Request for tender regarding the robustness validation of the draft methods for determination of *N*-nitrosamines in air samples

1. Introduction

For the robustness validation of the draft TS 00351042 with a method for the determination of *N*-nitrosamines in air samples derived by EN 16516, the horizontal method for the assessment of emissions from construction products into indoor air, the CEN/TC 351/WG 2 Evaluation Committee has prepared this request for tender. The work is covered under item 2017-12.20 of the Phase 4 contract for the CEN/TC 351 work under Mandate M/366 (CEN/2017-12).

WARNING The assignment of the work is subject to approval by the EC of the request for an amendment to CEN/2017-12.

2. The work

The work consists of robustness testing to ensure that the methods specified in the draft CEN/TS are sufficiently sensitive and robust to allow a reliable performance assessment of the 9 nitrosamines concerned.
The most recent draft (as confirmed by the members of WG 2 in September 2021) is available as CEN/TC 351/WG 2 document N 391 *N-nitrosamines – Last version* (work item 00351042) (Annex B to this request).

3. Conditions for the assignment

The NEN General Purchase Terms and Conditions for Services (version April 2019, Annex C) apply.

4. Replies

- Reply to this request may be provided by one organization or one organization using subcontracts, for the entire project as specified in Annex A.
- Tenders can be sent (by mail or e-mail) to the CEN/TC 351 secretariat at NEN as soon as possible, at **the latest by 24 December 2021, noon (CET).**
  NEN Standards – Materials and construction products
  PO Box 5059
  NL-2600 GB DELFT
  E-mail annemieke.venemans@nen.nl.
- Late delivery will lead to exclusion of the applicant from the award procedure.
- The tender shall contain a specified breakdown of tasks, costs and travel expenses and a planning for the execution of the tasks.
- If necessary, additional information can be obtained from
  - the secretary of CEN/TC 351, Ms Annemieke Venemans
    (Tel.: +31 15 269 02 80, e-mail annemieke.venemans@nen.nl), or from

  - the secretary of CEN/TC 351/WG 2, Ms Svitlana Grand-Chavin (Tel.: +33 1 41 62 83 86, e-mail svitlana.grandchavin@afnor.org), or from
  - the programme manager at CEN/Cenelec Management Centre, Ms Alessia Gaetani (Tel: +32 2 550 09 56, e-mail agaetani@cencenelec.eu).
- NEN as holder of the secretariat of CEN/TC 351 is responsible for execution of the order vouchers for mandate M/366. In order to control the process, project management is held by NEN. The secretariat of CEN/TC 351/WG 2 “Emissions from construction products into indoor air” will be responsible for monitoring the technical progress.
- This means that contract and financial matters as well as monitoring of the general progress of the project and the communication with CEN and CEN/TC 351 are under responsibility of NEN. The technical work (robustness studies) is conducted by a consortium or individual subcontracted parties appointed by the tender procedure specified in the present document.

5. Circulation

This request is circulated in both the plenary CEN/TC 351 and its WG 2, and published on the website of CEN.

6. Annexes to this document

- Annex A to this document is the work programme for the robustness validation;
- Annex B to this document is the draft test procedure for the determination of *N*-nitrosamines in air samples derived by EN 16516 that is able to determine *N*-nitrosamines at a level of 0,2 µg/m³ or less;
- Annex C to this document contains the NEN General Purchase Terms and Conditions for Services (version April 2019);
- Annex D to this document describes the procedure of assessment of the offers.

Annex A: Validation programme for robustness validation of prCEN/TS 00351042 Methods for determination of nitrosamines in air samples

Aim of the contracted work

The purpose of the robustness validation is to ensure that the methods specified in the draft CEN/TS 00351042 (Annex B to this Request for tender) are sufficiently sensitive and robust to allow a reliable performance assessment of the 9 nitrosamines:

Nr	*Name*	*CAS no*
1	N-Nitrosodimethylamine,	62-75-9
2	N-Methyl-N-nitroso-ethylamine	10595-95-6
3	N-Nitrosodiethylamine	55-18-5
4	N-Nitrosodipropylamine	621-64-7
5	N-Nitrosodiisopropylamine	601-77-4
6	N-Nitrosodibutylamine	924-16-3
7	N-Nitrosopiperidine	100-75-4
8	N-Nitrosopyrrolidine	930-55-2
9	N-Nitrosomorpholine	59-89-2

The following criteria are suggested to be considered for the assessment of the suitability of methods for the determination of nitrosamines in air samples derived by EN 16516:

- Comparability: both methods incorporated in the prTS should deliver comparable results.
- Sensitivity: the LOD and LOQ given in the draft TS should be validated and achievable; if this is not the case the relevance of the LOQ requirement can be discussed with respect to existing regulatory limits (≤ 0,2 µg/m³).
- Trueness: for matrix additions using reference materials a recommended range for the recovery of the addition is between 70 % and 130 %.

Envisaged tasks

The foreseen work includes the following tasks:

1. Selection, characterization (homogeneity) and acquisition of a construction material suitable to be used as source of nitrosamine emissions in the robustness testing. For the tests, 2 to 4 m^2 of the material are needed as a minimum (for five test specimens of 0,4 m^2 for the tests and a set of five substitute test specimens as a backup).
2. Acquisition of the nine nitrosamines to be analysed in separate commercial solutions.

