Test report no. 2.1/14641/0286.0.1-2020e

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Project:	-
Factory:	-
Date of order	20.02.2020
Testrequest:	1. Determination of reaction to fire according to ETAG 022-2 (11.2010) 2. Determination of water vapour permeability according to ETAG 022-2 (11.2010) 3. Determination of water tightness according to ETAG 022-2 (11.2010) 4. Determination of resistance to temperature according to ETAG 022-2 (11.2010) 5. Determination of resistance to alkalinity according to DIN EN 1847 (04.2010)
Material:	Sealing tape (white) consisting of EVA copolymer film with PP / PE nonwoven fleece on the external faces and a extruded butyl adhesive tape [a)]**SAFEBAND**
Number of samples:	3 rolls
Sampling:	-
Sample delivery date:	16.03.2020, 14.10.2020
Test duration:	20.02.2020 – 13.01.2021

Greven, 13.01.2021

Kiwa GmbH

i.V. Dr.-Ing. Melanie Strutz
(deputy head of test laboratory)

i.A. Hendrik Lösing
(staff of test laboratory)

a) information by customer

1. Determination of reaction to fire

The sealing kit has been tested according to EN ISO 11925 -2 (07.2020) with a single-flame source test. The test was carried out by an external laboratory. Detailed test parameters are shown in the test report
PB-Hoch-201122 from 30.11.2020 and the classification report KB-Hoch-201123 from 30.11.2020

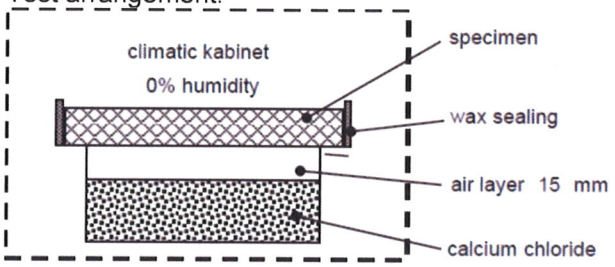
Result: Classification E according to EN 13501-1 (2018)

2. Determination of water vapour permeability

Test parameters:

Climatic parameter:	A
Temperature:	23°C
Humidity:	50 % / 0 %
Mean air pressure:	1014 hPa
Exposed specimen area:	0,005 m²
Number of specimens:	5 specimen
Duration:	The water vapour quantities which diffused the specimens until a steady state had been reached were determined, i.e. until a constant diffusion stream through the specimens had occured. A check was made by determining the empiric correlation coefficient r.

Test arrangement:



Results:

Tab.1: Test results water vapour permeability

Specimen No.	water vapour transmission stream per unit area g kg/(m²s)	water vapour transmission coefficient w_p kg/(m² s Pa)	water vapour transmission ratio μ –	thickness equivalent to water vapour transmission s_d m	mean thickness of specimen at 20 kPa d mm	mass per unit area - g/ m²
1	5,69E-08	4,06E-11	7098	4,80	0,676	289
2	4,12E-08	2,94E-11	9585	6,63	0,692	289
3	4,89E-08	3,49E-11	8257	5,58	0,676	290
4	4,21E-08	3,00E-11	9695	6,50	0,670	289
5	7,81E-08	5,59E-11	5103	3,49	0,684	289
Mean	**5,34E-08**	**3,82E-11**	**7947**	**5,40**	**0,680**	**289**
Standard deviation	**1,52E-08**	**1,09E-11**	**1913,5**	**1,300**	**0,0085**	**0,7**
Coefficient of variation in %	**28,4**	**28,5**	**24,1**	**24,1**	**1,3**	**0,2**

3. Determination of water tightness

Standard: DIN EN 1928 (07.2000), Procedure B
Test pressure: 150 kpa for 24h
Test procedure: The determination of water tightness was performed according to DIN EN 1928 procedure B. The specimens were exposed to water for 24h at a constant pressure of 150 kPa. The test is passed when all specimens are watertight after the exposure.
Test date: 22 September 2020/ 23 September 2020/ 24 September 2020

Result: All 3 specimens were watertight after exposure at 150 kPa for 24h.

4. Determination of resistance to temperature

Standard: DIN EN 12311-2 (11.2013); DIN EN 1296 (03.2001)
Number of samples: 5 x Safeband MD, per storage
5 x Safeband CMD, per storage

storage temperature storage: (70°C)
reference: % r.h.
test date:
test device: Zwick Z050

Remark: LE 60 mm instead of 120 mm due to the fact of a max. specimen width of 10 cm in CMD direction.

Results:

Tab.2: results of the reference samples

Sample no.	Reference MD		Reference CMD	
	Fm N	elongation %	Fm N	elongation %
1	383,19	45,24	356,15	67,10
2	367,81	42,97	366,65	68,78
3	36,50	39,60	356,11	69,07
4	377,49	39,62	361,76	66,67
5	354,49	39,64	367,78	65,50
mean	**370,44**	**41,41**	**361,69**	**67,42**
Standard deviation	**10,99**	**2,59**	**5,56**	**1,49**
Coeff. of var.[%]	**2,97**	**6,24**	**1,54**	**2,21**

Remark: LE 60 mm instead of 120 mm due to the fact of a max. specimen width of 10 cm in CMD direction.

Tab.3: results of the temperature storage

Sample no.	**temperature MD**		**temperature CMD**	
	Fm N	elongation %	Fm N	elongation %
1	325,97	31,84	287,33	59,47
2	318,62	34,47	269,68	49,68
3	351,06	35,63	282,83	53,63
4	327,09	32,87	267,62	55,17
5	329,25	36,04	271,59	57,80
mean	**330,40**	**34,17**	**275,8**	**55,15**
Standard deviation	**12,22**	**1,79**	**8,72**	**3,81**
Coeff. of var.[%]	**3,70**	**5,24**	**3,16**	**6,90**

The results relate to the fracture between nonwoven/membrane

5. Determination of resistance to alkalinity

Standard: DIN EN 12311-2 (11.2013);
DIN EN 1847 (04.2010) ,80°C storage in calcium hydroxid for 4 weeks
Samples: 5 x Safeband MD
5 x Safeband CMD
Storage: 19.08.2020 – 16.09.2020 Test date:
Test device: Zwick Z050

Remark: LE 60 mm instead of 120 mm due to the fact of a max. specimen width of 10 cm in CMD direction.

Tab. 4: Results of the resistance to alkalinity

Sample no.	**alkalinity MD**		**alkalinity CMD**	
	Fm N	elongation %	Fm N	elongation %
1	156,52	52,67	139,78	65,21
2	160,95	42,81	142,19	65,27
3	157,87	51,50	136,74	67,27
4	153,94	47,07	140,07	65,88
5	153,71	48,48	140,32	62,71
mean	**156,60**	**48,51**	**139,82**	**65,27**
Standard deviation	**3,00**	**3,90**	**1,96**	**1,65**
Coeff. of var.[%]	**1,91**	**8,04**	**1,40**	**2,53**