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**APPLICATION REGULATIONS
FOR THE
PRODUCT CERTIFICATION
OF
VITRIFIED CLAY PIPE SYSTEMS FOR DRAINS
AND SEWERS
UNDER THE
BENOR MARK**

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CONTENTS

- 1 INTRODUCTION.....4
- 1.1 TERMINOLOGY.....4
- 1.2 AVAILABILITY OF THE CERTIFICATION REGULATIONS.....7
- 1.3 STATUS OF THESE APPLICATION REGULATIONS.....7
- 1.5 QUESTIONS AND OBSERVATIONS.....7
- 2 OVERVIEW OF PRODUCT CERTIFICATION.....8
- 2.1 PREPARATION OF THE CERTIFICATION REGULATIONS8
- 2.2 OBJECTIVES.....9
- 2.3 SCOPE10
- 2.4 CERTIFICATE.....13
- 2.5 IDENTIFICATION OF THE PRODUCT14
- 2.6 USE OF THE BENOR MARK.....16
- 2.7 TECHNICAL DATA SHEET16
- 3 THE STAKEHOLDERS17
- 3.2 CERTIFICATION BODIES17
- 3.3 INSPECTION BODY17
- 3.4 SUPPLIER17
- 4 REQUIREMENTS FOR A CERTIFIED PRODUCT.....18
- 4.2 EQUIPMENT.....18
- 4.3 RAW MATERIALS, JOINT MATERIALS, COUPLING MATERIALS, PREFABRICATED ELEMENTS AND LOAD TRANSFER RINGS.....19
- 4.5 PRODUCT20
- 4.6 QUALITY PLAN.....21
- 4.7 TYPE TEST.....23
- 5 OBTAINING A CERTIFICATE24
- 5.2 APPLICATION PERIOD24
- 6 SELF-MONITORING26
- 6.1 REGISTRATION AND ARCHIVING26
- 6.2 CONTROLS WITHIN THE FRAMEWORK OF SELF-MONITORING.....27
- 6.3 FOLLOW-UP OF DEVIATIONS.....31
- 7 EXTERNAL SURVEILLANCE32
- 7.2 INSPECTIONS.....32
- 7.3 CONTROLS IN THE CONTEXT OF EXTERNAL SURVEILLANCE.....34
- 7.6 EVALUATION SYSTEM.....36
- 8 COMPLAINTS AND SANCTIONS37
- 9 RATES AND INVOICING38
- 9.1 FINANCIAL RULES.....38
- 9.2 RATES38

ANNEX A : TEST FREQUENCIES PTV 895-1	39
ANNEX B : TEST FREQUENCIES PTV 895-4	43
ANNEX C : TEST FREQUENCIES PTV 895-6	45
ANNEX D : TEST FREQUENCIES PTV 895-7	47
ANNEX E : TEST FREQUENCY FOR SOFT CAST POLYURETHANE	50
ANNEX F : TEST FREQUENCY FOR HARD CAST POLYURETHANE	51
ANNEX G : TEST FREQUENCY FOR POLYPROPYLENE SLEEVE COUPLINGS	52
ANNEX H : TEST FREQUENCY FOR METAL BANDED FLEXIBLE COUPLINGS AND ADAPTORS	53
ANNEX I : TEST FREQUENCY FOR CONNECTORS, INSERTABLE FITTINGS AND SEALING RINGS.....	55

1 INTRODUCTION

This chapter gives and explains some of the rules concerning the certification regulations.

1.1 TERMINOLOGY

This Clause defines some of the special terms and abbreviation used in these Application Regulations.

1.1.1 Definitions

Client	The party purchasing the product from the supplier. The definition applies to different types of purchaser: producers of other products, contractors, awarding authorities, authorities, et cetera.
Comparative test	A test carried out in pairs, in which the result of the control laboratory is compared with the result obtained by the supplier in order to verify the self-monitoring system.
Family	A group of products with the same result for a specific characteristic.
Producer	Company responsible for manufacturing a product.
Product	Result of an industrial process or activity that is the subject of one or more reference documents. This a collective noun for all of the product articles and product types to which one and the same Application Regulations or certificate applies. In this TRA, the product is "vitrified clay pipe systems for drains and sewers".
Product article	Set of units of a product type with the same characteristics and performance that are produced in a specific manner and comply with the same technical data sheet.
Product type	Group of manufactured goods with similar characteristics. One product may be divided into different product types on the basis of the applicable reference document, property categories, application, et cetera. In this TRA exists four product types: <ul style="list-style-type: none">• Pipes, fittings and joints;• Adaptors, connectors and flexible couplings;• Perforated pipes and fittings;• Components for manholes and inspection chambers;• Pipes and joints for pipe jacking.
Production unit	Technical installation(s) linked to a geographical location which is/are used by a supplier where the product is made, as defined in the Application Regulations.

Reference document	Document (standard, Technical Requirement or any other technical specification) that specifies the technical characteristics that the staff, equipment, production unit, raw materials, production processes and/or the product must comply with and which states that the relevant Application Regulation applies to a certain product and its manufacture.
Sampling	<p>Sampling can be subdivided into:</p> <ul style="list-style-type: none"> - removing part or all of a product or component; - applying an identification/mark to a defined part or to an entire product or component, <p>for the purpose of inspecting and testing it.</p>
Supplier	The party requesting, obtaining or no longer having the certificate and which is responsible for ensuring that the product meets the certification requirements. This definition applies to producers, distributors and importers. If a supplier is referred to with regard to raw materials, general equipment, control equipment or services, this is specifically stated.
Type test	A series of verifications to determine initially (initial type test) or possibly to confirm periodically (repeat type test) the characteristics of a product article or product type and its conformity.

1.1.2 Abbreviations

KI	Inspection Body
OCI	Certification Body
OSO	Sectoral Organization
TRA	Application Regulations

1.1.3 References

CRC 01 BENOR	General certification regulations for the certification of products in the construction sector under the BENOR mark
CPR	Regulation (EU) N° 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
EN 295-1	Vitrified clay pipe systems for drains and sewers - Part 1: Requirements for pipes, fittings and joints
EN 295-2	Vitrified clay pipe systems for drains and sewers - Part 2: Evaluation of conformity and sampling

EN 295-4	Vitrified clay pipe systems for drains and sewers - Part 4: Requirements for adaptors, connectors and flexible couplings
EN 295-6	Vitrified clay pipes systems for drain and sewers - Part 6: Requirements for components of manholes and inspection chambers
EN 295-7	Vitrified clay pipe systems for drains and sewers - Part 7: Requirements for pipes and joints for pipe jacking
EN 681-4	Elastomeric seals - Materials requirements for pipe joint seals used in water and drainage applications - Part 4: Cast polyurethane sealing elements
PTV 895-1	Technical prescriptions for vitrified clay pipe systems for drains and sewers – Part 1: Requirements for pipes, fittings and joints
PTV 895-4	Technical prescriptions for vitrified clay pipe systems for drains and sewers – Part 4: Requirements for adaptors, connectors and flexible couplings
PTV 895-6	Technical prescriptions for vitrified clay pipe systems for drains and sewers – Part 6: Requirements for components of manholes and inspection chambers
PTV 895-7	Technical prescriptions for vitrified clay pipe systems for drains and sewers – Part 7: Requirements for pipes and joints for pipe jacking
PTV 8450-1	Technical prescriptions for prefabricated synthetic liners for manholes and inspection chambers – product requirements
PTV 8450-2	Technical prescriptions for prefabricated synthetic liners for manholes and inspection chambers – system requirements
RNR 95	Regulatory notice for calibrations and the monitoring of control equipment in relation to the certification of vitrified clay pipe systems for drains and sewers
TAR 95	Financial system within the framework of the BENOR-mark of conformity for vitrified clay pipe systems for drains and sewers
TAR BENOR	Financial system within the framework of the BENOR-mark of conformity

These Application Regulations specify dated and undated reference documents. For dated references, only the cited version applies. For undated references, the latest version always applies, including any errata, addenda and amendments.

For any EN standards referred to in these Regulations, it shall always be the corresponding Belgian NBN EN publication that applies. The certification body may allow the use of a publication other than the Belgian publication, provided that the content is identical to the Belgian publication.

1.2 AVAILABILITY OF THE CERTIFICATION REGULATIONS

This Clause describes how the certification regulations are made available.