3. Preparation of five test specimens of the chosen material with added nitrosamines. The test specimen series shall aim to cover a range of possible concentrations from very low (near LOQ) to above 10 times the limit of quantification (LOQ) related to the test chamber air concentration. E.g. following concentrations: near LOQ, (2) 2 x LOQ, (3) 4 x LOQ, (4) 8 x LOQ, (5) 16 x LOQ and series 2 for HPLC MS/MS with respective concentrations. A backup series (second run) shall be prepared if necessary from analytical point of view.
4. The test specimens shall be prepared for a loading factor of 0,4 for a 1,0 m^3 test chamber and shall each have an area of 0,4 m^2. It is expected that the five test concentrations can be tested in parallel in five identical test chambers. It is also possible to run the tests in two subsequent months with a minimum of three identical chambers.
5. Provision of air samples. Five tests according to EN 16516 with the source material (the prepared 5 test specimens) are run for 14 to 28 days. First air samples are drawn after 3 days, second samples after 14 days and final samples after 28 days. If no nitrosamines have been detected in the samples drawn on day 3 or 14, the test is stopped and no second or third sample is drawn. For each sampling event two double samples shall be drawn at the same time (one double sample for each method, the first sample with the flow rate specified in the draft TS and the second sample with a slower rate of 1,5 litres per minute). Each of the five test chambers provides a maximum of 12 air samplers with trapped nitrosamines (derived from 4 times 100 litres of air sampled on day 3, day 14 and on day 28) for nitrosamine analysis. Altogether a maximum of 60 samplers are produced, 30 for each method specified in the prTS nitrosamines, for analyses. In case the injected nitrosamines in the first series have not been retained until analysis (on day 3) a second series with the backup material shall be run. If the second series is run, the times for air sampling shall be adapted after consultation in TG Nitrosamines.
6. In addition to the test samples two parallel blind samples from an empty chamber shall be drawn before the test specimen is installed (in one test chamber).
7. All analyses (per method, per substance, per air sampler) are carried out 5-fold (altogether a range of 100 to 150 analyses for each nitrosamine for each method). In addition, a blind sample shall be analysed by both methods.
8. It is expected that the work will be carried out by a minimum of one or a maximum of four different laboratories. One laboratory shall provide the material samples for testing and inject the nitrosamines in the requested concentrations. Only one laboratory shall provide all the air samples. The analysis can be carried out by one laboratory (both methods) or by two laboratories (one laboratory per method).
9. The time span between production, shipment and storage of material samples and air samplers before testing shall not exceed seven days. The air samplers do not require cooling

during transport. If material samples need to be transported, air tight and tempered packaging is required.

Expected results and deliverables

The expected results and deliverables of the project are as follows.

1. A progress report on the details of the action's implementation and its presentation in CEN/TC 351/WG 2/TG Nitrosamines and in CEN/TC 351/WG 2 (ZOOM meetings, deadline for submission: 2 months after contract signature, expected deadline is end of March 2022);
2. A draft final report and its presentation in CEN/TC 351/WG 2/TG Nitrosamines and in CEN/TC 351/WG 2 (ZOOM meetings, deadline for submission: 8 months after contract signature) containing
    i. presentation of all analysed and elaborated data (comprehensive raw data in an annex);
    ii. presentation of the repeatability of the measurements in tabular form as well as in graphical form (percentage standard deviation on y-axis as a function of concentration in air on x-axis);
    iii. a statistical evaluation of all data generated;
    iv. conclusions on suitability of the methods and recommendations for improvement of the draft TS;
    v. proposals for the integration of the results of the robustness validation into the draft TS before its publication;
3. A final report based on feedback received from CEN/TC 351/WG 2 (deadline for submission: 10 months after contract signature) for publication at https://www.nen.nl/en/cen-tc-351 (under 'Validation').

Annex B: Draft test procedure for the determination of *N*-nitrosamines in air samples derived by EN 16516

"Construction products – Assessment of release of dangerous substances – Emissions from construction products into indoor air"	CEN/TC 351/WG 2
Date: **2021-09-15**	Doc. Number: **N 391**
Assistant: *Elzbieta ROGALA* *Ligne directe : 01 41 62 81 22* *elzbieta.rogala@afnor.org*	***Your contact:*** *Svitlana GRAND-CHAVIN* *Direct line : + 33 (0)1 41 62 83 86* *svitlana.grandchavin@afnor.org*

N-nitrosamines – Last version

Subject :	The attached document presents the last version of prCEN/TS 00351042 "Methods for determination of nitrosamines in air samples". This document was submitted to CEN/TC 351 for PWI activation
Follow up :	For discussion during the next TG N-nitrosamines virtual meeting fixed on the **20th of September 2021**
Source:	CEN/TC 351/WG 2

CEN/TC 351

Date: 2021-09

prCEN/TS 00351042:2021

Secretariat: NEN

Construction Products: Assessment of release of dangerous substances – Methods for determination of nitrosamines in air samples

Einführendes Element — Haupt-Element — Ergänzendes Element

Élément introductif — Élément central — Élément complémentaire

ICS:

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European foreword

This document (draft prTS 00351042:2021) has been prepared by Technical Committee CEN/TC 351 “Construction products: Assessment of release of dangerous substances”, the secretariat of which is held by NEN.

This document is a working draft and used for the robustness validation.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Introduction

This document describes a test procedure for the determination of N-nitrosamines in air samples derived by EN 16516 that is able to determine N-nitrosamines at a level of ≤ 0,2 µg/m^3.

[to be completed]

Identification of patent holders, if any.

1 Scope

This document describes a test procedure for sampling, elution, detection and quantification for N-nitrosamines in air samples derived from a test chamber according to EN 16516. The following N-nitrosamines are covered:

– N-Nitrosodimethylamine, CAS No. 62-75-9,

– N-Methyl-N-nitroso-ethylamine, CAS No. 10595-95-6,

– N-Nitrosodiethylamine, CAS No. 55-18-5,

– N-Nitrosodipropylamine, CAS No. 621-64-7,

– N-Nitrosodiisopropylamine, CAS No. 601-77-4,

– N-Nitrosodibutylamine, CAS No. 924-16-3,

– N-Nitrosopiperidine, CAS No. 100-75-4,

– N-Nitrosopyrrolidine, CAS No. 930-55-2 and

– N-Nitrosomorpholine, CAS No. 59-89-2.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 16516:2017, *Construction products: Assessment of release of dangerous substances – Determination of emissions into indoor air*

[to be completed]

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16687:2015.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

[to be completed]

4 Sampling of N-nitrosamines from test chamber air

4.1 Sampling medium, sampling duration, sampling rate and sampling volume

4.1.1 Sampling for subsequent analysis with GC/TEA

Same as for HPLC-M-MS

4.1.2 Sampling for subsequent analysis with HPLC MS-MS

A measured volume of 100 litres of air from the emission test chamber is drawn at a controlled flow rate (2 l/min) through the samplers at specified times (as specified in EN 16516) during the emission test. The vapour-phase nitrosamines present in the chamber air are trapped on the samplers as the air passes through. The sampler must prevent the formation of nitrosamines from amines, usually by use of an inhibitor (Example: Thermosorb-N Air Sampling Cartridges from Ellutia). The samplers may be stored for a maximum of seven days in room temperature before elution for analysis.

