Evaluation Guideline

regarding the Product Certificate
GASKEUR Label SV (Clean Combustion): 2010
for Central Heating Appliances
Preface

This Evaluation Guideline has been adopted by the Kiwa Board of Experts of Energy Performance Label, wherein all the relevant parties in the field of supply, installation and use are represented. These Boards of Experts also supervises the certification activities and where necessary require the Evaluation Guideline to be revised. All references to Board of Experts in this Evaluation Guideline pertain to the above mentioned Boards of Experts.

This Evaluation Guideline will be used by Kiwa in conjunction with the Kiwa-Regulations for Product Certification. This regulation details the method employed by Kiwa for conducting the necessary investigations prior to issuing the product certificate and the method of external control.

This Evaluation Guideline is drawn up for certification purposes within the framework of GASKEUR appliance labelling. This certification is voluntary and supplementary, which implies that the label is neither obligatory for admission nor permits admission in its own right. To be admitted each appliance is required by law to bear the CE marking. GASKEUR labels are supplementary, i.e. they provide information on a certain aspect of the appliance not clearly indicated by the CE marking.

This Evaluation Guideline is a specific addition to the Evaluation Guideline GASKEUR Basic Label CV:2010 and indicates that the appliance meets stricter requirements regarding the emissions of CO and NOx. This Evaluation Guideline has been adapted according to the latest insights, adapted to the NOx Regulation and, as far as possible and useful, also to the European Standards and Regulations.

In addition to this GASKEUR CV-SV label, there are also labels for specific appliance properties, such as efficiency, comfort and emission, for which Evaluation Guidelines already exist or are being developed. These specific labels can only be obtained if the Evaluation Guideline for the GASKEUR Basic Label CV has also been met.

In order to continue harmonisation with the European standards and regulations, this Evaluation Guideline use heat inputs and efficiencies based on the net calorific value (Hi). In order to ensure complete harmonisation with national legislation, in as far as it (still) makes use of the gross value conversion information has been included where necessary.

NOTE:
This is a translation from the Dutch. In case of ambiguity or differences in interpretation between this translation and the original Dutch text, the Dutch text prevails.
Kiwa Nederland B.V. is a company with an international and independent reputation for testing and certification of gas and water related products for manufacturers and suppliers. These products include gas appliances, sanitary ware, measurement and control devices and installation and distribution materials. Kiwa Nederland B.V. also tests and certifies the raw materials for plastic pipe products. Furthermore, Kiwa Nederland B.V. certifies various quality, safety and environmental management systems for a wide range of customers. Kiwa Nederland B.V. also provides independent expertise in the form of consultancy in the field of installation safety.

Kiwa Nederland B.V. is based in Apeldoorn and Rijswijk in the Netherlands and is accredited by the Dutch Council for Accreditation (RvA). Kiwa Nederland B.V. is appointed by the Dutch government as Notified Body in the field of the European Directives (CE Marking). All test work is carried out in Kiwa Nederland B.V.’s own laboratories, which are accredited to ISO/IEC 17025.

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Validation
This Evaluation Guideline has been adopted by the Boards of Experts on 1st December 2010.
This Evaluation Guideline has been declared binding by Kiwa Nederland BV on 1st Februari 2011.
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1 Introduction

1.1 General
This Evaluation Guideline includes all relevant requirements which are adhered to by the CI as the basis for the issue and maintenance of a product certificate for the GASKEUR CV-SV Label.

This Evaluation Guideline replaces the GASKEUR CV-SV:2001 Criteria, dated May 2001 with the accompanying corrections, additions and interpretations. The certificates issued based on those criteria lose their validity 6 months after this Evaluation Guideline has been adopted by the Board of Experts.

For the performance of its certification work, the CI is bound to the requirements as included in the clause 4.6 “conditions and procedures for granting, maintaining, extending, suspending and withdrawing certification” of EN45011.

1.2 Field of Application/Scope
This Evaluation Guideline applies to gas-fired central heating appliances with heat inputs of up to 900 kW, including assemblies of a boiler body and an add-on burner, where the add-on burner is supplied with the boiler.

1.3 Acceptance of Test Reports Provided by the Supplier
The requirements for accepting test reports from which the tests have been performed in the laboratory of the manufacturer, can be found in the normative Annex 5 of the Evaluation Guideline for the GASKEUR Basic Label CV (Central Heating): 2010 for Central Heating Appliances.

1.4 Certificate
The product certificate to be issued based on this Evaluation Guideline is designated as a GASKEUR certificate. The models for these certificates have been added to this Evaluation Guideline as an annex.
2 Terms and Definitions

2.1 General Definitions
In this Evaluation Guideline, the following terms and definitions are applicable:

- **Evaluation Guideline**: The agreements made by the Board of Experts on the subject of certification.
- **Board of Experts**: The Board of Experts, appointed by Kiwa Nederland B.V. regarding the certification system for EPK quality marks.
- **TI**: The testing institute which carries out the approval testing programme.
- **CI**: The certification institute which carries out the certification and grants the certificates.
- **Supplier**: The party who is responsible for ensuring that the products continuously meet the requirements upon which the certification was granted.
- **IQC Scheme**: A description of the quality checks performed by the supplier, as a part of his Quality Management System.
- **Product Requirements**: Requirements specified in sizes or numbers, which focus on the (identifiable) properties of products and which have an attainable value that can be unambiguously calculated or measured.
- **Approval Programme**: The investigation to determine whether all requirements put forth in the Criteria have been met.
- **Surveillance Programme**: The investigation which will be carried out after the issue of the certificate to determine if the certified products continue to meet the requirements set in the Criteria, whereby it is also indicated which frequency the Surveillance Programme will be carried out by Kiwa.