The current version of the certification regulations is available free of charge on the certification body's website.

A printed version of the certification regulations can be ordered from the certification body. The certification body has the right to charge for these.

It is not permitted to make any modifications to the original certification regulations approved by the sectoral commission and/or registered certification regulations by the non-profit organisation BENOR.

1.3 STATUS OF THESE APPLICATION REGULATIONS

This Clause refers to the data concerning the version, approval and ratification of these Application Regulations.

1.3.1 Status of these Application Regulations

These Application Regulations are version 3.0 and replace version 2.0.

This version will also replace the circular letter RBC 95/2019/01.

1.3.2 Approval of these Application Regulations

These Application Regulations were approved by the Sectoral Commission on 2023-06-20.

1.3.3 Ratification of these Application Regulations

These Application Regulations were confirmed by the Governing body of COPRO on 2023-09-18.

1.3.4 Registration of these Application Regulations

These Application Regulations were submitted to BENOR non-profit organisation on 2023-09-19.

1.5 QUESTIONS AND OBSERVATIONS

Questions or observations concerning the certification regulations must be sent to the sectoral organisation or the certification body.

2 OVERVIEW OF PRODUCT CERTIFICATION

This chapter indicates who is responsible for preparing the certification regulations. The objectives and scope of the product certification are described.

2.1 PREPARATION OF THE CERTIFICATION REGULATIONS

This Clause indicates who is responsible for preparing the various certification regulations.

2.1.2 Preparation of these Application Regulations

A specific Application Regulation shall be drawn up for each product. This is done in principle by a specialist technical sectoral commission on which the parties with an interest in the area of the product in question are represented. The sectoral organisation shall be responsible for organising the sectoral commission (Clause 3.1.4).

The structure of these Application Regulations follows the structure of the General Certification Regulations CRC 01 BENOR, supplementing the provisions of the same.

With the exception of the additions and/or changes set out in these Application Regulations, the Clauses of the General Certification Regulations CRC 01 BENOR apply.

These Clauses refer to the Clauses of the General Certification Regulations CRC 01 BENOR.

2.2 OBJECTIVES

This Clause describes the objectives of the certification regulations and the product certification.

2.2.2 The goal of these Application Regulations

- 2.2.2.1 These Application Regulations contain all the specific and additional rules for the certification of pipes, jacking pipes, fittings, joints, adaptors, connectors, flexible couplings, components for manholes and inspection chambers for the use in vitrified clay pipe systems for drains and sewers, further simply called “the product”. They also contain the rules relating to applications for a certification and additional information.
- 2.2.2.2 The Application Regulations shall be used by the sectoral organisation, the certification bodies and the inspection bodies in carrying out their tasks, for example when dealing with the certification application and external surveillance.

2.2.3 The goal of the product certification

The BENOR mark is a voluntary mark that is owned by the Bureau for Standardisation.

The BENOR mark is intended to confirm the confidence in the actions taken by the supplier with regard to the declaration of the conformity of a product with the reference documents. These reference documents may be agreed in a public voluntary framework and may be based on Belgian, European or international legislation.

The BENOR mark thus offers the client a sufficient degree of certainty that the product satisfies the well-defined quality requirements.

The BENOR mark does not declare the product’s conformity with its performance and characteristics as stated by the supplier, but confirms that a sufficient degree of confidence indicates that the supplier is permanently capable of guaranteeing the conformity of a product that it produces and/or supplies in accordance with the rules set out in the reference documents.

The BENOR mark acts in the public interest by promoting the best practices in construction and thus contributes to technical and economic progress.

These application regulations are, furthermore, conceived in such a way that precisely those aspects are safeguarded that are important for vitrified clay pipe systems for drains and sewers according to the interested parties. This concerns, among other things, improving consumer protection, meeting the expectations of the market and defending the public interest.

Under no circumstances does the certification affect the liability of the designer, the author of the tender document, the design or research consultancy, the contractor or the supplier.

2.3 SCOPE

The scope of the product certification is described in this Clause. It states what is and what is not included in the product certification. The relationship with the execution certificate is explained. The different types of certification regulations and reference documents are listed. There may also be a possibility of supplying some production parts not covered by the BENOR mark.

2.3.1 Object of product certification

2.3.1.1 The object of product certification is the control of production and supply of the vitrified clay pipe systems for drains and sewers.

In this regard, we can look at:

- implementing and monitoring a quality plan;
- the possible type testing of a product article or product type;
- the selection and receipt of the raw materials to be used in the production;
- the use of appropriate equipment and staff;
- the actual production;
- the controls on raw materials;
- the controls on the production process;
- the controls on the vitrified clay pipe systems for drains and sewers;
- the recording and archiving of all relevant data and results.

The product types that belong to the certified production part are:

- Pipes, fittings and joints,
- Adaptors, connectors and flexible couplings,
- Components for manholes and inspection chambers,
- Pipes and joints for pipe jacking.

A product type not covered by the product certification:

- Perforated pipes and fittings.

The input for the certification consists of all relevant requirements of the applicable reference documents relating to the vitrified clay pipe systems for drains and sewers. The output is a conforming product for vitrified clay pipe systems for drains and sewers, made traceable on the basis of a prescribed set of records of controls.

2.3.1.2 The conformity of the raw materials used in production also falls under the product certification.

The producer uses the appropriate raw materials, and provision may optionally be made to use certified raw materials and/or carry out a control on the raw materials used. Depending on the results of this control, the producer takes appropriate actions in accordance with these Application Regulations.

2.3.1.3 The conformity of the resulting work is not covered by the product certification.

The use of compliant products is an essential link in the realisation of a high quality and conforming construction. However, given that there are still parameters that are not covered by the certification of vitrified clay pipe systems for drains and sewers, this certification cannot fully guarantee that the resulting structure will meet the project owner's quality requirements. The parameters not covered by the product certification include:

- the design of the vitrified clay system for drains or sewers;
- products not falling within the scope of the product certification;
- the uncertified execution of drains and sewers of vitrified clay pipe systems.

2.3.5 Application Regulations

2.3.5.1 These Application Regulations apply to the issue of a BENOR certificate and the use of the BENOR mark for vitrified clay pipe systems for drains and sewers in accordance with at least one of the documents mentioned in Article 2.3.7.

2.3.5.2 BENOR certification of vitrified clay pipe systems for drains and sewers is voluntary.

2.3.5.3 For the products for which a harmonized EN standard applies, the BENOR certificate is only awarded after the supplier has complied with all the rules on the CE marking for the product.

The rates that apply in the context of product certification are included in the Tariff Regulations for the Certification of Products TAR BENOR and the Tariff Regulations for the Certification of vitrified clay products TAR 95.

2.3.6 Additional regulations and circulars

2.3.6.3 The rates that apply in the context of product certification are included in the Tariff Regulations for the Certification of Products TAR BENOR and the Tariff Regulations for the Certification of vitrified clay pipe systems for drains and sewers TAR 95.

2.3.7 Reference documents

2.3.7.1 The applicable standards are set out in the different PTV's.

2.3.7.2 In the context of the BENOR certification there are no applicable tender documents.

2.3.7.3 The applicable Technical Prescriptions are PTV 895-1, PTV 895-4, PTV 895-6 and PTV 895-7.

2.3.7.4 In the context of the BENOR certification there are no other applicable reference documents.

2.3.9 Exempt production parts to which the BENOR mark does not apply

2.3.9.1 There are no products parts that are constantly delivered outside of the BENOR mark.

2.3.9.2 The following production parts may be supplied outside the BENOR mark:

- product types and production parts whose characteristics differ from the certified products in a clear and recognisable way for the client; supplying products inside Belgium both covered by and outside the BENOR mark is not permitted;
- production parts supplied outside of Belgium.

2.4 CERTIFICATE

This Clause describes the rules relating to the certificate.

2.4.2 Scope of the certificate

- 2.4.2.1 Each certificate is issued per product and per production unit. The scope of the certificate may be limited to a set of characteristics of the vitrified clay pipe systems for drains and sewers, as specified in these Application Regulations.
- 2.4.2.3 By issuing the certificate, the certification body acknowledges that there is a sufficient degree of confidence in the actions taken by the certificate holder in order to ensure the conformity of the vitrified clay pipe systems for drains and sewers to the reference documents.