4.2 Elution of retrieved samples for analysis

4.2.1 Elution for subsequent analysis with GC/TEA

The loaded samplers are placed in an upright position with the "air-in" side on top. Add 100 µl internal standard solution (see 5.1.1) with a syringe and leave for 5 min. Turn the sampler around that the "air-out" side of sampling is up and place a 2 ml-vial under the "air-in" side of the tube. Elute with 2 ml dichloromethane/methanol 3:1 mixture. The eluates are then analyzed by GC-TEA as described in 5.1.1.

Remark: Approximately 1 ml of extract is received, internal standard method compensates for varying extract volume.

4.2.2 Elution for subsequent analysis with HPLC MS-MS

The loaded samplers are eluted with 1.5 mL methanol and made up to 2 mL. After shaking, the eluates are left to settle for 5 minutes and then filtrated through a 0.2 µm membrane filter. The eluates are then analyzed by HPLC-QQQ as described in 5.1.2.

Remark: The inhibitor may crystallize after elution, therefore it is advisable to leave the eluates for a while before filtration.

4.3 Storage of eluted samples

The eluates can be stored for several days in a refrigerator without analyte losses. Tight-sealing vials are required to prevent the loss of the solvent.

Editorial note: the storage time for the eluted samples is a possible topic for robustness validation. Current methods specify different time ranges from 18 hours to up to four weeks.

5 Analysis and quantification

5.1 Analytical method of determination

5.1.1 Analysis with GC/TEA

Calibration:

Commercially available solution for analytes (single or mixture) and internal standard can be used for calibration. The calibration should cover a range of 10 up to 100 ng/ml.

N-Nitroso-propylbutylamine (NPBA) is used as internal standard. It has to be free from nitrosamines analysed by this method.

Example

- Analyte stock solution: Take 100 µl of a purchased standard solution of all analytes at a concentration of 100 µg/ml in methanol and fill-up in brown 10 ml flask to the mark with a dichloromethane/methanol 3:1 mixture. A concentration of 1 µg/ml will result for each analyte. This solution is stable for one year when stored in the dark < 4°C.

- NPBA stock solution: Take 100 µl of a purchased standard solution of all analytes at a concentration of 100 µg/ml in methanol and fill-up in brown 10 ml flask to the mark with a dichloromethane/methanol 3:1 mixture. A concentration of 1 µg/ml will result. This solution is stable for one year when stored in the dark < 4°C.

The solutions for calibration are prepared in 2 ml brown vial from the stock solutions according to the following table

Table 1 — Scheme for preparation of calibration solutions

Calibration solution	**N-Nitrosamine stock solution** [µl]	**NBPA stock solution** [µl]	**Fill up volume** [µl]	**Concentration N-Nitrosamines** [ng/ml]	**Concentration NBPA** [ng/ml]
1	0	100	900	0	100
2	10	100	890	10	100
3	25	100	875	25	100
4	50	100	850	50	100
5	75	100	825	75	100
6	100	100	800	100	100
[a] A mixture of dichloromethane/methanol 3:1 is used.					

A complete calibration has to be measured with a new instrument or when major changes to the system occurred (e.g. change of GC-column, cleaning of injector). Actual calibration has to be checked at the beginning and end of each series of samples by analysing one of the calibration solutions from the table above. A calibration levels in the middle of the range is preferred (calibration solution 4). For routinely check of sensitivity calibration solution 2 shall be used whereas additional analysis of calibration solution 6 checks for linearity. If the check shows a deviation of ≤ 10 % from the calibration curve no further action is required. Otherwise a new calibration check solution has to be prepared and in case that he problem cannot be solved a complete new instrumental calibration has to be applied.

Set GC and TEA to the following conditions:

GC-Column: CP WAX 52CB, 30 m × 0,25 mm × 0,25 µm

Carrier gas: Helium 5,0, flow rate 1,2 ml/min

Injector: split/splitless or PTV

Volume of injection: 2 - 5 µl (split/splitless or PTV respectively)

Temperature program: hold at 60 °C for 2 min, increase temperature with 20 °C/min to 150 °C and hold for 9 min, increase temperature with 30 °C/min to 220 °C and hold for 15 min.

TEA- interface: 250 °C

Pyrolysis oven: 500 °C

Chromatographic separation must be sufficient to allow clear identification and quantification, especially separation between NDBA and NPIP

Figure 1: chromatographic plot of standard solution (to be added)

Analytes and internal standard are identified by retention time. Although a TEA operating in the nitrosamine modus is highly specific for N-Nitroso-compounds a positive result is secured by either using a second column of different polarity or preferable by applying the following procedure:

As nitrosamines are not stable when exposed to UV-light a part of the extracted is transferred to a UV-transparent vial. This vial is exposed to a UV-lamp at 365 nm for 3 h and measured again with the same method as the original sample extract.

In case of a decrease in the original signal of more than a half the original peak is confirmed as nitrosamine. degradation process can be controlled by the internal standard signal which should disappear nearly completely in the treated extract using the described procedure.

Figure 2: chromatographic plot before and after UV-treatment

5.1.2 Analysis with HPLC MS-MS

Column: ZORBAX SB-Aq 2,1 × 100 mm 1,8µ (Agilent)

Injection volume: 2 µl

Flow rate: 0,5 ml/min

HPLC parameters (examples tested on an Agilent 6470 QQQ HPLCMS with APCI-Source):

Solvent A: 0,1% aqueous formic acid

Solvent B: methanol

A gradient program (7 min) starting with 95% solvent A/5% solvent B and ending with 5% solvent A/95% solvent B is used to separate the analytes.

External calibration standards:

Quanitification is done using an external multistandard (e.g. EPA 8270 Appendix IX Nitrosamine Mix, Supelco), which contains the following components in a concentration of each 2000 µg/ml:

N-Nitrosodimethylamine

N-Nitrosomethylethylamine

N-Nitrosodiphenylamine

N-Nitrosodiethylamine

N-Nitrosopyrrolidine

N-Nitrosomorpholine

N-Nitroso-n-propylamine

N-Nitrosopiperidine

N-Nitrosodi-n-butylamine

Dilutions with the following concentrations are prepared. To calibrate, each standard solution is measured three times:

1. 100 ng/ml

2. 50 ng/ml

3. 20 ng/ml

4. 10 ng/ml

5. 5 ng/ml

6. 2 ng/ml

7. 1 ng/ml

For the analysis, the following MRM-detection parameters are used:

Nitrosamin	Precursor Ion	Product Ion
N-Nitroso-di-n-butylamine	159,1	57,2
N-Nitrodiethanolamine	135,1	74,1
N-Nitroso-di-iso-propylamin	131,2	89,1
N-Nitroso-di-iso-propylamin	131,2	43,2
n-Nitrosomorpholine	117,1	45,2
N-Nitroso-piperidine	115,1	41,2
N-Nitrosodiethylamin	103,1	75,1
N-Nitrosopyrrolidine	101,1	55,2
N-Nitrosomethylethylamine	89,1	61,1
N-Nitrosodimethylamine	75,1	43,2

5.2 Quantification

5.2.1 Limit of quantification

Analysis with GC/TEA

LOD and LOQ are determined by replicate analysis (10 times) of the lowest calibration point (blank value method of DIN 32645), with 100 l sampling volume thee following date were obtained.

