COVENANT

Covenant
K93792/04

Issued *2019-03-01*

Replaces *K73792/03*

Leadax

STATEMENT BY KIWA
With this Covenant, issued in accordance with the Kiwa Regulations for Certification, Kiwa declares that legitimate confidence exists that the products supplied by

Leadax B.V.

as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa Covenant manual K15013 dated 01-01-2016.

Ronald Karel
Kiwa

Publication of this certificate is allowed.
Advice: consult www.kiwa.nl in order to ensure that this certificate is still valid.

561/180711

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Leadax

1 Scope of the Kiwa Covenant

1.1 Definition of Leadax

Lead Free Flashing, made of recycled Polyvinylbutyral (PVB)

Specification nominal value:

Length:	6,0 m
Width:	15 - 100 cm
Thickness:	3,0 mm
Delivered:	on roll

Intended use of Leadax

- Leadax can be used as a water barrier in (cavity) walls and under casings;
- At the intersection between chimney bases and roof tiles;
- At chimney flashings to provide a water barrier;
- Leadax can be applied to the base of dormers and skylights as a waterproofing layer and at the joint between dormer side walls and tiled roofs;
- As a watertight connection between an outside wall and an extension. Use Leadax masonry clips to attach Leadax to masonry joints;
- Leadax can be used as valley gutters and waterproofing on the ridges of (tiled) roofs.

1.2 Assumed working life of the waterproofing system

The provisions and the verification and assessment methods included or referred to in this Kiwa Covenant have been written based upon the assumed working life of the waterproofing system for the intended use of at least the life expectance of waterproofing system of 30 years. These provisions are based upon the current state of the art and the available knowledge and experience.

"Assumed working life" means that, when an assessment following the Kiwa Covenant provisions is made, and when this working life has elapsed, the real working life may be, in normal use conditions, considerably longer without major degradation affecting the requirements.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee given by the product manufacturer or his representative or Kiwa Nederland B.V. issuing the Kiwa Covenant, but are regarded only as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

1.3 Circular aspects of this Kiwa Covenant

In chapter 4 a detailed review is given of the circular aspects of this material which leads to granting the Castor Gaea logo according to Kiwa's manual K15012.

2 Fitness for use

2.1 Meaning of 'fitness for use'

'Fitness for (the intended) use' of the flashing system means that the products have such characteristics that Leadax, when properly designed and built, satisfies the requirements of this Kiwa Covenant and is fit for its intended use and in this connection satisfies the requirements of this Kiwa Covenant, when properly installed.

2.2 Assessment of fitness for use

The relevant characteristics of the waterproofing system for its fitness for use (requirements) and the required verification methods to be employed are given in chapter 3, as well as the actual performed assessment of fitness for use and proven conformance to the relevant characteristics of the waterproofing system and its components.

3 Relevant characteristics of the waterproofing system, the required verification methods and the assessments of fitness for use

3.1 Dimensions

Characteristic	Verification Method	Assessment of the characteristic
Length	EN 1848-2	6,0 m
Width	EN 1848-2	15 – 100 cm
Thickness	EN 1849-2	3,0 mm
Mass / m2	EN 1849-2	3,85 kg/m^2
Visual defects	EN 1850-2	No visible defects
Dimensional stability	EN 1107-2	0,0 %

3.2 Reaction to fire

Characteristic	Verification Method	Assessment of the characteristic
Reaction to Fire	EN 13501-1+A1:2009	Class E

3.3 Functional properties

Characteristic	Verification Method	Assessment of the characteristic
Water tightness	EN 1928 - B	500 kPa
Water tightness of joints (Hot air)	EN 1928 - B	10 kPa
Water absorption	M.O.A.T 66	1,06 %
Water tightness (after 2400 hrs UVB test)	EN 1928 – B	500 kPa
(after 6000 hrs UVB test		60 kPa[1]
Water Vapour Transmission	EN 1931	Density moisture flow rate (g): 5,26.10^{-8} kg.m^{-2}.s^{-1} Moisture resistance factor (μ): 2360
Water Vapour Transmission after thermal ageing	EN 1296 + EN 1931	Density moisture flow rate (g): 5,20.10^{-8} kg.m^{-2}.s^{-1} Moisture resistance factor (μ): 2370

3.4 Mechanical properties

Characteristic	Verification Method	Assessment of the characteristic
Tensile properties:		
Maximum tensile force length direction	EN 12311-2	500 N/50 mm
Maximum tensile force width direction	EN 12311-2	1200 N/50 mm
Elongation at break length direction	EN 12311-2	80 %
Elongation at break width direction	EN 12311-2	15 %
Tear resistance length direction	EN 12310-1	400 N
Tear resistance width direction	EN 12310-1	400 N

[1] 60 kPa has been chosen as test parameter due to lack of sufficient amount of aged samples and doesn't represent the attainable limit of the pressure.