2.4.3 The certificate

- 2.4.3.1 The certificate must contain at least the following information:
- the certificate number;
 - the identity of the certification body;
 - the identity and registered office of the certificate holder;
 - the identity, the identification number and the address of the production unit;
 - the reference documents;
 - the date of issue of the certificate;
 - a reference to the certification body's website, with regard to the validity of the certificate;
 - the scope of the certificate, these are the different product types.

The certificate describes the product in accordance with the Application Regulations.

2.4.7 Suspension by the certificate holder

- 2.4.7.3 The maximum permissible period during which the existing certified stock may still be supplied under the Brand is 2 year from the date the suspension takes effect.

2.4.8 Withdrawal by the certificate holder

- 2.4.8.3 The maximum permissible period during which the existing certified stock may still be supplied under the Brand is 2 year from the date the withdrawal takes effect.

2.5 IDENTIFICATION OF THE PRODUCT

This Clause focuses on the identification of vitrified clay pipe systems for drains and sewers. In addition to an internal identification there is also the BENOR mark, which may be used by the certificate holder only under strict conditions.

2.5.1 Internal identification

The supplier can identify his products with an internal identification or product code. The correlation between the internal identification and the concerning datasheet has to be explained by the supplier.

2.5.2 Public identification

Vitrified clay products shall be marked according to Clause 5.2.2 of the relevant PTV in the PTV 895 series, supplemented with the reference to the applicable technical data sheet code.

Elements that are delivered separately and that are self-monitored according to Clause 6.2 of this TRA, shall be marked according to Clause 5.2.2 of the relevant PTV in the PTV 895 series.

2.5.3 Identification using the BENOR mark

The supply of a product article under the BENOR mark is illustrated by means of an identification marking, if possible on the product itself. This is done in accordance with Clause 2.6.3. The product article is identified with:

- the information according to the applicable PTV, Clause 5.2.2;
- reference to the product article's technical data sheet code;
- as soon as the certificate has been issued, reference to the BENOR-mark.

Following products that are self-monitored according to Clause 6.2 of this TRA shall be identified with reference to the BENOR mark, in accordance with Clause 2.6.3:

- polypropylene sleeve couplings;
- metal banded flexible couplings and adaptors;
- connectors, insertable fittings and sealing reals;
- heatshrinkable sleeves;
- stainless steel sleeves.

2.5.4 Identification of exempt production parts

An exempt production part may not refer to the BENOR certification and the technical data sheet code, not on the product, not on the delivery notes, not on any other document.

2.5.5 Delivery note

2.5.5.1 The lay-out of the delivery notes shall be agreed by the inspection body.

2.5.5.2 The following information must be included on each delivery note:

- name and, if possible, address of the supplier;
- name and address of the production unit (if not clearly marked on the product itself);
- name and contact details of the client;
- public identification of the product article (Clause 2.5.2);
- product article technical data sheet's code (quick code) in the following form:
"Technical data sheet: code AAAA/CCCC (see extranet.copro.eu, whereby the code satisfies Clause 2.7.2);
- departure date from the production unit;
- quantity per product article;
- identification and quantity of elements that are delivered separately and are conforming Clause 6.2 of this TRA;
- mandatory data according to the applicable reference documents;
- once the certificate has been issued, reference may be made to the BENOR mark, for each certified product article, in accordance with the rules of Clause 2.6.4.

2.6 USE OF THE BENOR MARK

This Clause deals with the use of the BENOR mark.

2.6.1 Typographical description of the BENOR logo

- 2.6.1.2 When it is not technically possible to use the BENOR mark as described in Clause 2.6.1.1, an alternative identification is permitted, such as the use of the word BENOR, possibly supplemented with the word 'certified'. All rules governing the use of the BENOR logo then apply to the use of the alternative identification.

2.7 TECHNICAL DATA SHEET

2.7.1 General

- 2.7.1.1 The supplier shall prepare a technical data sheet for each certified product article.
- 2.7.1.2 All information listed on the technical data sheet is based on the type test.
- 2.7.1.3 For each delivery of vitrified clay pipe systems for drains and sewers, the client must be provided with the corresponding valid technical data sheet. This is made possible by the certification body's website.
- 2.7.1.4 The information and results contained in the technical data sheet are used to assess the results of the self-monitoring and external control.
- 2.7.1.5 The information contained given on the technical data sheet relating to the essential characteristics of a harmonized standard, must precisely match the information stated by the supplier in the declaration of performance.

3 THE STAKEHOLDERS

This chapter deals with the various parties involved in the product certification.

3.2 CERTIFICATION BODIES

This Clause sets out information and rules concerning the functioning of the certification bodies.

3.2.5 Registered office and Secretariat

- 3.2.5.1 The only certification body for the certification of vitrified clay pipe systems for drains and sewers is COPRO.

3.3 INSPECTION BODY

This Clause deals with the cooperation of the certification body with the inspection body.

3.3.2 Designation of the inspection body

- 3.3.2.1 COPRO acts as the inspection body for vitrified clay pipe systems for drains and sewers.
- 3.3.2.2 Not applicable.
- 3.3.2.3 Not applicable.

3.4 SUPPLIER

This Clause deals with the supplier, the key player in the delivery of the product and therefore also in the product certification. A supplier may be a manufacturer, distributor or importer. He is the player who is responsible for ensuring that the product meets the requirements on which the certification is based and guarantees this to the client.

3.4.2 Possible suppliers

- 3.4.2.1 In these Application Regulations the term 'supplier' is used for an applicant or certificate holder.
- 3.4.2.2 A certificate for a production unit may be applied for by the following:
- the manufacturer: by the production unit itself, or by the parent company;
 - or by a distributor or importer.

4 REQUIREMENTS FOR A CERTIFIED PRODUCT

This chapter describes what is required to achieve a certified product. In the first place, this means a competent staff. With appropriate equipment and compliant materials this staff manufactures the product at a specific production unit. An initial type test is required for every characteristic. The production and everything that comes with it must be carried out in accordance with a documented quality plan.

4.2 EQUIPMENT

This Clause describes the rules relating to equipment. A distinction is made between production equipment and control equipment.

4.2.2 Laboratory and control equipment

4.2.2.2 The producer may refer to an external laboratory for some of the controls within the framework of the self-monitoring system, to which the requirements of Clause 3.5 are applicable. The reciprocal obligations of the supplier and the external laboratory for self-monitoring are defined in a written agreement.

4.2.2.3 A laboratory that is involved in the self-monitoring process of a supplier is excluded from carrying out controls on the product and/or raw materials from the same supplier as part of the external supervision.

This rule may be waived in the following circumstances:

- in the absence of an alternative laboratory, it may still be used in the context of external surveillance; in this case, it may be required that the external surveillance is done in the presence of the control body;
- in controls under the supervision of the inspection body (Clause 7.3.1.) for which the supplier uses an accredited external laboratory; in this case the external control may be carried out by the same laboratory, while complying with the rules of Clause 7.3.1.

4.2.2.4 All controls mentioned in Annexes A to D with an “x” in column “internal” must be carried out by the producer in an internal laboratory.

4.3 RAW MATERIALS, JOINT MATERIALS, COUPLING MATERIALS, PREFABRICATED ELEMENTS AND LOAD TRANSFER RINGS

This Clause describes the rules relating to the raw materials, the joint materials, the coupling materials, the prefabricated elements and the load transfer rings. When in CRC 01 BENOR raw materials is mentioned in Clause 4.3, it can be all of the above.

4.3.1 Requirements

- 4.3.1.1 Raw materials, joint materials, coupling materials, prefabricated elements and load transfer rings shall comply with the requirements of PTV 895-1, PTV 895-4, PTV 895-6 and PTV 895-7.

4.3.2 Validation

- 4.3.2.1 The producer must have an overview of all the validated raw materials, adaptors, connectors, flexible couplings and prefabricated synthetic liners that may be used in a production or can be accepted for validation.
- 4.3.2.2 The supplier must have the technical data sheet and, if appropriate, the certificate for each validated raw material.

4.3.4 Storage

The supplier must take the necessary measures to guarantee the identification and quality of the raw materials.

The different types of clay or chamotte are stored in separate boxes on a hard surface in such a way as to avoid contamination or mixing of the different types.

The other raw materials are stored in such a way that they are protected from moisture and high temperatures.

