

<p><b>GNB-CPR</b> <b>AG</b></p>	<p><b>Co-ordination of the Group of Notified Bodies for the Construction Products Regulation (EU) 305/2011</b></p>	<p><b>NB-CPR/15/639r3</b> Issued 01 November 2018 <b>Approved Guidance</b></p>
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## **POSITION PAPER: Sampling in AVCP systems 1 and 1+**

### **1 FOREWORD**

When the assessment and verification of constancy of performance is done by means of testing, sampling is an activity of utmost importance for the credibility of the assessment and verification.

The sampling is considered the only link between the testing and the continuous production of the construction product.

Whereas the test results form basis for the *assessment of performance* of the construction product, the sampling information forms an important part of the basis for the continuing *verification of constancy of performance* performed by the notified product certification body.

The sampling procedure is expected to ensure that the samples originate from the manufacturing plant for which the manufacturer holds or applies for a certificate of constancy of performance and that the samples are suitable to represent the on-going production<sup>1</sup>.

To ensure that the samples are suitable to represent the on-going production, the sampling procedure shall provide sufficient documentation regarding the origin of the samples and regarding any basic property and any stage of production process with a potential to influence the performance of the product.

Which basic properties and which stages of the production process that may have potential to influence the performance will very much depend on as well the type of construction product as the performance characteristics to assess.

Without a properly conducted and properly documented sampling procedure, the testing and the test report cannot be linked to the continuously manufactured construction product and will not allow for the verification of constancy of performance of the continuously manufactured construction product.

The importance of the sampling is underlined by the fact that CPR Annex V explicitly includes sampling in the work of the notified product certification body under AVCP systems 1 and 1+.

CPR Annex V assigns the task of sampling to the notified bodies in the below cases:

- Sampling for testing as basis for assessment of performance of the construction product (both AVCP systems 1 and 1+)
- Sampling for audit-testing (only AVCP system 1+).

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<sup>1</sup> This does not exclude the application of "appropriate technical documentation" in accordance with CPR Article 36.

## 2 SCOPE

This paper aims at giving general horizontal guidance to notified bodies regarding how to conduct and document sampling for testing under AVCP systems 1 and 1+.

Harmonised standards may include specific rules or circumstances to take into account for specific products. Such provisions shall always be respected and may prevail in case of conflicts with this guidance.

This horizontal guidance may also be supplemented by specific GNB guidance for specific products, product families, and/or for specific performance characteristics. Such specific GNB guidance may include information regarding which basic properties and which stages of the production process that may have potential to influence the performance of the construction product.

In this paper, distinction is made between *selection* and *sampling* (see *Terminology*), which are both the responsibility of the notified product certification body.

This paper does not cover situations where the notified product certification body is requested to let testing (including sampling) already conducted by another body or already existing test results (historical data) form basis for a certificate of constancy of performance.

## 3 REFERENCE STANDARD

EN ISO/IEC 17065 should be the preferred accreditation standard<sup>2</sup> for notified product certification bodies under AVCP systems 1 and 1+.

In EN ISO/IEC 17065, sampling is considered an “evaluation task” (see note of clause 7.4.3). Particular attention is drawn to the below clauses:

*7.4.1 Plan for the evaluation activities*

*7.4.2 Assignment of personnel*

*7.4.3 Availability of information*

To meet the requirements of EN ISO/IEC 17065, the notified product certification body needs to have documented procedures in place covering for example the conduct of sampling activities (including reporting) and the qualification of personnel conducting sampling.

If sampling activities are subcontracted, a documented procedure for the subcontracting must be in place.

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<sup>2</sup> Other accreditation standards, such as ISO 17020 (inspection) and EN ISO/IEC 17021 (management system certification) can be used as evidence of compliance with requirements of CPR Article 43 in order to be designated as a notified product certification body. Irrespective of which standard a notified product certification body is accredited against, the notified product certification body shall also comply with the relevant parts of ISO 17065

## **4 TERMINOLOGY**

### **4.1 Selection**

Selection is understood as the selection of the part of a product group from which samples shall be drawn for the purpose of covering the entire group of products.

The purpose of the selection is to ensure that the selected part of the product group is suitable to represent the product (to be) placed on the market. Normally, a worst-case approach is applied for the selection.

### **4.2 Sampling**

Sampling is understood as the taking of samples from the selected part of the product group. Sampling is normally done by random within the selected part of the product group (see 4.1).

### **4.3 Sample made to order**

A sample manufactured for the purpose of testing. The sample may represent 'normal production' or may be engineered as a worst-case.

## **5 TRACEABILITY**

The sample shall be traceable back to its origin(s) in the production, and to records of tests and inspections during the production process.

### **5.1 Records of test and inspections during manufacture**

The notified product certification body shall verify that records of tests and inspections are available and that all relevant product and process parameters are in conformity with the requirements of the harmonised technical specification and the documented FPC system operated by the manufacturer<sup>3</sup>.

