COVENANT

Covenant
K-0211919

Issued *2023-07-15*

Replaces

Construction blocks of 100%* recycled PVC

* to facilitate the production additives up to a maximum of 2% might be added

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

Green Recycling Company

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

Ron Scheepers
Kiwa

5617220615

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

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Preface

This Kiwa Covenant has been prepared by the Technical Committee for construction blocks of recycled plastic of Kiwa Nederland B.V. and accepted by the Kiwa Committee of Covenant (KCC). The KCC also supervises the certification activities and where necessary requires the Kiwa Covenant to be revised.

This Kiwa Covenant will be used by Kiwa in conjunction with the Kiwa-Regulations for Certification. This regulation details the method employed by Kiwa for conducting the necessary investigations prior to issuing the product certificate and the method of external control. The inspection frequency is determined by the above mentioned Technical Committee and Kiwa Committee of Covenant.

Contents

1 Scope of the Covenant

1.1 Definition of the product and process

Used electricity cords/cables collected as post-consumer waste collected are processed by removing the copper wire from the PVC coating in order to make regrind PVC by recyclers under contract. The regrind PVC is delivered to Green Recycling Company (Green RC). Green RC is sorting out the possible remaining contaminants to obtain a PVC quality acceptable for the production of the PVC construction blocks. The sorted regrind PVC material is further processed by extrusion and compression moulding and construction blocks are produced as a final product. In the rest of the document the product is mentioned simply as block or product. The complete block is cut into two equal halves which are also used in the construction as a complementary part.

The complete block and half block products are intended to be used for the construction of the walls for silos.

The product objective and specification is according to 1.1.1 and 4.1 of this Kiwa Covenant.

1.1.1 Objective

This Kiwa Covenant covers the evaluation and surveillance of the recycling process and the quality assurance of the blocks made of 100% recycled post-consumer PVC obtained from used electricity cords. The assessment methods for the recycling process and the quality assurance of the products are explained in Chapter 3.

1.2 Assumed working life of the product

When used in accordance with the installation instructions the working life of the product is expected to be at least 20 years.

1.3 Common terms relating to the product

The definitions are in accordance with NEN-EN-ISO 14021 and Directive 2008/98/EC.

Term	Definition
Mass balance	An accounting principle that matches inputs (such as plastic waste) with outputs from the recycling and production process, to determine the recycle content.
Polyvinyl chloride (PVC)	Thermoplastic polymer which is most commonly used insulation material due to its cost effectiveness and high durability.
Post-consumer waste	Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.
Pre-consumer waste	Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.
Recovered (re-claimed) material	Material that would have otherwise been disposed of as waste or used for energy recovery, but has instead been collected and recovered

	[reclaimed] as a material input, in lieu of new primary material, for a recycling or a manufacturing process.
Recyclate	This is a raw material that is processed in a waste recycling plant or materials recovery facility which will be used to form new products.
Recycler	The companies/organizations collecting the PVC cable waste and processing it into a recyclate
Recycle content	Proportion, by mass, of recycled material in a product or packaging per material type. Only pre-consumer and post-consumer materials shall be considered as recycled content, consistent with the following usage of terms: • Pre-consumer material: Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it. • Post-consumer material: Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.
Recycled material	Material that has been reprocessed from recovered [reclaimed] material by means of a manufacturing process and made into a final product or into a component for incorporation into a product
Recycling	Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.
Regrind	Shredded and cleaned material recovered from a waste stream as pre- and post-consumer material.
Supplier	The party that is responsible for ensuring that the products meet and continue to meet the requirements on which the certification is based.
Waste	Any substance or object which the holder discards or intends or is required to discard.

2 Fitness for use

2.1 Meaning of ‘fitness for use’

The fitness for use for the corresponding product is the functionality and performance of the product which is ensured among the following aspects listed in clause 2.2, when properly designed and manufactured, complies with the fitness requirements of this Kiwa Covenant. Recycling requirements mentioned in Chapter 3 are not considered within “fitness for use” since they do not contribute to the functionality and performance of the product.

2.2 Fitness aspects

2.2.1 Weight tolerances and presence of voids

Weight of the product should be specified with tolerances to minimize the voids forming during the moulding step by entrapment of air.

2.2.2 Dimensional tolerances

The product should have dimensional tolerances specified in order to build a safe construction.