4.5 PRODUCT

This Clause describes the rules relating to the product itself. This covers everything from the determination of the requirements, production, up to the delivery of the product.

4.5.1 Period of activity

4.5.1.1 Production may not remain at the same level throughout the year. If production is irregular or temporarily interrupted, or if the number of production periods is lower than the number of external standard inspections determined in Clause 7.2.3, the certificate holder may be required to notify the certification body in advance of the period of activity or interruptions, so that the external monitoring can be adapted accordingly.

In the event of production or delivery under the BENOR mark continuing to be interrupted, a minimum of external supervision is provided (Clause 7.2.3.2).

If production and delivery under the BENOR mark continues to be interrupted, the certificate holder can also opt at his own request for a suspension of the certificate in accordance with Clause 2.4.7.

4.5.1.2 To maintain confidence in the conformity of self-monitoring after an interruption of the period of activity, the inspection body can execute a supplementary inspection, prior to the restart of the production. This shall be determined by the certification body.

4.5.2 Determination, evaluation and communication of the requirements

Non applicable.

4.5.3 Client's order

Non applicable.

4.5.4 Production planning

Non applicable.

4.5.5 Production plan

Non applicable.

4.5.7 Waste disposal

Non applicable.

4.6 QUALITY PLAN

This Clause describes the rules that are imposed on the supplier's quality plan. The quality plan includes a quality manual and a technical file. The quality manual relates to the organisation of the supplier and the different procedures. The technical file may be regarded as a supplementary file with lists, summaries and reports about all kinds of related issues.

4.6.2 Quality manual

4.6.2.2 The quality manual shall contain the following parts:

- composition:
 - summary of the content;
 - identification of procedures and documents;
- terminology;
- organisational structure:
 - organisation chart;
 - job descriptions (see also Clause 4.1);
 - procedures relating to the outsourcing of controls and activities;
- quality monitoring:
 - procedures for authorising delivery and identifying the product;
 - procedures related to quality monitoring, with in particular a procedure for dealing with complaints; this special procedure specifies how a complaint is handled, who is responsible for it, recording it in the complaints register, the inquiry, possible corrective actions and the notification of all interested parties;
 - procedures related to dealing with deviations;
 - procedure related to measures for non-conforming production parts; this procedure covers at least the following elements:
 - immediate communication in writing to the client, the certification body or any other interested party;
 - determining, defining and if possible identifying questionable or rejected production parts;
 - researching the causes and consequences of the deviation, including a risk analysis and assessment;
 - deciding to take corrective actions and corrective measures and implementing them;
 - assessing the effectiveness of the corrective actions and measures;
- document management system;
- production control:
 - procedures relating to the determination, assessment and communication of requirements for equipment, raw materials, production and the product;
 - procedures relating to production;
- procedures relating to the production equipment (including maintenance, repairs, calibration);

- procedures relating to the type test;
- procedures relating to the controls;
- procedures relating to the control equipment (use, calibration);
- procedures relating to registration and archiving;
- procedures relating to staff and training.

4.6.2.3 For those parts of the quality manual the supplier is required to notify the certification body immediately of any temporary or permanent change resulting in a discrepancy with the situation described in the quality manual:

Organogram and procedures relating to the outsourcing of controls and activities, to dealing with deficiencies, to measures for non-compliant production parts and to the controls.

4.6.2.4 The quality in the context of the BENOR certification may overlap with or be a part of an overall quality manual, which may include procedures in the context of another certification (ISO 9001, CE, et cetera). In this case the supplier must ensure that there are no contradictions and that any references remain valid. The rules relating to the quality manual in the Application Regulations remain applicable.

4.6.3 Technical file

4.6.3.2 The technical file contains:

- a) an overview of all equipment used during production, with a short description;
- b) a list of the names of members of staff involved in self-monitoring, including in particular the names of the quality manager, the self-monitoring manager(s) and their deputies, as well as those persons authorised to receive the inspection body's inspection reports;
- c) a list of the names of members of staff who may be involved in the production, delivery and control;
- d) an overview of the control equipment that may be used in the context of the self-monitoring process;
- e) if appropriate, a list of the external self-monitoring laboratories approved by the supplier, with an indication of the possible controls;
- f) a list of the valid versions of all applicable reference documents;
- g) the method of identifying the product;
- h) the type test reports;
- i) where appropriate, the derogations from the Application Regulations approved by the certification body;
- j) the correlation reports approved by the certification body for alternative control and test methods;

4.6.3.3 For those parts of the technical file the supplier is required to notify the certification body immediately of any temporary or permanent change resulting in a discrepancy with the situation described in the technical file:

Parts b, e and g described in Clause 4.6.3.2.

4.7 TYPE TEST

This Clause deals with the required type testing of the product. It is more commonly called (Initial) Type Testing or ITT or determination of product type.

4.7.1 General

4.7.1.1 Type tests are conducted according to the requirements of the applicable PTV.

During type testing the requirements of Annexes A to D, column "ITT-test" shall be taken into account.

4.7.1.2 Type tests shall in principle be carried out by the producer. If the producer does not itself conduct certain controls of the type test, these shall be performed by an external laboratory that satisfies the requirements of Clause 3.5.

4.7.2 Scope

The scope of the type tests is according to the applicable PTV.

4.7.3 Requirements

4.7.3.1 The requirements for type tests are mentioned in the applicable PTV.

4.7.4 Type test report

4.7.4.3 Each type test report shall be available to the certification body upon request. Each type test report shall be submitted to the certification body at the introduction of a new technical data sheet or when a new article is added to a technical data sheet.

4.7.5 Validity

4.7.5.2 The validity of type tests is according to the applicable PTV 4.7.6

Modifications Rules concerning modifications are described in the applicable PTV.

4.7.7 Repeat type test

Non applicable.

4.7.8 External surveillance

Non applicable.

5 OBTAINING A CERTIFICATE

This chapter describes how a supplier can apply for and ultimately obtain a certificate and the rules that must be followed.

5.2 APPLICATION PERIOD

This Clause deals with the period between the receipt of the application and the issue of the certificate. It describes what is authorised during that period, what must be done and what must not be done.

5.2.4 Trial period

5.2.4.1 The trial period gives the applicant the opportunity to provide proof that it is able:

- to ensure the continued conformity of the product,
- to fulfil all the requirements of the application regulations.

5.2.4.2 The trial period commences on the date of the initial inspection, subject to the favourable opinion of the inspection body.

Before the trial period can start, the following results of the start-up inspection must be completed:

- availability of trained personnel;
- availability of all necessary compliant and calibrated control equipment;
- a compliant production unit (storage, ...);
- availability of raw materials;
- availability of all relevant reference documents;
- a draft quality plan.

5.2.4.3 The durations of the trial period is minimum 20 production days for every product type the certificate is asked. The maximum duration is 1 year.

5.2.5 Self-monitoring during the trial period

During the trial period, the self-monitoring applies as stipulated in Clause 6.

5.2.7 External surveillance during the trial period

During the trial period, the external surveillance as set out in Clause 7 is applied. The applicant and the inspection body can choose to perform more inspections to speed up the process. Also, the applicant can ask to postpone an inspection so that he has sufficient time to solve some problems.

In every case, all the necessary type tests shall be executed before the end of the trial period.

5.2.8 Closure of the application file

- 5.2.8.1 If the trial period cannot be closed with a positive result after the period of one year, the applicant can ask for a prolongation of the trial period. This request shall be founded and shall be evaluated by the certification body. In all cases (closure or prolongation), the applicant is notified in writing by the certification body. Once an application file is closed, the applicant may, if desired, submit a new application.

6 SELF-MONITORING

This chapter deals with the control carried out by the supplier as part of the product certification. It contains details of what must be monitored and how the supplier guarantees the traceability of the controls and results. It also indicates what must be done in the event of deviations.

6.1 REGISTRATION AND ARCHIVING

This Clause sets out the rules relating to the traceable archiving of monitoring, controls and results.

6.1.1 Worksheets

6.1.1.2 The worksheets are completed in an indelible manner.

6.1.2 Registers

6.1.2.3 All relevant data regarding the self-monitoring shall be registered so that all relevant data is available for the inspection body during the inspections. If necessary, the inspection body or the certification body can oblige to change the registration method, the lay-out or the content so that the data is more suitable for them.