Table 2 — LOQ and LOD

compound	**LOD** [µg/m³]	**LOQ** [µg/m³]
NDMA	0,0052	0,016
NMEA	0,0058	0,018
NDEA	0,0039	0,012
NDIPA	0,0059	0,018
NDPA	0,012	0,037
NDBA	0,0048	0,014
NPIP	0,0090	0,027
NPYR	0,013	0,038
NMOR	0,012	0,035

Recovery rate: 90-100 %

Editorial note: to be updated. The given concentration levels to be decided.

Analysis with HPLC/MS-MS

The LoD/LoQ are determined using a series of standards in a range from 0.1 to 4 ng/ml. Calculated for a sampling volume of 100 l, the following limits of detection and limits of quantitation were obtained:

Table X: LoD and LoQ for 8 Nitrosamines in ng/m³ (for a sampling volume of 100l)

Substance	Limit of detection	Limit of quantitation
N-Nitrosodimethylamine	4,66	16
N-Nitrosomethylethylamine	4,42	16
N-Nitrosodiethylamine	6,66	22
N-Nitrosopyrrolidine	12	38
N-Nitrosomorpholine	4,54	16
N-Nitrosodiisopropylamine	5,18	18

N-Nitrosopiperidine	14	47
N-Nitrosodibutylamine	6,94	23

The recovery rate from the sampling cartridges (after spiking) was between 75 % and 106 %.

5.2.2 Validated range

Text of paragraph: to be added after validation

6 Calculation of determined nitrosamines

The concentrations of the nine determined nitrosamines shall be reported in µg/m^3 in the air of the test chamber. Also concentrations below the limit of detection and the limit of quantification shall be reported.

a) The peak areas of a single compound in the chromatogram are proportional to the mass of compound injected. For each target compound, the relationship between the mass of analyte injected and the corresponding peak area is determined. The slope of the calibration curve over the linear range is the response factor of the compound analysed, according to equation (1):

$$A_{St} = b_{St} m_{St} + i_{St} \quad (1)$$

where

A_{St} is the compound peak area in the chromatogram of the analytical standard St, in area unit;

b_{St} is the slope of the calibration curve (response factor);

m_{St} is the mass of compound in the analytical standard St, in ng;

i_{St} is the intersect of ordinates and the calibration curve.

NOTE If the calibration curve crosses the origin, i_{St} is considered zero.

b) The mass of compound present in the air sample is calculated from the detector peak area using the response factor of the compound (equation (2)):

$$m_a = \frac{A_a - i_{St}}{b_{St}} \quad (2)$$

where

m_a is the mass of compound *a* in the air sample, in ng;

A_a is the peak area of compound *a* in the chromatogram of the sample, in area unit;

i_{St} is the intersect of ordinates and the calibration curve;

NOTE If the calibration curve crosses the origin, i_{St} is considered zero.

b_{St} is the slope of the calibration curve.

c) The mass concentration of the compound in the sampled air is calculated by means of equation (3):

$$c_a = \frac{m_a}{V_a} - \frac{m_{ab}}{V_{ab}} \quad (3)$$

where

c_a is the mass concentration of compound *a* in the sampled air, in µg/m³;

m_a is the mass of compound *a* present in the chamber air sample, in ng;

m_{ab} is the mass of compound *a* present in the chamber blank, in ng;

V_a is the sampling volume, in l;

V_{ab} is the sampling volume during sampling of the blank, in l.

7 Test report

The concentrations of the nine determined nitrosamines shall be reported in µg/m³ in the air of the test chamber and in the air of the reference room. Also, concentrations below the limit of detection and the limit of quantification shall be reported.

The test report shall include the following information:

a) general reference to the relevant product samples and emission test procedure used;
b) further details according to EN 16516:2017, clause 10.

Annex A
(informative)

Validation data

To be completed after validation

A.1 Recovery

A.2 Measurement uncertainty

A.3 Correlation between CG/TEA and HPLC MS-MS

Text of the annex.

Annex B
(informative)

Alternative methods

To be completed after validation

Bibliography

To be completed

Annex C: NEN General purchase terms and conditions for services (April 2019)

General Purchase Terms and Conditions for Services

Definitions

1.1 Services: all work, activities and/or actions to be executed by the Contractor on the basis of the Agreement for the benefit of the Netherlands Standardisation Institute (Nederlands Normalisatie-instituut, NEN);
1.2 Auxiliary materials: all items that are made available by the Netherlands Standardisation Institute to the Contractor for the purpose of the provision of the Services, including – but not limited to – designs, plates, films, drawings, photos, stamps and other image and sound and information carriers;
1.3 IP rights: all intellectual property rights including – but not limited to – copyrights, trademark rights and database rights;
1.4 Purchase Order: the assignment from the Netherlands Standardisation Institute to the Contractor for the provision of Services;
1.5 Purchase Terms and Conditions: these general terms and conditions of the Netherlands Standardisation Institute, which apply to and form part of the Agreement;
1.6 Purchase Price: the payment owed by the Netherlands Standardisation Institute to the Contractor for the Services on the basis of the Agreement;
1.7 NEN: Stichting Koninklijk Nederlands Normalisatie Instituut, with its registered office and principal place of business in (2623 AX) Delft, at Vlinderweg no. 6;
1.8 Contractor: the (potential) other party of the Netherlands Standardisation Institute;
1.9 Agreement: every agreement concerning the provisions of Services between the Netherlands Standardisation Institute and the Contractor including any amendment thereof and addendum thereto. The Agreement consists in any event of these Purchase Terms and Conditions;
1.10 Party: The Netherlands Standardisation Institute or the Contractor, depending on the context;
1.11 Personnel: the staff members or auxiliary persons to be engaged by the Contractor for the performance of the Agreement.