2.2.3 Compression resistance

The product should have an extent of compressional resistance or creep modulus to resist deformation and or crack formation during the service life.

2.2.4 Structural integrity

The complete block shall stay intact after falling from a certain height of a possible scenario during its use.

3 Relevant characteristics of the product, the required verification and the assessments of fitness for use

3.1 Characteristics of the product

The products belonging to this Covenant meet the following requirements.

The products are complete block 150x75x75 cm and half block made from the complete block by cutting it into half are 100% recycled PVC. An additive as a processing aid up to a maximum of 2 % might be added in order to facilitate the production. The waste PVC and additives are purchased on the basis of a specification; the types and quantities are checked on arrival.

The blocks are made of the following components seen in Table 1: The specifications of the blocks are summarized in Table 2.

Table 1 Product composition

Material	Explanation
Polyvinylchoride (PVC)	Recyclate (of regrind) electricity cables
CaZn salt	Additive (heat stabilizer)

Table 2 Product specifications

Specifications	Requirements	Assessment method	Related clause
Recycle content	100% recycle content	Audit of the value chains	3.3.1
Nominal weight (kg)	1100 ± 10	Specification by supplier	3.2.1
Presence of voids	No voids bigger than 2 cm	Visual inspection of the cross section	3.2.2
Nominal size (cm)	150(w) x 75(h) x 75 (d) ± 0,2	Specification by supplier	3.2.3
Compressional resistance	Pass pressure test	Pressure test	3.2.4
Structural integrity	Intact after drop test	Drop test	3.2.5
Fire resistance	Fire resistant	Fire test	3.2.6
Hazardous substances	Permitted emission values	Leach test	3.2.7

3.2 Performance requirements

3.2.1 Weight tolerances

Weight of a complete block shall be 1100kg ± 10 kg determined by the method stated in clause 3.4.1.

3.2.2 Presence of voids

The inspected cross sections of the sample according to the procedure stated in clause 3.4.2 shall have no cavities, no cracks and no breakage having a void of more than 4cm2 area and no more cavities than 4.

If the sample fails to fulfill the requirement, the test shall be repeated on the same day with the block made with the mould having a one higher/ lower number.

3.2.3 Dimensional tolerances

The complete block product should have dimensional tolerances as shown in Table 2 according to the measurement method stated in clause 3.4.3.

3.2.4 Compression resistance

The complete block product shall have no cracks, no breakage and no permanent deformation after compression test done according to the procedure stated in clause 3.4.4. If the sample fails to pass, the test shall be repeated on the same day with the block made with the mould having a one higher/ lower number.

3.2.5 Structural integrity

The block shall have no cracks, no breakage and no permanent deformation after testing according to the procedure stated in clause 3.4.5. If the sample fails to pass, the test shall be repeated on the same day with the block made with the mould having a one higher/ lower number.

3.2.6 Fire resistance

The product shall have sufficient fire resistance under the fire test performed according to EN 1364-1.

3.2.7 Hazardous substances

The product shall have emission values below the permitted emission values for building materials in accordance with the Soil Quality Regulation of The Netherlands, “Regeling Bodemkwaliteit, BWBR0023085” Section 3.3 and Annex A Table 1.1.

3.3 Recycling process requirements

3.3.1 Recycle content

The product shall be made from 100% recycled plastic. The recycle content shall be 100% traceable throughout the value chain. Up to 2% additive can be used as processing aid during the manufacture of the product. The recycle content is assessed by the tracing the

3.4 Verification and assessment methods of the requirements

3.4.1 Determining the weight by weighing

3.4.1.1 Required testing equipment

- A calibrated balance with a capacity of 2 ton and precision of 1 kg.

3.4.1.2 Required samples

- 1 complete block rested for at least 1 hour after being taken out of the mould.

3.4.1.3 Testing procedure

- The block is carried with a forklift and placed on a balance described in 3.4.1.1., the reading is recorded.

3.4.2 Determining the presence of voids by cross section inspection

3.4.2.1 Required testing equipment

- A cutter suitable to cut 75x75 cross section;
- Photo camera.

3.4.2.2 Required samples

2 half blocks made by cutting the complete block used for weight determination.

3.4.2.3 Testing procedure

The cross sections of the half cut blocks are visually inspected and photographed.

3.4.3 Determining the dimensions

3.4.3.1 Required testing equipment

- A ruler

3.4.3.2 Required samples

- 1 complete block rested for at least 1 hour after being taken out of the mould.