In particular, the complaint register (see Clause 8.1.4) shall be available during all inspections. This register shall include all relevant data regarding the internal and external complaints.

6.1.2.7 During the inspection, the inspection body may mark the pages of a register.

6.1.2.9 All registers may be kept digitally. The certification body or inspection body can decide that some registration shall be kept on paper.

6.2 CONTROLS WITHIN THE FRAMEWORK OF SELF-MONITORING

This Clause sets out the rules in relation to all checks carried out by the supplier as part of the self-monitoring process in the context of product certification.

6.2.1 General provisions

- 6.2.1.7 The supplier must declare the performance for each essential characteristic included in Clause 6.2.1.8 in its Declaration of Performance in accordance with the CPR and CE mark.
- 6.2.1.8 The BENOR certification is only valid when all essential characteristics from the applicable standards correctly form the subject of the CE mark; the possibly applicable standards are:
- EN 295-1;
 - EN 295-4;
 - EN 295-6;
 - EN 295-7.

6.2.2 Control locations

All controls according Clause 4.2.2.4 shall be carried out:

- at the production unit;
- in an internal laboratory on a different location.

6.2.3 Self-monitoring of raw materials, purchased adaptors and connectors, joint materials, coupling materials, prefabricated elements and load transfer rings

6.2.3.1 Self-monitoring of raw materials

6.2.3.1.1 Clay

The producer shall establish a control system for the raw materials to ensure that all used raw materials satisfy with the internal specifications. The certification body can decide that other controls has to be included in the control system.

6.2.3.2 Self-monitoring of purchased adaptors and connectors

When adaptors and connectors that are part of the scope of PTV 895-4 are purchased, the controls in this TRA according to PTV 895-4 apply. When the producer of the clay products purchases BENOR certified items, no further controls are necessary.

When adaptors and connectors are purchased that are outside the scope of PTV 895-4, but for which BENOR or COPRO certification exists, there are three possibilities:

- the producer of the clay products purchases COPRO or BENOR certified items. In that case, no further controls are necessary;

- the producer of the clay products purchases items that are not COPRO or BENOR certified. The producer of the clay products performs all the tests on the items according to the requirements mentioned in the COPRO or BENOR regulations that are applicable for the item;
- the producer of the clay products purchases items that are not COPRO or BENOR certified. The item is purchased with an attestation of a batch control, demanded by the producer of the clay products or the producer of the item and which is delivered by COPRO.

When adaptors and connectors are purchased that are outside the scope of PTV 895-4 and for which BENOR or COPRO certification does not exist, the producer of the clay products will have to test the items according to an internal test scheme. This scheme will have to be approved by the certification body and be part of the producer's quality manual.

6.2.3.3 Self-monitoring of joint materials

6.2.3.3.1 Joint materials in vulcanized rubber

When materials in vulcanized rubber are purchased with a BENOR certification, no further controls are necessary.

When materials in vulcanized rubber are purchased without a BENOR certification, there are two possibilities:

- the producer of the clay products performs all the test on the item, according to the requirements mentioned in TRA 32 BENOR;
- the item is purchased with an attestation of a batch control, demanded by the producer of the clay products or the producer of the item and which is delivered by COPRO.

6.2.3.3.2 Joint materials in soft cast polyurethane

Self-monitoring of joint materials in soft cast polyurethane shall be carried out for all relevant characteristics imposed in EN 681-4, taking into account the requirements of Annexe E.

6.2.3.3.3 Joint materials in hard cast polyurethane

When joint materials in cast polyurethane is applied in the socket, self-monitoring shall be carried out for all relevant characteristics from the applicable reference document EN 295-1, Clause 6.1.4, taking into account the requirements of Annexe F.

6.2.3.4 Self-monitoring of coupling materials

6.2.3.4.1 Polypropylene sleeve couplings

Self-monitoring of polypropylene sleeve couplings shall be carried out for all relevant characteristics from the applicable reference document EN 295-1, Clause 6.1.3, taking into account the requirements of Annexe G.

6.2.3.4.2 Metal banded flexible couplings and adaptors

Self-monitoring of metal banded flexible couplings and adaptors shall be carried out for all relevant characteristics from the applicable reference document EN 295-4, Clause 5.9.3, taking into account the requirements of Annexe H.

- 6.2.3.4.3 Connectors, insertable fittings and sealing rings
Self-monitoring of connectors, insertable fittings and sealing rings shall be carried out for all relevant characteristics from the applicable reference document EN 295-4, Clause 5.9.4, taking into account the requirements of Annexe I.
- 6.2.3.4.4 Heatshrinkable sleeves
Self-monitoring of heatshrinkable sleeves shall be carried out for all relevant characteristics from the applicable reference document EN 295-4, Clause 5.9.5, taking into account the requirements of Annexe J.
- 6.2.3.4.5 Stainless steel sleeves
The characteristics of stainless steel sleeves shall be declared.
- 6.2.3.5 Self-monitoring of prefabricated elements
- 6.2.3.5.1 Prefabricated synthetic liners
When prefabricated synthetic liners are purchased with a COPRO certification, no further controls are necessary.

When prefabricated synthetic liners are purchased without a COPRO certification, there are two possibilities:
- the producer of the clay products performs all the test on the item, according to the requirements mentioned in TRA 450;
 - the item is purchased with an attestation of a batch control, demanded by the producer of the clay products or the producer of the item and which is delivered by COPRO.
- 6.2.3.5.2 Prefabricated concrete elements
When prefabricated concrete elements are purchased with a BENOR certification, no further controls are necessary.

When prefabricated concrete elements are purchased without a BENOR certification, there are two possibilities:
- the producer of the clay products performs all the test on the item, according to the requirements mentioned in TR 21-101;
 - the item is purchased with an attestation of a batch control, demanded by the producer of the clay products or the producer of the item and which is delivered by COPRO.
- 6.2.3.6 Self-monitoring of load transfer rings
Load transfer rings are self-monitored in accordance with the procedure mentioned in producer's quality manual.

6.2.4 Self-monitoring of the production unit

The producer shall establish a control system for the production unit to ensure that the production unit is suitable for the production of conforming products. The certification body can decide that other controls have to be included in the control system.

6.2.5 Self-monitoring of the production process

The producer shall establish a control system for the production process to ensure that the production process is suitable for the production of conforming products. The certification body can decide that other controls has to be included in the control system.

6.2.6 Self-monitoring of the product

Self-monitoring of the product shall be carried out for all relevant characteristics from the applicable reference documents, taking into account the requirements of Annexes A to D, column "FPC-test".

6.2.7 Controls, calibrations and verifications of the equipment

The controls, calibrations and verifications of the production equipment and the control equipment are carried out in accordance with the rules of regulatory note RNR 95.

6.3 FOLLOW-UP OF DEVIATIONS

This Clause sets out what the supplier must do in the case of deviations.

6.3.1 Dealing with deviations

6.3.1.1 Following deviations shall be communicated to the certification body as fast as possible:

Deviations imposing that non-conforming products were evaluated as conforming (f.e. mal-functioning of the test equipment, incorrect approval of raw materials, ...);

The rules to be followed on determining the non-conformity of a product are described in Clause 6.3.2, 6.3.3 and 6.3.4.

6.3.3 Discovery of a deviation before delivery of the product

6.3.3.4 The delivery of rejected production parts is done at the discretion and under the sole and exclusive responsibility of the supplier. In all circumstances, the rejected production parts may not refer in any possible way to the BENOR certification (identification, quick-code of the data sheet on the delivery note ...).

6.3.4 Discovery of a deviation after delivery of the product

6.3.4.5 All rejected production parts are indelibly marked by the supplier. This is to ensure that the distinction between the approved and rejected parts is unambiguous.

6.3.5 Discovery of a deviation of the control equipment

For each deviation of the control equipment, the supplier immediately verifies its influence on the control results.

Should this verification point out that the conformity is no longer guaranteed, the supplier immediately takes appropriate measures.

7 EXTERNAL SURVEILLANCE

This chapter describes the rules pertaining to the external surveillance by the inspection body in connection with the product certification. The inspections can differ according to their content or the location in which they are conducted.

7.2 INSPECTIONS

This Clause deals with the inspections carried out by the inspection body. Inspections may differ according to their content or the location where they take place.