Applicability

2.1 These Purchase Terms and Conditions; apply to and form an integral part of all Agreements, all offers and tenders issued by the Contractor and apply to all order confirmations from Parties;
2.2 The applicability of the (general) terms and conditions of sale or other terms and conditions applied by the Contractor is expressly excluded unless expressly agreed otherwise.

Coming into effect of the Agreement

3.1 An Agreement will only come into effect by acceptance in writing by the Netherlands Standardisation Institute of an offer or tender from the Contractor or by the signing of an Agreement by both Parties;
3.2 The Contractor cannot derive any right whatsoever from an Agreement to acquire a subsequent assignment;
3.3 In the event of differences between the Purchase Order and the offer or tender, the contents of the Purchase Order will apply as the contents of the Agreement;
3.4 In the event of conflict between the Dutch text of the Purchase Terms and Conditions and the translations thereof the Dutch text will prevail.

Amendment of the Agreement

4.1 Amendments of or addendums to the Agreement will only be binding insofar as these are expressly agreed in writing between Parties by persons who are authorised for this purpose;
4.2 The Contractor will be obliged to render its cooperation in any amendments to the Contract, including amendments to the extent or nature of the Services. NEN will observe the requirements of reasonableness and fairness when exercising this right;
4.3 The Contractor will promptly inform the Netherlands Standardisation Institute in writing with statement of reasons of the consequences of the intended amendment with regard to the price, quality, usability, additional costs, delivery periods and guarantees for the Services to be provided by the Contractor;
4.4 If the amendment results in an increase of the Purchase Price, the Netherlands Standardisation Institute must provide approval in writing for this, in the absence of which the Contractor cannot charge the increase of the Purchase Price;
4.5 If the consequences of the amendment intended by the Contractor are unreasonable in the opinion of the Netherlands Standardisation Institute, the Netherlands Standardisation Institute will be entitled to terminate the Agreement.

Guarantees from the Contractor

5.1 The Contractor guarantees that the Services will fulfil the requirements recorded in the Agreement and the norms and standards that are accepted in the trade, industry or provision of service concerned;
5.2 The Contractor guarantees that the Services will be provided by skilful Personnel in a competent manner with due regard to all applicable requirements that are set out by law and/or other authorities with regard to the regulations provided and will at least meet the quality that can be expected of an expert colleague acting properly and carefully, under similar circumstances, during the usual manner of exercising one's occupation;
5.3 The Contractor guarantees that the Services will be suitable for the objective made apparent to the Contractor and that the results of the Services will meet the reasonable expectations of the Netherlands Standardisation Institute with regard to the characteristics, quality and reliability;
5.4 For the fulfilment of the Contractor's guarantee obligations the Contractor will be obliged during the first year after the delivery to remedy shortcomings as a result of defective Services free of charge within a reasonable period after the flagging up thereof. The remedying will not affect any other rights or claims that the Netherlands Standardisation Institute has on the basis of the Agreement and the law.

Location, period and time of the Services

6 The Services will be provided at and in the time(s) and location(s) specified in the Agreement, in the absence of which the Contractor will be in default without the requirement of notice of default.

Personnel and third parties

7.1 The Contractor will not be entitled to replace persons who are charged with the provision of the Services without

prior permission in writing from the Netherlands Standardisation Institute. The Netherlands Standardisation Institute will not withhold this permission on unreasonable grounds. The Netherlands Standardisation Institute can attach further conditions to this permission;
7.2 If the Netherlands Standardisation Institute requires replacement of persons who are charged with the provision of the Services, because the Netherlands Standardisation Institute believes that this is in the interest of the performance of the Agreement, the Contractor will accede to this, without any change of the Purchase Price, unless this is in conflict with reasonableness and fairness;
7.3 In the event of replacement of persons who are charged with the provision of the Services, the Contractor will make persons available who will be at least equivalent with regard to training, experience and expertise to the person to be replaced. The rates that were applicable to the original persons will not be increased after the replacement;
7.4 During the performance of the Agreement, the Contractor can, at the Contractor's personal expense and risk, outsource the obligations under the Agreement, wholly or in part, to third parties if and after the Contractor has acquired permission in writing for this purpose from the Netherlands Standardisation Institute. The Netherlands Standardisation Institute can attach further conditions to this permission;
7.5 The permission provided pursuant to this article will not affect the personal responsibility and liability on the part of the Contractor for the fulfilment of the obligations under the Agreement and his other statutory obligations, including the obligations on the basis of tax legislation and social security legislation.

Auxiliary materials, goods, data
8.1 The Netherlands Standardisation Institute can make Auxiliary Materials available to the Contractor on loan for use. The Auxiliary Materials and the goods made or purchased by the Contractor for and/or on the instructions of and/or at the expense of the Netherlands Standardisation Institute remain or will remain the property of the Netherlands Standardisation Institute;
8.2 The Contractor will maintain the Auxiliary Materials and the goods in a good state of repair and will insure these, as relevant, against fire and theft, for as long as these are under the control of the Contractor;
8.3 The Contractor is not permitted to use the Auxiliary Materials and/or the goods and/or the data made available by the Netherlands Standardisation Institute for a purpose other than for which these were provided. The Contractor is also not permitted to make the Auxiliary Materials and the goods and the data made available by the Netherlands Standardisation Institute available to third parties without permission in writing from the Netherlands Standardisation Institute;
8.4 The use of the Auxiliary Materials and/or the goods and/or the data made available by the Netherlands Standardisation Institute will be entirely at the Contractor's expense and risk;
8.5 The Contractor will make any Auxiliary Materials, goods and all data (computer files etc.) that the Contractor has the possession of in the context of the performance of the Agreement available to the Netherlands Standardisation Institute, within 10 (in words: ten) working days after the completion of the assignment or as much earlier as will be reasonable, without damage, subject to an immediately due and payable financial penalty of 500 (in words: five hundred) Euro (€) in the event of exceeding of the period or damage to the Auxiliary Materials, without prejudice to the right to claim in addition to the financial penalty the actual damage suffered including the loss due to delay to be suffered by the Netherlands Standardisation Institute. The Netherlands Standardisation Institute will be entitled to deduct this financial penalty from the Purchase Price.