3.4.3.3 Testing procedure

All three dimensions (width, depth and length) of the block are measured and recorded.

3.4.4 Determining compression resistance

3.4.4.1 Required testing equipment

- Compression equipment with a press contact area of minimum 75 cm x 150 cm and the top surface with a loadcell having capacity of minimum 200 kN and precision of 2 kN;
- Negative mould form of the upper surface of the block.

3.4.4.2 Required samples

- 1 complete block rested for at least 1 hour after being taken out of the mould.

3.4.4.3 Testing procedure

The sample block is placed in the press with a negative mould part on its top to ensure uniform pressure distribution on the top surface of the block.
The block is pressed under 100 kN force (equals to the weight of circa 10 blocks on top of each other) for 48 hours without being supported by a mould or another structure from the sides.
After 48 hours, the pressure is released and the sample is let to relax for 1 hour. Afterwards the sample is visually investigated for any failure, cracks and/or permanent deformation.

3.4.5 Determining the structural integrity by drop test

3.4.5.1 Required testing equipment

- A forklift with plank forks able to move vertically and rotate, on a concrete ground;
- Photo camera.

3.4.5.2 Required samples

- 1 complete block rested for at least 1 hour after being taken out of the mould.

3.4.5.3 Testing procedure

The sample block is visually inspected on all 6 surfaces and corners, and 6 photos are taken.
The block is horizontally placed on the forks of the forklift.
The block is lifted up to a height where the bottom surface is 4±0,2 m high from the floor.
A construction consisting of a framework of beams causes the block to fall straight down, flat on one side.
After the block hits the ground, a visual inspection is done on all 6 surfaces and corners again for any presence of formed cracks breakage and permanent deformation. 6 photos are taken again for comparison.

3.4.6 Determining recycle content

Recycle content of the product is determined by audits on the recyclers. Recycle content of the products is determined during the audits by:

- visual inspection of the received recyclate material on the location,
- verification of the delivery receipts,
- internal material transport,
- checking storage space conditions,

- checking the labelling of the products,
- verification of mixture (recipe) for production process,
- material flow chart and mass balance.

The recyclers of GreenRC shall have a delivery contract with GreenRC.

3.5 Marking

The product shall be provided with the following marks:

- Logo picture Kiwa Covenant;
- Manufacture's name, trade name;
- Material identification;
- Production code.

3.5.1 For products

After a signed Kiwa certification agreement, it is obliged to mark the product indelible.

Remark:
In consultation with Kiwa, the supplier is allowed to show a clear description of the use of the product or process in the logo as showed underneath.

4 Quality system requirements

4.1 General

This chapter contains the requirements that have to be met by the supplier's quality management system.

4.2 Manager of the quality system

Within the organizational structure an employee must be appointed to be responsible of managing the quality system.

4.3 Internal quality control/quality plan

The supplier must have an implemented and operational internal quality control scheme in place (IQC-scheme).

In this IQC-scheme the following must be demonstrably recorded:

- materials used in the product;
- which aspects are checked by the manufacturer;
- according to which methods these inspections are carried out;
- how often these inspections are carried out;
- how the inspection results are registered and stored.

This IQC-scheme shall be derived from the example format as shown in the annex. The scheme must be detailed in such a way that it provides Kiwa sufficient confidence that the requirements of this Covenant are continuously fulfilled.

4.4 Management of laboratory- and measure apparatus

The supplier must determine which laboratory- and measure apparatus are needed based on this Covenant in order to demonstrate that the product fulfils the requirements.

When applicable laboratory- and measure apparatus need to be calibrated at specified intervals.

The supplier needs to validate and register the previous measure results, when at the time of calibration is determined that the laboratory and measure devices are not operating correctly.

The apparatus in question need to be marked in such a way that can be determined what the calibration status is.

The supplier is required to register the calibration results.

4.5 Procedures and work instructions

The supplier must be able to submit procedures for:

- storage of used materials and readied product;
- the handling of non-conforming products;
- corrective actions in case non-conformities are found;
- the handling of complaints regarding the products and/or services supplied;
- managing work instructions and inspection sheets in use.

4.6 Other quality system requirements

The supplier must be able to submit:

- an organization chart;
- qualification requirements of the involved staff.