7.2.1 Content of the inspections

7.2.1.2 The external supervision can partly be done by means of remote inspections, provided that the manufacturer and the certification body agree to it. The parts eligible for remote inspection are specified in Clauses 7.2.1.3.

In case of deviations or sanctions, the agreement for tele-inspections may be withdrawn.

7.2.1.3 The standard inspections can cover:

- the equipment;
- the control equipment for self-monitoring;
- the product;
- the self-monitoring system;
- the implementation of controls within the framework of the self-monitoring system;
- following up changes to the quality plan;
- the work books and registers;
- the assessment of self-monitoring results;
- the identification of the product;
- the delivery of the product;
- the use of the BENOR-mark;
- if appropriate, the questionable production parts;
- carrying out inspections under the supervision of the inspection body;
- samples for the comparative tests;
- evaluating the results of the comparative tests and controls carried out under the supervision of the inspection body;
- carrying out type tests under the supervision of the inspection body;
- the implementation of corrective actions and corrective measures in case of a deviation.

The following parts are eligible for remote inspection:

- verification of the quality plan (except for the practical application of it on the production unit);
- the assessment of self-monitoring results;
- the assessment of ITT-test results;
- verification of delivery notes;
- the assessment of calibration reports;

7.2.1.4 The additional inspections may concern:

- controls that were not feasible at the time of the standard inspection;
- any controls in the external laboratory for self-monitoring;
- the conducting of checks and controls on non-certified raw materials under the supervision of the inspection body;
- the conducting of calibrations and checks and controls under the supervision of the inspection body in accordance with regulatory note RNR 95;
- any additional controls deemed necessary by the certification body, for example in the context of a complaint received or due to suspension or termination by the certificate holder;
- additional checks carried out at the request of the supplier, on identifying deviations in the self-monitoring system, which, according to the provisions of the Application Regulations, require the intervention of the inspection body;
- additional controls carried out as a result of a sanction imposed by the certification body (Clause 8.2);
- additional controls at the request of the supplier.

7.2.3 Planning and frequency of the inspections

7.2.3.2 The number of standard inspections per year depends on the number of tests that have to be performed under the supervision of the inspection body. The frequency of the tests in presence of the inspection body is mentioned in Annexes A to D. The minimum number of inspections is 2 per year.

If production or delivery under the BENOR mark is interrupted (Art. 4.5.1), a minimum level of external supervision shall be carried out. This minimum external surveillance consists of one inspection within 12 months of the last inspection.

7.3 CONTROLS IN THE CONTEXT OF EXTERNAL SURVEILLANCE

This Clause sets out the rules relating to controls – and often certain tests - carried out within the framework external surveillance. These controls may be carried out by the supplier in the presence of the inspection body and/or by an external laboratory. If they are performed by the supplier's laboratory as well as a control laboratory, this relates to comparative tests.

7.3.1 Controls under the supervision of the inspection body

7.3.1.2 The controls under the supervision of the inspection body are controls in the presence of the inspection body.

7.3.1.3 Controls carried out under the supervision of the inspection body are mentioned in the column 'Supervision' of Annexes A to D.

In case a product article is not produced in a calendar year, no tests have to be carried out under supervision of the inspection body.

7.3.1.7 The transport of test samples to the laboratory is the responsibility of the supplier. The transport costs are in payable by the supplier.

7.3.1.8 If the control is carried out by a control laboratory, the inspection body shall draw up an application for a test that contains all the relevant information concerning the test and the test samples. Should the inspection body be different from the certification body, the test application refers to the agreement between the certification body and the control laboratory. The inspection body delivers the application of the test to the control laboratory. The party responsible for transport (see Clause 7.3.1.7) provides the test application for the control laboratory.

7.3.1.10 The results of controls under the supervision of the inspection body are assessed by the inspection body the same way as all internal results.

7.3.1.11 The actions to be taken as a result of non-conforming results of controls under the supervision of the inspection body are the same as the measures as a result of an inadequate result of an internal control.

The certification body can impose a sanction, additional internal controls and / or additional external surveillance.

7.3.2 Comparative tests

7.3.2.2 Comparative tests can be performed in case there are problems with the conformity of the product.

7.3.2.6 The transport of the samples to the control laboratory is the responsibility of the supplier. The transport is at the expense of the supplier.

7.3.2.9 The results of the comparative tests are assessed by the inspection body the same way as all internal results.

7.3.2.10 If the supplier does not accept the control laboratory's results a re-test may be carried out at its request.

If the result of a comparative test is nonconforming, a re-test will be carried out.

If the supplier accepts that its own result is incorrect, and that only the control laboratory's result should be considered, there is no need for a re-test. The result is then immediately seen as nonconforming.

When new samples has to be taken for the re-test, they shall be taken from the same production as the first sample, if possible. If not possible, the samples are taken from a production that is the closest to the initially sampled production.

Re-tests are carried out by a different control laboratory, if available.

All sampling, transport and testing costs for re-tests will be payable by the supplier.

The results of the re-test are compared with the results of the supplier's original test.

Only those elements that were unsatisfactory in the first comparative test are assessed in the re-test.

If the results of the re-test are satisfactory according to Clause 7.3.2.9, the results of the first control laboratory are not taken into account. If this is not the case, the result of the comparative test is deemed to be definitively unsatisfactory.

When the result of a comparative test is deemed definitely unsatisfactory, the certification body can impose a sanction, additional self-monitoring and / or additional external surveillance.

7.6 EVALUATION SYSTEM

This Clause describes how the external surveillance is monitored by the inspection and certification body. The points system may be optional if necessary, to ensure that the external surveillance is adapted so that the supplier conforms to the rules of the certification regulations and the reference documents. This optional points system may be connected with a level of self-monitoring. The possible sanctions imposed by the certification body are discussed in chapter 8.

7.6.3 Points system

Non applicable.

7.6.4 Self-monitoring level

Non applicable.

7.6.5 External surveillance level

Non applicable.

8 COMPLAINTS AND SANCTIONS

This chapter contains the rules related to incoming or outgoing complaints and sanctions imposed by the certification body.

9 RATES AND INVOICING

This chapter contains the financial rules, rates and rules on invoicing.

9.1 FINANCIAL RULES

9.1.5 Additional financial rules

Non applicable.

9.2 RATES

9.2.2 Certification contribution

Both the amounts and the calculation of the period for the certification payments are stipulated in TAR 95.

9.2.4 Production contribution

Non applicable.

9.2.8 Indexing of rates

Indexation of all tariffs is done analogously to that described in TAR BENOR.

ANNEX A : TEST FREQUENCIES PTV 895-1

This annex contains a resume of the ITT-tests that have to be conducted, the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body. This annex also clarifies whether an FPC-test has to be executed in the internal laboratory (see clause 4.2.2.4).

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
<i>Water absorption (*)</i>	3.4.2	x	EN 295-2 table 1	EN 295-2 table 6	1 sample / product article / year
<i>Appearance</i>	3.4.3	x	EN 295-2 table 1	each piece	Each sample
<i>Internal diameter</i>	3.4.4	x	EN 295-2 table 1	EN 295-2 table 6, EN 295-2 table 12	1 sample / product article / year
<i>Length</i>	3.4.5	x	EN 295-2 table 1	EN 295-2 table 6, EN 295-2 table 12	1 sample / product article / year
<i>Squareness of ends</i>	3.4.6	x	EN 295-2 table 1	EN 295-2 table 6	1 sample / product article / year
<i>Deviation from straightness</i>	3.4.7	x	EN 295-2 table 1	EN 295-2 table 6	1 sample / product article / year
<i>Water seal of trapped fittings</i>	3.4.8	x	EN 295-2 table 1	EN 295-2 table 12	1 sample / product article / year
<i>Angle of curvature and radius of bends</i>	3.4.9	x	EN 295-2 table 1	EN 295-2 table 12	1 sample / product article / year
<i>Branch angle of junctions</i>	3.4.10	x	EN 295-2 table 1	EN 295-2 table 12	1 sample / product article / year