Purchase Price, contract extras and contract reductions
9.1 The Netherlands Standardisation Institute will pay to the Contractor the costs and hours incurred and spent by the Contractor unless otherwise agreed in the Agreement. Insofar as no fixed price has been agreed, the Contractor cannot charge more than 110 (in words: one hundred and ten) % of the costs budgeted or estimated by the Contractor for or during the Agreement, unless there are contract extras that are eligible for payment on the basis of the Agreement;
9.2 If due to changes the Services become demonstrably more onerous or are extended, there will be contract extras that will be eligible for payment. The additional work or changed insights that the Contractor ought to have foreseen at the concluding of the Agreement will not be regarded as contract extras. If a Party believes that there are contract extras, this Party must inform the other Party of this as soon as possible;
9.3 The provisions of the Agreement, including the rates and any discounts apply with regard to the contract extras;
9.4 If due to a change the Services become demonstrably reduced, there will be contract reductions with due regard to which the Contractor will in all reasonableness adjust the Purchase Price, regardless of whether or not there is a fixed Purchase Price. If a Party believes that there are contract reductions, this Party must inform the other Party of this as soon as possible in writing.

Invoicing and payment
10.1 The Contractor will invoice the Netherlands Standardisation Institute for the provided Services at the agreed Purchase Price. The Contractor will send the invoices to the Netherlands Standardisation Institute with statement of the Purchase Order Number (PO number) of the Netherlands Standardisation Institute and, if applicable, together with a copy of the acceptance and other data required by the Netherlands Standardisation Institute, including – but not limited to – time recording and other evidence of the costs incurred;
10.2 Invoicing and payment will take place in Euro (€);
10.3 The Netherlands Standardisation Institute will pay the Purchase Price for the result of the provided Services within 30 (in words: thirty) days after receipt of the invoice. The payment of the invoice by the Netherlands Standardisation Institute does not entail any acknowledgement of the result of the provided Services meeting the guarantees given in accordance with article 5;
10.4 Any exceeding of a payment term by the Netherlands Standardisation Institute or non-payment of an invoice on the basis of suspected substantive inaccuracy thereof, or in the event of faultiness of the invoiced Services, will not

give the Contractor the right to suspend or terminate the Delivery and/or work;
10.5 The Netherlands Standardisation Institute will be entitled to offset the owed invoice amounts against amounts that are owed by the Contractor to the Netherlands Standardisation Institute.

Failure in the performance
11.1 If the provided Services do not meet the guarantee referred to in article 5, the Netherlands Standardisation Institute can require that the Contractor provides the Services with due regard to the provisions of the article referred to. In that event the costs will be at the Contractor's expense;
11.2 If, after the Contractor has received a demand in writing from the Netherlands Standardisation Institute for this purpose, the Contractor does not comply with a demand as referred to in the previous subclause within the period set out therein, or if a final deadline has expired, the Netherlands Standardisation Institute will be entitled, without prior judicial intervention, to have the Services provided by a third party at the Contractor's expense and account, and will be entitled to terminate the Agreement in accordance with the provisions of article 14 and as a result thereof to credit (the part of) the Purchase Price that has already been paid for the Services concerned;
11.3 The provisions of subclause 1 and subclause 2 of this article will not affect the other rights and claims that the Netherlands Standardisation Institute can derive from a failure.

Liability
12.1 The Contractor will be liable towards the Netherlands Standardisation Institute for all damage suffered by the Netherlands Standardisation Institute ensuing from a failure in the execution of the assignment by the Contractor and/or the Contractor's Personnel and/or the third parties engaged by the Contractor, as well as for all damage that must be at the Contractor's expense on the basis of the Contractor's fault, statutory provisions, or generally prevailing opinion. This liability on the part of the Contractor also extends towards natural persons who work for or at the Netherlands Standardisation Institute and towards legal entities that are attached to the Netherlands Standardisation Institute.
12.2 The liability on the part of the Contractor per assignment that is executed under these General Purchasing Terms and Conditions is limited to an amount of:
a) €150,000 for assignments the value of which is less than or equal to € 50,000;
b) €300,000 for assignments the value of which is more than € 50,000, but less than or equal to €100,000;
c) €600,000 for assignments the value of which is more than €100,000, but less than or equal to €300,000;
d) €1,000,000 for assignments the value of which is more than €300,000, but less than or equal to €1,000,000;
e) the tender amount if this tender amount is more than €1,000,000.
12.3 The Contractor indemnifies the Netherlands Standardisation Institute against claims by third parties – including Personnel of the Contractor and/or personnel hired by the Contractor and/or third parties engaged by the Contractor – against the Netherlands Standardisation Institute, related to damage ensuing from a failure in the execution of the assignment by the Contractor and/or the Contractor's Personnel and/or third parties engaged by the Contractor, as well as all damage that must be at the Contractor's expense on the basis of fault on the part of the Contractor, statutory provisions, or generally prevailing opinion.
12.4 Strike action or industrial action by the Contractor's Personnel or by third parties engaged by the Contractor, or the Personnel of these third parties, will not result in force majeure but will apply as an attributable failure in the execution of the assignment by the Contractor.

Force majeure
13.1 In the event of temporary force majeure the Contractor will inform the Netherlands Standardisation Institute of this in writing, with statement of the cause of the force majeure, immediately after the circumstance that resulted in force majeure has occurred. In that case the Netherlands Standardisation Institute will be entitled to choose between:
a) providing postponement to the Contractor for the fulfilment of the Contractor's obligations on the basis of the Agreement during a reasonable period with a maximum of four weeks. If, after the end of this period, the Contractor is unable to still fulfil the obligations under the Agreement, the Netherlands Standardisation Institute will be entitled to terminate the Agreement with immediate effect and without the intervention of the courts, without being obliged to pay compensation of damage and any costs to the Contractor; or
b) termination of the Agreement with immediate effect, without the intervention of the courts, without being obliged to pay compensation of damage and any costs to the Contractor;
13.2 In the event of permanent force majeure on the part of the Contractor, the Contractor will immediately inform the Netherlands Standardisation Institute of this, and the Netherlands Standardisation Institute will be entitled to terminate the Agreement with immediate effect and without the intervention of the courts, without being obliged to pay compensation of damage and any costs to the Contractor;
13.3 Force majeure in any event does not include: lack of Personnel, strike actions, sickness or unsuitability of Personnel, personnel conflict, shortage of raw materials, transport difficulties, delayed delivery, or unsuitability of the required goods, the impossibility of acquiring a permit, or the delayed acquiring of a permit, liquidity problems or solvency position on the part of the Contractor, or failure on the part of the third parties engaged by the Contractor.