## **6 SAMPLING LOCATION**

Some harmonised specifications have provisions regarding the age of samples, sampling locations etc. Such provisions shall always be respected.

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<sup>3</sup> This verification may be done in connection with an inspection of the manufacturing plant and the factory production control; not necessarily in connection with the sampling.

## **6.1 Sampling for assessment of performance**

When testing for the purpose of assessment of performance, CPR Annex V does not require the sampling to be done at any particular location.

Normally, for the purpose of ensuring the traceability (see clause 5) sampling is done at the manufacturing plant.

The notified body may decide to conduct the sampling at other locations only if it can justify that the traceability is not put at risk<sup>4</sup>.

## **6.2 Sampling for audit testing**

For audit testing, CPR Annex V explicitly requires that the samples shall be taken by the notified product certification body at the manufacturing plant or at the manufacturer's storage facilities.

## **6.3 Non-conforming products**

Products marked by the manufacturer as non-conforming shall not be subject to sampling unless it is specifically justified and with the agreement of the manufacturer.

## **6.4 Sampling directly from the production**

With the agreement of the manufacturer, the notified product certification body may choose to sample directly from the production unit/line and not from the storage facilities. This is an option for as well assessment of performance testing as audit testing.

To sample directly from the production will often be advantageous:

- Less burdens for the manufacturer as it will not require any opening of larger sales units.
- Possibility to witness the production and thereby obtain detailed and secure 'real-time' information about the production process.
- No doubt possible about the origin of the samples.

Notified product certification bodies should however be aware that sampling directly from the production will only allow for sampling of products from a very limited time span.

## **6.5 Sampling from the manufacturer's storage facilities**

The most common sampling location is the warehouse of the manufacturer. When sampling from stock, the notified product certification body shall consider if the amount of material available is sufficient to allow for sampling by random.

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<sup>4</sup> Notified product certification bodies should be aware that they have the full responsibility for ensuring the traceability of the samples back to their origin.

The notified product certification body shall verify the origin of any sample with regard to production unit/line and time of production. The manufacturer's traceability system may be used for that verification.

## **6.6 Sampling at other locations**

When sampling from other locations than the manufacturing plant or the warehouse/storage facilities of the manufacturer, the notified product certification body shall pay particular attention to the verification of the origin of the samples and to the traceability to records of tests and inspections.

For the purpose of audit testing, sampling from other locations than the manufacturing plant or the manufacturer's storage facilities is not allowed.

## **7 PROTOTYPE SAMPLES AND SAMPLES 'MADE TO ORDER'**

If the construction product is only manufactured to order, normally the manufacturer would only have few specimens of the construction product in stock, if any at all. Even if specimens are in stock, the sampling from stock might prevent the manufacturer from timely delivery to the clients to whose orders the specimens have been manufactured.

In such cases, notified product certification bodies may be requested to take samples manufactured for the purpose of testing. In case of new construction products, the notified product certification body may be requested to sample prototypes for testing.

To extend the applicability of the test results, a sample made for testing may be engineered as a 'worst case' representing the most critical sub-types of a product and/or to cover fluctuations in the manufacturing process.

As only a few or even just one single specimen may be available, sampling by random may not be possible. Therefore, in such cases it may not be meaningful to distinguish between the selection and the sampling.

In any case, it is of utmost importance that the samples are accompanied by sufficient documentation to allow for subsequent evaluation if the sample(s) would be suitable of to represent the (future) production.

In annex A is found guidance related to samples made for testing and prototypes.

## **8 MARKING OF SAMPLES**

All samples to be used for testing purposes need to be suitably marked to allow a subsequent verification of the identity of samples.

The marking shall be indelible. In particular, if the notified product certification body itself is not taking care of the transportation, appropriate measures shall be taken to avoid that the markings are moved to a different sample.

The marking of the samples shall normally at least comprise the below information:

- A unique sampling code or number of the sample

- Date of the sampling
- Signature or initials of the representative of the notified product certification body conducting the sampling.

NOTE: For the purpose of verification of the identity of the sample, it may be helpful to take a photo of the sample after marking. Notified bodies should be aware that many manufacturers have strict rules on the use of cameras at their premises.

## **9 SAMPLING SHEET**

A sampling sheet shall be filled out during the sampling and shall at least include the following information:

- Manufacturer and manufacturing plant
- Place of sampling
- Traceability information, e.g. date/time of production, production unit, batch number, shift.
- Number or quantity of the samples
- Marking of the product by the manufacturer
- Marking of the samples by the notified body (see clause 8)
- Place and date of the sampling
- Signature of the representative of the notified body
- Counter signature of the representative of the manufacturer

It may be also be relevant to include the below information:

- stock or batch quantity from which the samples have been taken
- Results of tests and/or inspections during manufacture
- Essential characteristics to be tested
- Photos of the samples taken after marking

## **10 SHIPMENT OF SAMPLES**

Appropriate measures shall be taken to ensure that the samples are not deteriorated or changed during the transportation from the sampling location to the laboratory.