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
Crushing strength	3.4.11	x	EN 295-2 table 1	EN 295-2 table 6	1 sample / product article / year
Bending tensile strength	3.4.12		Calculation	Calculation	-
Bending moment resistance (BMR)	3.4.13	x	EN 295-2 table 1	EN 295-2 table 6	1 sample / product article / year
Bonding strength of adhesive used for fixing fired clay parts together	3.4.14	x	EN 295-2 table 1	EN 295-2 table 12	-
Fatigue strength under cyclic load (voluntary)	3.4.15		3 samples of each nominal size	1 / 5 year	-
Watertightness of pipes and junctions	3.4.16	x	EN 295-2 table 1	EN 295-2 table 6, EN 295-2 table 12	1 sample / product article / year
Chemical resistance	3.4.17		EN 295-2 table 1	1 / year / kiln	-
Hydraulic roughness (voluntary)	3.4.18		3 samples	1 / year / kiln	-
Abrasion resistance	3.4.19		3 samples	1 / 5 year	-
Airtightness	3.4.20	x	EN 295-2 table 1	EN 295-2 table 6, EN 295-2 table 12	1 sample / product article / year

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
<i>Tightness of fittings (*)</i>	3.4.21	x	EN 295-2 table 1	EN 295-2 table 12	1 sample / product article / year
<i>Resistance against high pressure water jetting</i>	3.4.22		EN 295-2 table 1	1 / 5 year	-
Joint assemblies					
<i>Watertightness under deflection and shear load</i>	3.5.2	x	EN 295-2 table 1	1 / jointing system / DN / 6 months	1 sample / product article / year
<i>Increased watertightness of pipes at 1 bar</i>	3.5.3	x	1 joint assembly of each nominal size	1 / jointing system / DN / 6 months	1 sample / product article / year
<i>Continuity of invert in joint assemblies</i>	3.5.4	x	EN 295-2 table 1	EN 295-2 table 6, EN 295-2 table 12	1 sample / product article / year
<i>Joint interchangeability of pipes and fittings in joint assemblies</i>	3.5.5	x	EN 295-2 table 1	EN 295-2 table 6, EN 295-2 table 12, EN 295-2 table 13	1 sample / product article / year
<i>Chemical and physical resistance until effluent of joint assemblies</i>	3.5.6		EN 295-2 table 1	EN 295-2 table 13	-
<i>Thermal cycling stability of joint assemblies</i>	3.5.7		EN 295-2 table 1	EN 295-2 table 13	-

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
<i>Long-term thermal stability of joint assemblies</i>	3.5.8		EN 295-2 table 1	EN 295-2 table 13	-
<i>Airtightness of jointed pipes (voluntary)</i>	3.5.9	x	1 joint assembly of each nominal size	1 / jointing system / DN / 6 months	1 sample / product article / year

(*) Only in case fittings and pipes are not produced in the same kiln with the same raw materials and the same firing process.

ANNEX B : TEST FREQUENCIES PTV 895-4

This annex contains a resume of the ITT-tests that have to be conducted, the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body. This annex also clarifies whether an FPC-test has to be executed in the internal laboratory (see clause 4.2.2.4).

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
<i>Water absorption (*)</i>	3.4.2	x	EN 295-2 table 2	EN 295-2 table 7	-
<i>Appearance</i>	3.4.3	x	EN 295-2 table 1	each piece	Each sample
<i>Internal diameter</i>	3.4.4	x	EN 295-2 table 2	EN 295-2 table 7	1 sample / product article / year
<i>Length</i>	3.4.5	x	EN 295-2 table 2	EN 295-2 table 7	1 sample / product article / year
<i>Angles</i>	3.4.6	x	EN 295-2 table 2	EN 295-2 table 7	1 sample / product article / year
<i>Squareness of ends and joint interchangeability</i>	3.4.7	x	EN 295-2 table 2	EN 295-2 table 7	1 sample / product article / year
<i>Bond strength of adhesive for fixing fired vitrified clay parts together</i>	3.4.8	x	EN 295-2 table 2	1 / year	-
<i>Tightness (*)</i>	3.4.9	x	EN 295-2 table 2	EN 295-2 table 7	1 sample / product article / year
<i>Chemical resistance (*)</i>	3.4.10		EN 295-2 table 2	1 / year / kiln	-

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
Joint assemblies					
Joint interchangeability	3.5.2	x	EN 295-2 table 1	EN 295-2 table 12, EN 295-2 table 13	1 sample / product article / year
Watertightness under angular deflection (**)	3.5.3	x	EN 295-2 table 1	EN 295-2 table 13	1 sample / product article / year
Watertightness under shear load (**)	3.5.4	x	EN 295-2 table 1	EN 295-2 table 13	1 sample / product article / year
Chemical and physical resistance to effluent (**)	3.5.5		EN 295-2 table 1	EN 295-2 table 13	-
Thermal cycling stability (**)	3.5.6		EN 295-2 table 1	EN 295-2 table 13	-
Long-term thermal stability (**)	3.5.7		EN 295-2 table 1	EN 295-2 table 13	-
Increased watertightness at 1 bar (**)	3.5.8	x	1 joint assembly of each nominal size	1 / jointing system / DN / 6 months	1 sample / product article / year
Watertightness of an assembly of an insertable connector and a clay pipe	3.5.9	x	1 joint assembly of each nominal size	-	-
Increased watertightness at 1 bar of an assembly of an insertable connector and a clay pipe	3.5.10	x	1 joint assembly of each nominal size	1 / jointing system / DN / 6 months	1 sample / product article / year

(*) Only in case fittings and pipes are not produced in the same kiln with the same raw materials and the same firing process.

(**) Test does not have to be performed in case the jointing system has already been tested according to PTV 895-1.

ANNEX C : TEST FREQUENCIES PTV 895-6

This annex contains a resume of the ITT-tests that have to be conducted, the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body. This annex also clarifies whether an FPC-test has to be executed in the internal laboratory (see clause 4.2.2.4).

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
<i>Water absorption (*)</i>	3.4.2	x	EN 295-2 table 4	EN 295-2 table 9	-
<i>Appearance</i>	3.4.3	x	EN 295-2 table 4	Each piece	Each sample
<i>Internal diameter</i>	3.4.4	x	EN 295-2 table 4	EN 295-2 table 9	1 sample / product article / year
<i>Height</i>	3.4.5	x	EN 295-2 table 4	EN 295-2 table 9	1 sample / product article / year
<i>Angle of curvature and radius of channel bends</i>	3.4.6	x	EN 295-2 table 4	EN 295-2 table 9	1 sample / product article / year
<i>Branch angle of channel junctions</i>	3.4.7	x	EN 295-2 table 4	EN 295-2 table 9	1 sample / product article / year
<i>Crushing strength (*)</i>	3.4.8	x	EN 295-2 table 4	EN 295-2 table 9	1 sample / product article / year
<i>Bending tensile strength (*)</i>	3.4.9		Calculation	Calculation	-
<i>Bonding strength of adhesive used for fixing fired clay parts together</i>	3.4.10	x	EN 295-2 table 4	EN 295-2 table 9	-

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
Fatigue strength under cyclic load (voluntary) (*)	3.4.11		3 samples of each nominal size	1 / 5 year	-
Chemical resistance (*)	3.4.12		EN 295-2 table 4	1 / year	-
Assembled components and connections between synthetic liners and manholes or inspection chambers					
Watertightness of assembled components	3.5.2		EN 295-2 table 4	EN 295-2 table 9	1 sample / product article / year
Pull-off resistance of the synthetic liner	3.5.3	x	3 samples	1 sample / 200 pieces produced with a synthetic liner	-
Pull-off resistance after 1 year of the synthetic liner	3.5.4	x	3 samples	-	-

(*) If possible tested on pipes according to PTV 895-1.

ANNEX D : TEST FREQUENCIES PTV 895-7

This annex contains a resume of the ITT-tests that have to be conducted, the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body. This annex also clarifies whether an FPC-test has to be executed in the internal laboratory (see clause 4.2.2.4).