Termination
14.1 Without prejudice to the other provisions of the Agreement, the Netherlands Standardisation Institute can, without any demand or notice of default, and without being obliged to pay any compensation to the Contractor, terminate the Agreement, wholly or in part, by means of a registered letter, without the intervention of the courts, or suspend its obligations under the Agreement or any other Agreement with the Contractor, if the Contractor is in

default, or as the case may be performance is permanently or temporarily impossible. If the Netherlands Standardisation Institute suspends its obligations on the basis of the provisions of the previous sentence, this will not result for the Contractor in any ground for instituting any claim against the Netherlands Standardisation Institute;
14.2 In the event of force majeure the Netherlands Standardisation Institute will be entitled to terminate the Agreement in accordance with the provisions of article 13;
14.3 The Netherlands Standardisation Institute can, without any demand or notice of default, terminate the Agreement, wholly or in part, with immediate effect and without the intervention of the courts, by means of a registered letter, without being obliged to pay any compensation to the Contractor, if a court decision forbids the Netherlands Standardisation Institute to perform the Agreement, the Contractor applies for (provisional) moratorium, the Contractor applies for bankruptcy, or is declared bankrupt, the Contractor's enterprise goes into liquidation, the Contractor ceases the enterprise, attachment is levied on a considerable part of the Contractor's assets, or as the case may be the Contractor must otherwise be deemed to be no longer capable of fulfilling the obligations under the Agreement, in the event of bribery or conflict of interest, or in the event that the Contractor enters into a merger or splitoff;
14.4 If the Agreement is terminated, the Contractor will refund the Netherlands Standardisation Institute for the undue payments already made by the Netherlands Standardisation Institute to the Contractor, plus the statutory interest over the paid amount from the day on which this was paid. If the Agreement is partially terminated, the repayment obligation will only exist insofar as the payments relate to the terminated part, unless the provided Services are no longer effective. In that case the Contractor will repay the Purchase Price reduced by the amount for which the Netherlands Standardisation Institute benefited from the provided Services.

Pending delay
15.1 If there is pending delay in the progress of the Services to be provided, the Contractor will immediately inform the Netherlands Standardisation Institute of this in writing and by telephone with statement of the cause and the consequences thereof. The Contractor will also take measures for the prevention of further delay;
15.2 Within a reasonable period after receipt of the notification referred to pursuant to subclause 1, the Netherlands Standardisation Institute will notify the Contractor whether or not it agrees to the proposed measures and the consequences referred to. Concurrence will not entail that the Netherlands Standardisation Institute acknowledges the cause of the pending delay and will not affect the other rights or claims of the Netherlands Standardisation Institute on the basis of the Agreement and the law.

Insurance
16.1 The Contractor has taken out insurance in the usual manner and that is suitable according to generally accepted standards and will maintain this insurance as such for the risks (risks ensuing from professional errors), corporate liability (including liability for injury caused to persons or damage to property that is owned by the Netherlands Standardisation Institute) and loss of and damage to the machinery and equipment (including due to fire and theft), including the property that is owned by the Netherlands Standardisation Institute;
16.2 Upon the request from the Netherlands Standardisation Institute, the Contractor will promptly submit (a certified copy of) the policy documents and the evidence of the premium payment concerning the insurances referred to in the first subclause, or as the case may be a statement from the insurer concerning the existence of these insurances and the payment of the premium. The Contractor will not terminate the insurance contracts, or as the case may be the terms and conditions under which these have been entered into, without prior permission in writing from the Netherlands Standardisation Institute. The insurance premiums owed by the Contractor are deemed to have been included in the agreed prices and rates.

IP rights
17.1 The IP rights that can be exercised – wherever and whenever – with regard to the results of the Services are vested in the Netherlands Standardisation Institute. These IP rights are transferred to the Netherlands Standardisation Institute by the Contractor on the basis of the Agreement at the time of the arising thereof, which transfer is hereby already accepted by the Netherlands Standardisation Institute;
17.2 Insofar as the provided Services (also) come into effect by making use of IP rights that are already in existence, but that do not accrue to the Netherlands Standardisation Institute, the Contractor provides the Netherlands Standardisation Institute with a non-exclusive and non-terminable right of use with an indefinite duration. In that event the Contractor guarantees to be entitled to providing the aforesaid right of use;
17.3 Insofar as at any time a further deed could be required for the transfer of the rights referred to in article 17 subclause 1 and article 17 subclause 2, the Contractor hereby already irrevocably authorises the Netherlands Standardisation Institute to draw up such a deed and also to sign this on behalf of the Contractor, without prejudice to the obligation of the Contractor to provide upon the first request from the Netherlands Standardisation Institute cooperation to the transfer of rights, without being able to set out conditions thereby;
17.4 If there is a difference of opinion between Parties regarding the intellectual property rights referred to in article 17 subclause 1 and article 17 subclause 2, related to the Services, one will assume that these rights are vested in the Netherlands Standardisation Institute, with the exception of proof to the contrary from the Contractor. In all events the Netherlands Standardisation Institute will be permitted to continue to make use of the outcome of the results intended in the Agreement;
17.5 The Contractor hereby waives towards the Netherlands Standardisation Institute all 'personality rights' accruing to the Contractor, as referred to in the Copyright Act, to the extent that such a waiver is permitted by the applicable regulations. The Contractor waives as authorised for this purpose, also on behalf of the Personnel and any third parties involved on the part of the Contractor, all personality rights accruing to these staff

members and third parties, to the extent that such a waiver is permitted by the applicable regulations;
17.6 The Contractor indemnifies the Netherlands Standardisation Institute against claims by third parties related to (alleged) infringement of the IP rights of these third parties, including the Personnel, comparable claims with regard to knowledge, including unauthorised notifications and suchlike. The Contractor undertakes to take all measures at the Contractor's expense, which measures can contribute to the prevention of business interruption and to the limitation of extra costs to be incurred and/or the damage to be suffered as a result of the infringements referred to;
17.7 Without prejudice to the provisions regarding this matter, the Netherlands Standardisation Institute can, if third parties hold the Netherlands Standardisation Institute liable related to infringement of IP rights, terminate the Agreement wholly or in part in writing, without the intervention of the courts, without prejudice to its further rights towards the Contractor, including – but not limited to – any right to compensation. The Netherlands Standardisation Institute will only exercise its right to termination after consultation with the Contractor;
17.8 If, with regard to the results of the delivered Services, other IP rights arise, these can never be invoked against the Netherlands Standardisation Institute and the Contractor provides related thereto the Netherlands Standardisation Institute, without financial consideration, with a non-exclusive and non-terminable right of use for an indefinite duration for the purpose of the objectives intended in the Agreement.