The notified product certification body itself may take care of the transportation and thereby make sure that the samples remain unchanged. Normally, this would only be possible for samples with a limited physical size or over limited distances.

If shipment of the samples is done by the manufacturer, a clear agreement should be made with the manufacturer on the below:

- Address of the laboratory (or other agreed location) to which the samples shall be sent
- Time frame for the shipment

## **11 TEST REQUISITION**

The notified product certification body shall draw up a written requisition for testing<sup>5</sup>.

The test requisition presumes that the laboratory is assessed by the notified product certification body as meeting the requirements of CPR Article 43 and that a written agreement subcontracting agreement has been made.

Moreover, it is presumed that the notified product certification body assumes full responsibility for the testing and that the agreement of the manufacturer is obtained.

The requisition shall be sent to the laboratory and shall at least include the below:

- A request to verify that the samples received by the laboratory correspond to the information in the sampling report, in particular with regard to the marking of the sample (see clause 8), signature of the person who conducted the sampling, and with photos enclosed with the requisition (if relevant)
- A specification of which tests to conduct
- The time frame for the testing
- That all reporting is sent directly to the notified product certification body
- That the test report shall include reference to the requisition and/or the sampling sheet

For the sake of transparency, the manufacturer should receive a copy of the requisition.

## **12 SUBCONTRACTING**

According to CPR Annex V, the notified product certification body itself conducts both sampling and testing. This does however not exclude the possibility to subcontract the activities to other bodies. Subcontracting shall always be in accordance with CPR Article 45.

Subcontracting can only be done with the consent of the manufacturer and to subcontractors assessed by the notified product certification body as meeting the requirements of CPR Article 43.

To subcontract sampling, testing or any part thereof to the manufacturer would not be an option as the manufacturer would not meet the independency requirement of CPR Article 43(3).

Further guidance on the subcontracting of work of notified bodies is found in the position paper NB-CPR 17/744.

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<sup>5</sup> Some certification bodies prefer to combine sampling sheet and test requisition into a single document.

## **Annex A:**

### **Prototypes and construction products made to order**

#### **A.1 Samples made to order**

If the construction product is only 'made to order', it may not be possible to find suitable samples in stock.

The only way to obtain a test sample may be to request the manufacturer to produce a sample specifically for the purpose of testing.

To accept a sample made for testing, the notified product certification body shall satisfy itself that the sample would be suitable to represent 'normal' production in response to client orders.

For the assessment of the suitability, the notified product certification body should apply 'a worst-case approach' to satisfy itself that the samples taken could not be expected to have a better performance than the normal production.

Prior to the tests, the notified product certification body should:

- Satisfy itself that the design, raw materials, composition etc. corresponds to the normal production.
- Identify the critical stages of the production process, i.e. stages which could potentially impact the performance of the construction product with regard to the essential characteristics to be tested.
- At each critical stage, verify that the controlling of the production of the test sample will not result in a better performance than for the normal production. For instance, if reaction to fire is to be tested the notified product certification body should verify that the organic content is not kept at a lower level than for normal production.
- Collect evidence of the controlling of the production process, e.g. results of testing during manufacture, records of inspections during manufacture, and/or records of process settings

The notified product certification body may use various methods for the above, e.g.

- Collection of FPC records
- Photo/video documentation of the manufacturing process
- Witnessing critical stages of the manufacturing process.
- Interviewing operators

When choosing between the above-mentioned methods, The notified product certification body shall apply the principle of proportionality and take into account as well the burdens on the manufacturer, as the complexity of the manufacturing process and the importance of the construction product with regard to the fulfilment of basic works requirements.

For instance, it should be considered that for manufacturing processes of long duration witnessing the manufacturing process may be burdensome.

However, as regards essential characteristics to which AVCP systems 1 and 1+ apply, the construction product may be assumed to be highly important for the fulfilment of the related basic works requirements.

All evidence regarding the manufacturing of the test samples should be kept on file by the notified product certification body.

## **A.2 Prototypes**

The sampling/selection for prototype testing bears a resemblance to the sampling/selection for construction products made to order.

However, as the manufacturing process of the prototype may deviate from the future manufacturing process the notified product certification body shall satisfy itself that adequate evidence of the actual manufacturing process is available to allow for the subsequent evaluation of the suitability of the sample(s) to represent the (future) production.

The evidence should include

- Evidence of the manufacturing process (e.g. descriptions, pictures, work instructions, machinery etc.)
- Identification of critical stages of the manufacturing process and of parameters influencing the performance of the product;
- Design/composition of the prototype including full details of the properties of materials and constituents.