

**Test report no.:** 107854/13-II

**Client:** Climagrün Srl  
Via della Vigna 43  
39100 Bolzano (BZ)  
ITALY

**Order:** Determination of the water flow capacity in the plane following  
EN ISO 12958 on the drainage mortar "LECADRAIN"

**Letter of:** 2013-09-19 **Ref.:** Anita Tschigg  
**Sample received:** 2013-09-13 **Sample taken:** -  
**Test period:** 2013-09-25 till 2013-09-26

**This test report comprises 3 pages.**

**Würzburg, 2013-11-20**  
Sam/mo

i. V.

Dr. Anton Zahn



i. A.

M.Sc. Sashikiran Reddy Sama

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## 1 Order

The company Climagrün Srl, Via della Vigna 43, 39100 Bolzano (BZ), Italy, ordered the SKZ – TeConA GmbH with letter dated 2013-09-19 with the determination of water flow capacity in the plane following EN ISO 12958 on the drainage mortar "LECADRAIN".

## 2 Test material

On 2013-09-13 SKZ – TeConA GmbH received the following samples for testing:

- four specimens of the drainage mortar "LECADRAIN", grey coloured  
sample size: 400 mm by 200 mm (length by width)
- a section of filter geotextile  
sample size: 1.8 m by 2.0 m

SKZ – TeConA GmbH had no influence on the selection of the test material.

## 3 Execution of test

Usually we carry out tests according to standards for which we have an accreditation. The list of all standards for which we are accredited is shown on the homepage at [www.skz.de](http://www.skz.de).

The determination of water flow capacity in the plane was carried out following EN ISO 12958 : 2010-04 "Geotextiles and geotextile-related products – Determination of water flow capacity in their plane".

The following test parameters have been submitted:

|                              |                                                                   |
|------------------------------|-------------------------------------------------------------------|
| Test device:                 | Draintester (BT Technology)                                       |
| Number of specimens:         | 3                                                                 |
| Flow direction:              | along the length                                                  |
| Bedding condition:           | filter geotextile + foam plate (top side),<br>rigid (bottom side) |
| Hydraulic gradient:          | $i = 0.02; 0.04; 0.08$                                            |
| Normal stress:               | $\sigma = 200 \text{ kPa}$                                        |
| Water temperature:           | $18 - 22 \text{ }^{\circ}\text{C}$                                |
| Type of water:               | de-aerated, de-mineralised, filtrated                             |
| Specimen preparation:        | minimum 12 h storage under water using a<br>wetting agent         |
| Method:                      | constant water head                                               |
| Pre-loading before the test: | 6 min                                                             |

#### 4 Test results

The test results are summarised in table 1.

**Table 1:** Water flow capacity; drainage mortar "LECADRAIN"

| Characteristic                                                                                                                                                        | Test method               | Unit                                 | Result<br>$\bar{x}$          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------|------------------------------|
| Water flow capacity $q_{20}$<br>$\sigma = 200 \text{ kPa}$ , with filter GTX, soft/rigid, $20 \text{ }^{\circ}\text{C}$<br><br>$i = 0.02$<br>$i = 0.04$<br>$i = 0.08$ | EN ISO 12958 :<br>2010-04 | $\text{l}/(\text{m} \cdot \text{s})$ | <br><br>0.10<br>0.17<br>0.26 |

$\bar{x}$  = arithmetic mean value

**Test report no.:** 107854/13-I

**Client:** Climagrün Srl  
Via della Vigna 43  
39100 Bolzano (BZ)  
ITALY

**Order:** Determination of short-term compression behaviour following  
EN ISO 25619-2 on the drainage mortar "LECADRAIN"

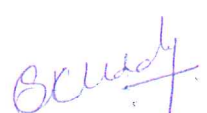
**Letter of:** 2013-09-19 **Ref.:** Anita Tschigg  
**Sample received:** 2013-09-24 **Sample taken:** -  
**Test period:** 2013-10-07 till 2013-10-10

**This test report comprises 3 pages.**

**Würzburg, 2013-11-20**  
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Deutscher  
Akkreditierungs  
Rat  
DAP-PL-3978.00  
DGA-IS-2005.00

## 1 Order

The company Climagrün Srl, Via della Vigna 43, 39100 Bolzano (BZ), Italy, ordered the SKZ – TeConA GmbH with letter dated 2013-09-19 with the determination of short-term compression behaviour following EN ISO 25619-2 on the drainage mortar "LECADRAIN".

## 2 Test material

On 2013-09-24 SKZ – TeConA GmbH received the following sample for testing:

- six specimens of the drainage mortar "LECADRAIN", grey coloured  
sample size: 100 mm by 100 mm

SKZ – TeConA GmbH had no influence on the selection of the test material.

## 3 Execution of test

Usually we carry out tests according to standards for which we have an accreditation. The list of all standards for which we are accredited is shown on the homepage at [www.skz.de](http://www.skz.de).

If not otherwise mentioned, the tests were carried out in standard atmosphere 23/50 according to EN ISO 291 : 2008-05, class 1 after a minimum of 72 hours storage in this atmosphere.

The determination of short-term compression behaviour was carried out following EN ISO 25619-2 : 2008-12 "Geosynthetics - Determination of compression behaviour - Part 2: Determination of short-term compression behaviour".

The following test parameters have been submitted:

Testing machine: Zwick 1465  
 Specimen size: 100 mm by 100 mm (Figure 1)  
 Number of specimens: 5  
 Testing speed: 0.1·d<sub>i</sub>/min (± 25 %) (d<sub>i</sub>: initial thickness of specimen)  
 Pre-load: 5 kPa  
 Displacement measurement: cross head position transducer

#### 4 Test results

The test results are summarised in table 1.

**Table 1:** Short-term compression behaviour; drainage mortar "LECADRAIN"

| Characteristics                 | Test method                 | Unit | Result<br>$\bar{x}$ | v     |
|---------------------------------|-----------------------------|------|---------------------|-------|
| Short-term compressive strength | EN ISO 25619-2 :<br>2008-12 | kPa  | 1706                | 9.9%  |
| Compressive strain              |                             | %    | 10.9                | 26.8% |

$\bar{x}$  = arithmetic mean value, v = coefficient of variation



**Figure 1:** Test specimen; drainage mortar "LECADRAIN"