Confidentiality
18.1 Each Party to the Agreement will keep all information concerning inter alia the business operations of the other Party/Parties, which reasonably must be regarded as confidential, as well as the contents of the Agreement, secret. Parties will only use the information for the performance of the Agreement and will limit access to this information to the persons who must have knowledge thereof for this purpose. Parties guarantee that these persons will be obliged to maintain the confidentiality of the confidential information by means of an employment contract and/or non-disclosure agreement;
18.2 Confidential information does not include information that was already public at the time that it came to the knowledge of the receiving Party, or that became public afterwards, or that the receiving Party has acquired from a third party without a duty of confidentiality being imposed thereby, or if this third party was obliged for this purpose.

Processing personal data
19.1 If the Contractor processes Personal Data during the performance of the Agreement, the Contractor will process the Personal Data in a proper and careful manner and will comply with the statutory regulations ensuing from the Personal Data Protection Act and from the General Data Protection Regulation.
19.2 The Contractor will inform the Client within four working days regarding every request and/or every complaint made by the Supervisory Authority or the Data Subject with regard to the Personal Data that is processed during the performance of the Agreement.
19.3 The Contractor will provide cooperation to the Client if the Data Subject submits a request for exercising his or her rights such as, but not limited to, the right of access, improvement, removal, the right to object to the processing of the Personal Data, and a request for the portability of the Personal Data.
19.4 The Contractor will inform the Client within four working days regarding every court order, summons, statutory obligation or another obligation of sharing Personal Data with third parties.
19.5 The Contractor will inform the Client regarding the discovery of a potential data leak within 24 hours after the discovery thereof. Thereupon the Contractor will keep the Client informed of new developments related to the data leak.
19.6 The Contractor will provide the following information in the event of a data leak:
a) a detailed description of the data leak;
b) the type/kind of Personal Data involved in the data leak;
c) the number of persons whose Personal Data is involved in the data leak;
d) the identity of the persons involved in the data leak;
e) the measures taken for the limitation of the negative consequences for the Data Subjects and for remedying the data leak;
f) the cause of the data leak;
g) the duration of the data leak and the time of the occurrence thereof.
19.7 Any costs that must be incurred for solving the data leak, will be at the expense of the party that incurs the costs, unless the data leak has occurred due to the non-compliance by the Contractor with the Agreement, in which case the costs will be at the Contractor's expense. In addition, the Client retains the option to use other remedies at law.
19.8 Communication regarding the data leak will always take place in consultation.
19.9 If the Agreement between the Contractor and the Client terminates, the Contractor will return the Personal Data that the Contractor has processed during the performance of the Agreement to the Client and/or will destroy it.

Publications or advertisements
20 The Contractor will not implicitly or expressly mention the (providing of) the assignment in publications (including press releases) or advertisements and will not use the name of the Netherlands Standardisation Institute other than after permission in writing from the Netherlands Standardisation Institute.

Employees
21 During the term of each Agreement and during one year thereafter, Parties will not employ any employees of the other Party, which employees are involved in the performance of this Agreement, without prior permission in writing from the other Party.

Transfer of rights and obligations under the Agreement
22 Parties are not permitted to transfer the rights and obligations ensuing from the Agreement to a third party without permission in writing.

Null and void and voided provisions

23 If one or more provisions of the Purchase Terms and Conditions or the Agreement appear to be null and void or are voided by the court, the other provisions of the Purchase Terms and Conditions and the Agreement will continue to have legal effect. Parties will conduct consultation regarding the null and void or voided provisions in order to reach a replacement arrangement. The replacement arrangement will not affect the purpose and the meaning and effect of the Purchase Terms and Conditions or the Agreement.

Continuous provisions

24 The provisions that are by their nature intended to continue also after the end of the Agreement will retain their effect after the end thereof. The guarantee (article 5), liability (article 12), IP rights (article 17), confidentiality (article 18), employees (article 21), applicable law and court with competent jurisdiction (article 25) are inter alia included in these provisions.

Applicable law and court with competent jurisdiction

25.1 The law of the Netherlands applies to this Agreement;

25.2 Every dispute between Parties related to the Agreement will be exclusively submitted to the court with competent jurisdiction for this purpose in the district of The Hague.

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Annex D: Assessment procedure

(1) Only projects that are strictly non-profit-making and/or whose immediate objective is non-commercial shall be eligible. Selection will be based on the following criteria:

1) Documented experience
(maximum 45 points):
- number of years working in the field of determination of N-nitrosamines in air samples;
- number of years working in the field of analysis and data processing and/or number of completed projects/publications confirming related technical experience and activities;
- number of years participating in European and/or international standardisation work in the field of emission of dangerous substances from construction products into indoor air and/or list of completed and running standardisation projects confirming related experience;
- description of actual experience in running European and/or international programs;
- list of publications in the field of emissions from construction products and related materials in peer reviewed journals;
- description of the quality assurance procedures for the required analyses.

2) Organisation – demonstration of ability and understanding of the project
(maximum 35 points):
- proof of stable and sufficient sources of finance to ensure the continuity of the organisation throughout the project;
- description of infrastructure;
- submission of curriculum vitae of every person to be performing work in connection with the robustness project;
- delineation of organisation of the measurements;
- proof of an established quality system.

3) Quotation price
(maximum 20 points):
- Only offers that pass the selection criteria of scoring minimum 30 points under 1) and 20 points under 2) will be further evaluated.

(2) The criteria shall be assessed on the basis of the documents supplied by the tender providers. The selection committee reserves the right to approach bidders' previous customers for reference. The sum of points acquired under 1) and 2) is divided by the number of points scored for the quotation price for the lot under 3). The offer with the highest ratio will be selected. However, in case the ratio of {1) + 2)}/3) of the two best offers differs less than 10 %, the evaluation committee may decide to choose the offer with the best value (i.e. the highest sum of 1) + 2)).

(3) The selected offer is sent to the EC and to CEN/TC 351/WG 2 for confirmation. After confirmation, the work is assigned.

WARNING The assignment of the work is subject to approval by the EC of the request for an amendment to CEN/2017-12.