

## Certificate Of Analysis

Plasthill B.V.  
Attn. Mr. E. Schuitemaker  
Weerlaan 13  
2181 HG HILLEGOM

Date : 19 November 2015  
Subject : Testing of membrane for CE according to NEN-EN 13984 phase 2  
Your Code : Offer confirm BO20150632 confirmed on 10-11-2015  
Laboratory Number : 153168  
Sampling : Samples have been taken on 06-11-2015 at Hillegom, NL by E. Schuitemaker, Plasthill BV  
Period of Investigation : 09/11/2015 until 19/11/2015

### Sample Data

Sample No	Sample Type	Sample Code	Date of Acceptance
1	LDPE	LDPE Dampfbremsfolie 200mu monolayer	09/11/2015

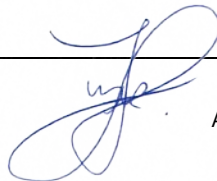
### Methods

Analysis	Technique	Method	Q	s
Determination of water vapour transmission	Pressure	NEN-EN 1931 method B		
Watertightness (Method A)	Pressure	EN 1928	Q	

Q = accredited by RvA and performed as Notifiedbody NB1939, s = subcontracted, Qs = subcontractor accredited by RvA

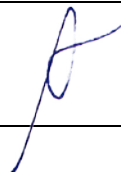
Author:

ir. B. Hendriks  
projectmanager



Authorisation:

ing. A. Meijs  
accountmanager



Page 1 of 2

## Results

### Determination of water vapour transmission

#### NEN-EN 1931 method B

Five test specimens are sealed to the open flange of a test cup containing a desiccant. The assemblies are then placed in an atmosphere with a controlled temperature (23°C) and humidity (75%). When mass take-up is linear over a period of time, the assembly is weighed periodically to determine the density of moisture flow rate through the test specimen into the desiccant.

**Remarks:**

	Unit	Individual Results					Mean	S.D.
Density of vapour flow rate (g)	kg/(m <sup>2</sup> ·s)	4.00·10 <sup>-9</sup>	3.72·10 <sup>-9</sup>	4.74·10 <sup>-9</sup>	4.65·10 <sup>-9</sup>	3.84·10 <sup>-9</sup>	<b>4.19·10<sup>-9</sup></b>	4.75·10 <sup>-10</sup>
Water vapour permeance (W)	kg/(m <sup>2</sup> ·s·Pa)	1.90·10 <sup>-12</sup>	1.76·10 <sup>-12</sup>	2.25·10 <sup>-12</sup>	2.21·10 <sup>-12</sup>	1.82·10 <sup>-12</sup>	<b>1.99·10<sup>-12</sup></b>	2.25·10 <sup>-13</sup>
Moisture resistance factor (μ)	-	529,283	568,330	433,023	467,793	538,877	<b>507,461</b>	55,414
Equiv. air layer thickness (S <sub>d</sub> )	m	104	112	88	89	108	<b>100</b>	11
Thickness (d)	mm	0,20	0,20	0,20	0,19	0,20	<b>0,20</b>	0

### Watertightness

#### NEN-EN 1928 method A

Three samples of Ø200±2mm are exposed to 2 kPa water pressure for 2 hours. After exposure the samples are visually inspected for leakage. Test conditions are 23±2°C.

**Remarks:**

**Water penetration resistance**

	Individual results			Result
Watertightness	passed	passed	passed	<b>passed</b>