COVENANT

Covenant
K110027/01

Issued *2022-11-15*

Replaces -

Cable Protection Pipe of recycled polyethylene *)

*) to the 100% recycled a maximum of 2% additives may be added for instance for colouring.

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

Hundhausen Kunststofftechnik GmbH

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.

Ron Scheepers
Kiwa

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

561/180711

Kiwa Nederland B.V.
Sir Winston Churchilllaan 273
Postbus 70
2280 AB RIJSWIJK
The Netherlands
Tel. +31 88 998 44 00
Fax +31 88 998 44 20
NL.Kiwa.info@Kiwa.com
www.kiwa.nl

Supplier
Hundhausen Kunststofftechnik GmbH
Justus-von-Liebig-Str. 27/29
D-28832 Achim
Tel: +49 (0)4202 9153-14
Fax: +49 (0)4202 9153-44
info@hkt-achim.de
www.hkt-achim.de

Preface

This Covenant has been prepared by the Technical Committee for recycled plastics of Kiwa Nederland B.V. and accepted by the Kiwa Committee for Covenants (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

This covenant applies to ground-laid polyethylene pipes made of recycled high density polyethylene (PE-HD), which serve as cable protection pipes.

1.2 Common terms relating to the product

Master batch:	Additives including colours to enhance the properties of plastics.
Off-grade	Material, out of specification, disposed of during production.
Polyethylene	(PE), a thermoplastic polymer very well reusable thermoplastic used in a wide variety of applications.
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.
Rework material	Rework is reutilizing material that is generated in a process and capable of being reclaimed within the same process that generated it.
Protection Pipe	Pipe for the protection of buried cables against impacts of groundworks
Regrind	Shredded and cleaned material recovered from a waste stream as pre and post-consumer material.
Recycle content calculation	Product recipe (applied materials and material weights) and consumed (origin) materials calculation. See Appendix A.

2 Fitness for use

2.1 Meaning of 'fitness for use'

Unlike drinking water or gas pipelines, there is no internal pressure inside of cable protection pipes during the operation. The maximum material load is effective during the installation. When properly installed, the pipe will resist the static load of the ground effective during the time of soil compression. This load will be relativised after the time of compression, which normally ends within 6 years. After this time, the pipe will have only a proofing effect against infiltration of external influences, and the durability will depend on the ring stiffness and on the resistance of the material against decomposition. When properly installed, a durability of more than 50 years may be assumed based on Creep ratio and OIT test results. An internal pressure creep rupture test, as executed on pressure pipes and predicting durability, will not produce pertinent results for pipes of recycled material.

"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.

2.2 Assessment of fitness for use

The relevant characteristics of the protection pipes for their 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 protection pipes.

2.3 Meaning of 'fitness for recycling

Fitness for recycling is the property of the product that after having served for the intended use, the product can be recycled through appropriate waste collection and processing methods and the raw material as a result of these processed can be used for the production of similar or other products.

2.4 Assessment of fitness for recycling

The relevant properties for the processing of materials in relation to 'recycling' and the verification methods used for this purpose are displayed in Chapter 3 and include the results of the actual verification.

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

3.1 Measurements

Table 1: test matrix and initial results

Clause	Characteristic	Verification Method	Requirement	Assessment of the characteristic
3.1.1	Recycle content	ISO 14021 – 7.8.4	Conform claim	PE from recycled Pre-consumer with max. additive of 2% for colouring.
3.1.2	Appearance	Visual	Straight No bulbs, voids, or dents	smooth
3.1.3	Colour (on the outside)	Visual	According manufacturer declaration	Black
3.1.4	Sizes	EN 12201-2	See 3.2	According specification
3.1.5	Ring stiffness	EN ISO 9969	SDR 17(,6) ≥ 8 kN/m^2 SDR 11 ≥ 16 kN/m^2 Reference: Table 2	21,74 kN/mm2
	Creep Ratio	ISO 9967	≤ 5 %	2,47
3.1.6	Pipe end	Visual	rectangular and free of burr	According specification
3.1.7	Impact Test	ISO 3127	TIR ≤ 10 %	No fails
Clause	**Material Characteristics**	**Verification Method**	**Requirement**	
3.2.1	Density	ISO 1183	≥ 930 kg/cm^3	958 kg/m3
3.2.2	MFR	EN ISO 1133 (5 kg / 190^{o}C)	0,2 – 1,4 g /10 min	0,647 – 0,767 g / 10 min
3.2.3	Tensile Strength	ISO 6259-1/3	18 MPa	22,6 MPa
3.2.4	Elongation at break	ISO 6259-1/3	> 200 %	748 %
3.2.5	OIT	ISO 11357-6 (200^{O}C)	≥ 20 min	> 20 min
Clause	**Installation Characteristics**	**Verification Method**	• **Requirement**	
3.3.2	Recyclability	Verification of the recipe	• Mono material (PE) • No or water solvable attachments • No sub-components unless of same material as main material	Mono material – HD PE No attachments No sub components