5 Initial inspection and continuous surveillance by Kiwa

5.1 Summary of tests and inspections

This chapter contains a summary of the following tests and inspections to be carried out in the event of certification:

- Initial type tests;
- Inspections;
- Control of the supplier's the quality system.

5.2 Test matrix (Construction block 100% recycled PVC)

Table 3 - Test matrix

Description of requirements	Clause BRL	Tests within the scope of:	
		Initial investigation	Inspections [1] + [2]
General			
Recycle content	3.3.1	X	X
Nominal weight	3.2.1	X	X
Presence of voids	3.2.2	X	X
Nominal size (cm)	3.2.3	X	X
Compressional resistance	3.2.4	X	X
Structural integrity	3.2.5	X	X
Fire resistance	3.2.6	X	
Environmental hazards	3.2.7	X	

1) In case the product or production process changes significantly, the performance requirements shall be determined again.
2) During the inspection visit, the inspector shall check the product on the basis of a selection of the above listed requirements. The frequency of the inspection visits is recorded in clause 6.3 'Nature and frequency of external inspections'.
3) When applicable, once a year the inspector samples for an Audit Test.

5.3 Inspection of the quality system

The quality system will be checked by Kiwa on the basis of the IQC scheme.
The inspection contains at least those aspects mentioned in the Kiwa Regulations for Certification.

6 Agreement on the implementation of certification

6.1 General

Beside the requirements included in this Covenants, also the general rules for certification as included in the Kiwa Regulations for Certification apply.

In particular, these are:

- The general rules for conducting the initial type tests, to be distinguished in:
  - the way suppliers are to be informed about an application is being handled;
  - how the test are conducted;
  - the decision to be taken as a result of the pre-certification tests;
- The general directions for conducting inspections and the aspects to be audited;
- The measurements to be taken by Kiwa in case of Non Conformities;
- Measurements taken by Kiwa in case of improper Use of Certificates, Certification Marks, Pictograms and Logos;
- Terms for termination of the certificate;
- The possibility to lodge an appeal against decisions of measurements taken by Kiwa.

6.2 Report initial investigation

Kiwa records the results of the initial investigation in a report. This report shall comply with the following requirements:

- completeness: the reports verdicts about all requirements included in the Covenant;
- traceability: the findings on which the verdicts have been based shall be recorded traceable;
- basis for decision: the decision maker shall be able to base his decision on the findings included in the report.

6.3 Nature and frequency of external inspections

Kiwa shall enforce inspections at the supplier's site to investigate whether the obligations are met. At the time of validation of this Covenant this frequency has been fixed at 2 inspection visits per year for the supplier. The recyclers under contract are visited by Kiwa 1 time per 2 years.

In case the quality system of the supplier is certified on the basis of ISO 9001, the frequency can be set at 1 visit per year for the supplier.

Inspections shall invariably include:

- The IQC-scheme of the supplier and the results of tests carried out by the supplier;
- The correct marking of the certified products;
- The compliance with the required procedures.

The findings of the inspection visits performed shall be traceably recorded, by the certification body, in a report.

6.4 Sanction policy

The sanction policy and the weighing of the non-conformities is available through the service page on the website of Kiwa.

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

7.1 Recommendations for customers

Check at the time of deliver 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:

Green Recycling Company B.V.,
and, if necessary,
Kiwa Nederland B.V.

Consult the suppliers processing guidelines for the proper storage and transport methods.

8 Titles of standards

8.1 Standards and normative documents

Standard [1)]	Title	Version
EN-ISO 9001	Quality management systems - Requirements	2015
NEN-EN ISO/IEC 17020	Conformity assessment - General criteria for the operation of various types of bodies performing inspection	2012
NEN-EN ISO/IEC 17021	Conformity assessment - Requirements for bodies providing audit and certification of management systems	2015
NEN-EN ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories	2018
NEN-EN ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services	2012
NEN-EN-ISO 14021	Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling)	2016
NEN-EN 1364-1	Fire resistance tests for non-loadbearing elements - Part 1: Walls	2015
Kiwa Manual K15013	Kiwa Covenant for Products and Processes	2022
2008/98/EC	Waste Framework Directive (consolidated version)	2008
BWBR0023085	De Regeling bodemkwaliteit	2022

1) The documents, in whole or in part, are normatively referenced in this document. For dated references, only the edition cited applies. For undated references, the latest edition of the reference document (including any amendments) applies.