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
<i>Water absorption</i>	3.4.2	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
<i>Appearance</i>	3.4.3	x	EN 295-2 table 4	Each piece	Each sample
<i>Internal diameter</i>	3.4.4	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
<i>Continuity of invert</i>	3.4.5	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
<i>External diameter</i>	3.4.6	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
<i>Length</i>	3.4.7	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
<i>Squareness of end</i>	3.4.8	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
<i>Deviation from straightness</i>	3.4.9	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
<i>Crushing strength</i>	3.4.10	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
Bending tensile strength	3.4.11		calculation	calculation	-
Compressive strength	3.4.12	x	3 samples	EN 295-2 table 10	-
Jacking strength	3.4.13	x	calculation	-	-
Maximum working jacking load	3.4.14	x	calculation	-	-
Fatigue strength under cyclic load (voluntary)	3.4.15		3 samples of each nominal size	1 / 5 year	-
Watertightness	3.4.16	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
Airtightness	3.4.17	x	EN 295-2 table 5	EN 295-2 table 10	1 sample / product article / year
Chemical resistance	3.4.18		EN 295-2 table 5	1 / year / kiln	-
Hydraulic roughness (voluntary)	3.4.19		3 samples	1 / year / kiln	-
Abrasion resistance	3.4.20		3 samples	1 / 5 year	-
Resistance against high pressure water jetting	3.4.21		3 samples	1 / 5 year	-

Characteristic	Clause in PTV	Internal	ITT-test	Frequency	
				FPC-test	Supervision
Joint assemblies					
Watertightness of joint assemblies under deflection and shear load	3.5.2	x	EN 295-2 table 5	EN 295-2 table 16	1 sample / product article / year
Increased watertightness of pipes at 1 bar	3.5.3	x	1 joint assembly of each nominal size	1 / jointing system / DN / 6 months	1 sample / product article / year
Chemical and physical resistance to effluent	3.5.4		EN 295-2 table 5	EN 295-2 table 16	-
Thermal cycling stability	3.5.5		EN 295-2 table 5	EN 295-2 table 16	-
Long-term thermal stability	3.5.6		EN 295-2 table 5	EN 295-2 table 16	-
Airtightness of jointed pipes (voluntary)	3.5.7	x	1 joint assembly of each nominal size	1 / jointing system / DN / 6 months	1 sample / product article / year

ANNEX E : TEST FREQUENCY FOR SOFT CAST POLYURETHANE

This annex contains a resume of the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body.

Characteristic	Clause in PTV	Internal	Frequency	
			FPC-test (*)	Supervision (**)
Dimensional tolerances	3.2.5.2		1 / production series	
Imperfections and defects	3.2.5.3		continuous	
Hardness	3.2.5.4		1 sample / dispensing unit / day	1 / year
Tensile strength and elongation at break	3.2.5.5		1 sample / dispensing unit / month	1 / year
Compression set at 23 °C	3.2.5.6		1 sample / dispensing unit / 6 months	
Compression set at 70 °C	3.2.5.6		1 sample / dispensing unit / day	
Compression set at -10 °C	3.2.5.6		1 sample / dispensing unit / 6 months	
Accelerated ageing in air	3.2.5.7		1 sample / dispensing unit / 6 months	
Stress relaxation in compression				
7 days at 23 °C	3.2.5.8		1 sample / dispensing unit / 6 months	
100 days at 23 °C	3.2.5.8		At the time of any change in material formulation	
High chemical resistance	3.2.5.9		1 sample / dispensing unit / 6 months	

(*) All tests, without exception, shall be carried out each time the manufacturing technique is changed significantly and whenever the elastomeric formulation is changed significantly.

(**) The frequency of supervision will be determined later.

ANNEX F : TEST FREQUENCY FOR HARD CAST POLYURETHANE

This annex contains a resume of the ITT-tests that have to be conducted, the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body;

Characteristic	Clause in PTV 895-1	Internal	ITT-test	Frequency	
				FPC-test	Supervision (***)
Deformation (*)	3.2.4		1 sample per moulding plant	1 sample / 6 months / dispensing unit + at the time of any change in material formulation	
Indentation (**)	3.2.4		1 sample per moulding plant	1 sample / day / dispensing unit	

(*) Not performed if indentation is determined.

(**) Not performed if deformation is determined.

(***) The frequency of supervision will be determined later.

ANNEX G : TEST FREQUENCY FOR POLYPROPYLENE SLEEVE COUPLINGS

This annex contains a resume of the ITT-tests that have to be conducted, the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body.

Characteristic	Clause in EN 295-1	Internal	ITT-test	Frequency	
				FPC-test	Supervision (*)
Material requirements					
- <i>Melt flow index</i>	6.1.3		1 sample per moulding plant	1 sample from a coupling from each tool every 48 h	
- <i>Tensile strength</i>			1 sample per moulding plant	1 sample from a coupling from each tool every 48 h	
- <i>Elongation at break</i>			1 sample per moulding plant	1 sample from a coupling from each tool every 48 h	
- <i>Elevated temperature</i>			1 sample per moulding plant	1 sample from a coupling from each tool every 48 h	
Performance requirements					
<i>Internal water pressure of 50kPa</i>	6.1.3		1 sample per moulding plant	1 sample from a coupling from each tool every 48 h	
<i>Internal air pressure of 25 kPa</i>			1 sample per moulding plant	1 sample from a coupling from each tool every 48 h	

(*) The frequency of supervision will be determined later.

ANNEX H : TEST FREQUENCY FOR METAL BANDED FLEXIBLE COUPLINGS AND ADAPTORS

This annex contains a resume of the ITT-tests that have to be conducted, the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body.

Characteristic	Clause in EN 295-4	Internal	ITT-test	Frequency	
				FPC-test	Supervision (*)
Appearance	/		/	Continuous	
Dimensions	A.3.1 A.3.2		3 samples of each nominal size	ISO 2859-1 at the AQL of 2,5 % and inspection level II	
Tension band strength	A.3.3.4 A.3.4.2		One sample of each size group	DN < 600 mm: 2 / year on 2 tension bands 600 ≤ DN ≤ 1000 mm: 2 / year on 2 tension bands	
Watertightness of a joint assembly under deflection and shear load:	A.3.4.1				
Adaptors and type 1 couplings	A.3.3.2		1 joint assembly of specific size	DN ≤ 200 mm: 2 / year / adaptor or coupling (**) D > 200 mm: 2 / year / adaptor or coupling (**)	1 sample / product article / year
Type 2 couplings	A.3.3.3		1 joint assembly of specific size	DN ≤ 300 mm: 2 / year / coupling (**) 300 < DN < 600 mm: 2 / year / coupling (**) DN ≥ 600 mm: 2 / year / coupling (**)	1 sample / product article / year
Chemical and physical resistance to effluent	3.5.5		EN 295-2 table 1	EN 295-2 table 13	

Thermal cycling stability	3.5.6		EN 295-2 table 1	EN 295-2 table 13	
Long-term thermal stability	3.5.7		EN 295-2 table 1	EN 295-2 table 13	
Increased watertightness at 1 bar	3.5.8				
Adaptors and type 1 couplings	A.3.3.2		1 joint assembly of specific size	DN ≤ 200 mm: 2 / year / adaptor or coupling (**) D > 200 mm: 2 / year / adaptor or coupling (**)	1 sample / product article / year
Type 2 couplings	A.3.3.3		1 joint assembly of specific size	DN ≤ 300 mm: 2 / year / coupling (**) 300 < DN < 600 mm: 2 / year / coupling (**) DN ≥ 600 mm: 2 / year / coupling (**)	1 sample / product article / year

(*) The frequency of supervision will be determined later.

(**) Test shall be carried out on one adaptor or coupling and will be representative for the whole of this range.

ANNEX I : TEST FREQUENCY FOR CONNECTORS, INSERTABLE FITTINGS AND SEALING RINGS

This annex contains a resume of the ITT-tests that have to be conducted, the test frequency for FPC-testing and the frequency of controls to be carried out under the supervision of the inspection body.

Characteristic	Clause in EN 295-4	Internal	ITT-test	Frequency	
				FPC-test	Supervision (*)
Appearance	/		/	Continuous	
Dimensions	B.2 B.3 B.4		3 samples of each nominal size	ISO 2859-1 at the AQL of 2,5 % and inspection level II	
Watertightness of a joint assembly under deflection and shear load	B.5			2 / year / connector / insertable fitting / sealing ring rotating through the sizes	
Chemical and physical resistance to effluent	3.5.5		EN 295-2 table 1	EN 295-2 table 13	
Thermal cycling stability	3.5.6		EN 295-2 table 1	EN 295-2 table 13	
Long-term thermal stability	3.5.7		EN 295-2 table 1	EN 295-2 table 13	
Increased watertightness at 1 bar	3.5.8		1 joint assembly of each nominal size	2 / year / connector / insertable fitting / sealing ring rotating through the sizes	

(*) The frequency of supervision will be determined later.