Table 2: Ring stiffness classes SN

DA (mm)	e (mm)	SDR 11	e (mm)	SDR 17	e (mm)	SDR 17,6
		SN		SN		SN
110	10,0	16	6,6	8	6,3	8
125	11,4	16	7,4	8	7,1	8

3.2 Products applicable:

Table 3: products applicable

Diameter	external diameter (mm)	Wall thickness SDR 11 (mm)	Wall thickness SDR 17 (mm)	Wall thickness SDR 17.6 (mm)
DN 110	110.0 + 1.0	10.0 + 1.2 / - 0	6.6 + 0.9 / - 0	6.3 + 0.9 / - 0
DN 125	125.0 + 1.2	11.4 + 1.4 / - 0	7.4 + 1.0 / - 0	7.1 + 1.0 / - 0

3.3 Installation instructions
An instruction for installation is available to provide for installations being able to have a durability as stated by the manufacturer.

3.4 Marking
The product shall be provided with the following marks:

- Logo picture Kiwa Covenant;
- Manufacture's name, trade name;
- Material identification;
- Production code or date and machine code
- Colour stripes
- Diameter (outside)
- Wall thickness
- Distance marking (m)

3.4.1 For products
After a signed Kiwa certification agreement, it is obliged to mark the product, packaging and/or delivery documents with the Kiwa mark.

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 implemented/maintained. 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 continous 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

Table 4 – test matrix

Description of requirements	**Clause**	**Tests within the scope of:**	
		Initial investigation	**Inspections**
General			
Characteristic	**Verification Method**		
Recycle content	ISO 14021 – 7.8.4	X	X [2)]
Appearance	Visual	X	X [2)]
Colour (on the outside)	Visual	X	X [2)]
Sizes	EN 12201-2	X	X [2)]
Ring stiffness	EN ISO 9969	X	Every 2 years [3]
Creep Ratio	EN ISO 9967	X	Every 2 years [3]
Pipe end	Visual	X	X [2)]

Material Characteristics	**Verification Method**		
Density	ISO 1188	X	X [3]
MFR	EN ISO 1133 (5 kg / 190°C)	X	X [3]
Tensile Strength	ISO 6259-1/3	X	X [3]
Elongation at break	ISO 6259-1/3	X	X [3]
OIT	ISO 11357-6 (200°C)	X	Every 2 years [3]
Installation Characteristics	**Verification Method**		
Recyclability	Verification of the recipe	X	1)

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.

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:

Hundhausen,
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 normative documents

Standard [1)]	Title
EN 12201-2	
EN-ISO 9001	Quality management systems - Requirements
NEN-EN ISO/IEC 17020	Conformity assessment - General criteria for the operation of various types of bodies performing inspection
NEN-EN ISO/IEC 17021	Conformity assessment - Requirements for bodies providing audit and certification of management systems
NEN-EN ISO/IEC 17024	Conformity assessment - General requirements for bodies operating certification of persons
NEN-EN ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
NEN-EN ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services
ISO 9967	Thermoplastics pipes - Determination of creep ratio
ISO 9969	Thermoplastics pipes — Determination of ring stiffness
EN-ISO 14021	Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling) (ISO 14021:2016,IDT)
EN ISO 1133	Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics
ISO 1183	Plastics — Methods for determining the density of non-cellular plastics
EN-ISO 3127	Thermoplastics pipes - Determination of resistance to external blows - Round-the-clock method
ISO 6259-1/3	Thermoplastics pipes — Determination of tensile properties
EN-ISO 11357-6	Plastics - Differential scanning calorimetry (DSC) - Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)

3127

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.