content of < 10 ppm). During the curing process, the oxygen content in the curing chamber is monitored with an oxygen analyser.

For special test purposes we sometimes also feed oxygen into the nitrogen stream (50 ppm, 200 ppm or more). This allows us to simulate poor nitrogen quality. We can also determine the maximum oxygen allowance for proper curing of our TEGO® RC Silicones.

For the UV curing process, two types of UV lamps are available. They can be used interchangeably:

- Fusion F 300 UV microwave lamp (120 W/cm), working width is 15 cm
- IST UV conventional arc lamp (120 W/cm), working width is 20 cm. Focussed or non-focussed reflectors are available. The lamp power can be adjusted from 40 – 100 %.

The distance from the lamp to the substrate can be changed (+15, 30 or 45 cm). We can, at the same time, by means of masks with different slot sizes, reduce the effective lamp power reaching the substrate. This helps us to simulate higher web speeds of up to 300 m/min.

### Hot Melt application and rewind

Besides the UV curing station, our lab unit has an adhesive coating equipment available for the application of hot melt, hot melt pressure sensitive adhesives or other meltable compounds.

The application may be done in- or off-line. During inline, the adhesive is applied to the siliconised side of the substrate (paper or film). A non-siliconised substrate is then laminated onto the adhesive coated side subsequently. By means of a turn bar the adhesive can also be applied to the non-siliconised side of the substrate.

Line speed possible with the Hot Melt coating equipment	10 – 20 m/min.
Coating method:	Slot nozzle over a chill roll
Min. coat weight	15 g/m <sup>2</sup>
Max. coat weight	50 g/m <sup>2</sup>
Coating width*	13 cm

\*The standard coating width of 13 cm can be adjusted to smaller widths or stripes in web direction, too.

Essen, March 2003, Version 08-2005

---

This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.  
(Status: April 2012)

Evonik Nutrition & Care GmbH Goldschmidtstr. 100 45127 Essen Germany

PHONE EUROPE +49 201 173 2711

PHONE ASIA +86 21 61191 125

PHONE AMERICAS +1 804 541 8658

Interface-performance@evonik.com | [www.evonik.com/interface-performance](http://www.evonik.com/interface-performance) | [www.evonik.com/tego-rc](http://www.evonik.com/tego-rc)