Static loading (method B)	EN 12730	20 kg
Impact resistance (method B)	EN 12691	2000 mm
Hail resistance (hard support)	EN 13583	44 $m.s^{-1}$
Resistance to peel (concrete)	M.O.A.T 66	162 N/50 mm
Resistance to peel (concrete) after thermal ageing at 80 °C, 12 weeks	M.O.A.T 66	143 N/50 mm
Low temperature foldability	EN 495-5	-70 ^{0}C
Low temperature foldability after thermal ageing at 80 °C, 12 weeks	EN 495-5	-70 ^{0}C
Low temperature foldability after 6000 hrs UVB ageing	EN 495-5	-20 ^{0}C

3.5 Raw materials

Raw materials are inspected upon arrival according to procedures laid down in ISO 9001:2015

3.6 Joint strength (Leadax Sealant)

Characteristic	**Verification Method**	**Assessment of the characteristic**
Peel resistance:		
Length direction	EN 12316-2	250 N/50mm
Width direction	EN 12316-2	250 N/50mm
Shear resistance:		
Length direction	EN 12317-2	500 N/50mm
Width direction	EN 12317-2	1200 N/50mm

3.7 Joint strength (Hot air)

Characteristic	**Verification Method**	**Assessment of the characteristic**
Peel resistance:		
Length direction	EN 12316-2	300 N/50mm
Width direction	EN 12316-2	400 N/50mm
Shear resistance:		
Length direction	EN 12317-2	500 N/50mm
Width direction	EN 12317-2	1200 N/50mm

3.8 Chemical resistance

Characteristic	**Verification Method**	**Assessment of the characteristic**
Chemical resistance to lime milk ($Ca(OH)_2$)	EN 1847	Pass

3.9 Compatibility

Characteristic	**Verification Method**	**Assessment of the characteristic**
Compatibility with bitumen	BRL 1511-1	Pass
Compatibility with PVC	BRL 1511-1	Pass

4 Circular Economy aspects

4.1 EPD

Leadax has ordered NIBE in the Netherlands to issue an environmental product declaration (EPD) according to EN 18504 in which a verification of a life cycle assessment is given[2]. Also a comparison is made to the standard product used for these applications (lead) in which the environmental advantage of Leadax is shown.[3]

4.2. Kiwa Castor Gaea

According to Kiwa's Castor Gaea manual K 15012, the product Leadax of Leadax b.v., was granted the use of therein named Kiwa Castor Gaea logo for its product after analyses and fulfilling the necessary points for the Circular Economy aspects. Especially the analyses concentrated on the above report for the EPD and LCA and also for the use of recycled components of Leadax.

5 Initial inspection and continuous surveillance by Kiwa

5.1 Initial inspection

During an initial inspection the IQC-scheme is audited, testing is witnessed and samples are taken for verification. Continuous surveillance will be performed two times a year, during which the process, the IQC-scheme is inspected.

5.2 Continuous surveillance

Test frequency

Characteristic	Method	Test frequency
Formulation used	Signed document	Once per visit
Length	EN 1848-2	once per batch
Width	EN 1848-2	once per batch
Thickness	EN 1849-2	once per batch
Mass / m^2	EN 1849-2	once per batch
Visual defects	EN 1850-2	once per batch
Chemical resistance (Lime milk)	EN 1847	once per 5 *) years
Low temperature foldability	EN 495-5	once per 5 years
Impact resistance	EN 12691	once per 5 years
Tensile strength	EN 12311-2	once per month
Elongation at break	EN 12311-2	once per month
Static loading	EN 12730	once per 5 years
Hail resistance	EN 13583	once per 5 *) years
Reaction to fire	EN 13501-1:2007+A1:2009	once per 5 *) years
Water tightness	EN 1928	once per 5 years
Peel resistance of joints	EN 12316-2	once per 5 *) years
Shear resistance of joints	EN 12317-2	once per 5 *) years
Peel resistance (concrete)	M.O.A.T 66	once per 5 *) years
Peel resistance (concrete) after thermal ageing	M.O.A.T 66	once per 5 *) years
Tear resistance	EN 12310-1	once per month

*) In case of unchanged materials and or unchanged production process the frequency may be expanded to 10 years.

[2] NIBE Research B.V. EPD-NIBE-20180730-2251 d.d. 1-10-2018
[3] NIBE 26-7-2018: Environmental comparison of leadax and lead based on a Life Cycle Analysis

6 Conditions under which the fitness for the intended use is assessed

6.1 Manufacture of the product

Leadax is produced from a combination of materials according to written specifications as documented in the formulation. The formulation is part of the IQC-scheme and of the audits performed by Kiwa.
The production facility is situated in Wapenveld, The Netherlands.
The product is produced in rolls:

- Nominal thickness 3 mm;
- Nominal length 6 m;
- Nominal width 15 – 100 cm;
- Each roll shall carry a batchnr.;
- Each roll shall carry the Kiwa word mark: Kiwa, the certificate number or the applicable logo.
- According to chapter 5 of manual K 15012 the Kiwa Castor Gaea logo may be applied

6.2 Application instruction

For current application instructions refer to the packaging.

6.3 Recommendations for customers

Check at the time of delivery whether:

- the supplier has delivered in accordance with the agreement;
- the mark and the marking method are correct;
- the products show no visible defects as a result of transport etc.

If you should reject a product on the basis of the above, please contact:
Leadax BV
and, if necessary,
Kiwa Nederland B.V.

Consult the supplier's processing guidelines for the proper storage and transport methods.