**Remark:**
In the Inspection Matrix there is a summary of which programme will be carried out by Kiwa in the initial type testing and in the maintenance stage, and with which frequency the Surveillance Programme will be carried out.

- **Product Certificate**: A document in which the CI declares that a product at the time of delivery is considered to fulfil the product specifications as specified in the certificate.
2.2 Technical Definitions

- **Year Emission Value**
  The weighted average of the emissions of a component in the flue gases, measured under specified heat input conditions.

- **Relative Heat Input**
  The momentaneous heat input as a percentage of the nominal heat input of the appliance.

- **Temperature Balance**
  The operational situation whereby the temperatures of the supply and return water remain stable for an extended time within a tolerance of +/- 2 K.

- **Technically Identical Series**
  With technically identical series it is meant that the appliances within such series shall be built from main components with the same construction principle (e.g. construction of the heat exchanger(s), pump, fan, burner, etc.). Example: appliances with heat exchangers or burners with different construction principles will therefore not be considered as one series. Appliances with heat exchangers or burners with the same construction principles, but where the heat exchangers or burners have different capacities, are considered as belonging to one series.
3 Procedure for Granting the Quality Declaration

3.1 Pre Certification Tests
The pre certification-tests to be performed are based on the (product) requirements as included in this Evaluation Guideline including the test methods and contain, depending on the nature of the product to be certified:
• (sample) testing to determine whether the products comply with the product and/or functional requirements,
• Production Process Assessment
• Assessment of the quality system and the IQC-scheme,
• Assessment on the presence and functioning of the remaining procedure.

3.2 Granting the Certificate
After finishing the pre-certification tests the results are presented to the person deciding on granting of certificate. This person evaluates the results and decides whether the certificate can be granted or additional data and/or tests are necessary.

Examples of certificates are given in the Evaluation Guideline for the GASKEUR Basic Label CV (Central Heating): 2010 for Central Heating Appliances.
4 General and Constructional Requirements

4.1 Basic Requirements

• The appliance is required by law to bear the CE Marking. In the case of assemblies this applies to both the boiler body and the add-on burner.
• The appliance shall also meet the requirements of the Evaluation Guideline GASKEUR for the Basic Label CV (Central Heating): 2010 for Central Heating Appliances.
• If, according to the boiler manufacturer, several types of add-on burners can be used in combination with the boiler body, these types shall be clearly specified within the framework of this Evaluation Guideline, in order to exclude assemblies which fall outside the scope of the label according to this Evaluation Guideline. This implies that any assembly of boiler body and add-on burner specified by the boiler manufacturer shall meet all the requirements in this Evaluation Guideline.
5 Operational Requirements

5.1 Carbon Monoxide
The annual emission value of carbon monoxide (CO) in the dry flue gases, measured at or converted to complete stoichiometric combustion (H₂O- and O₂-free flue gases) shall not exceed 160 p.p.m.

5.2 Nitrogen Oxides
The annual emission value of nitrogen oxides (NOx) in the dry flue gases, measured at or converted to complete stoichiometric combustion (H₂O- and O₂-free flue gases), shall not exceed the value given in table 1 below¹:

<table>
<thead>
<tr>
<th></th>
<th>fully premixed (aerated) burner</th>
<th>forced-draught burner</th>
<th>fully atmospheric burner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural gas G25</td>
<td>40 p.p.m (at 0 % O₂)</td>
<td>40 p.p.m (at 0 % O₂)</td>
<td>40 p.p.m (at 0 % O₂)</td>
</tr>
<tr>
<td></td>
<td>70 mg/m³ (at 3 % O₂)</td>
<td>70 mg/m³ (at 3 % O₂)</td>
<td>70 mg/m³ (at 3 % O₂)</td>
</tr>
<tr>
<td></td>
<td>72 mg/kWh</td>
<td>72 mg/kWh</td>
<td>72 mg/kWh</td>
</tr>
<tr>
<td>Propane G31</td>
<td>40 p.p.m (at 0 % O₂)</td>
<td>50 p.p.m (at 0 % O₂)</td>
<td>60 p.p.m (at 0 % O₂)</td>
</tr>
<tr>
<td></td>
<td>70 mg/m³ (at 3 % O₂)</td>
<td>88 mg/m³ (at 3 % O₂)</td>
<td>106 mg/m³ (at 3 % O₂)</td>
</tr>
<tr>
<td></td>
<td>71 mg/kWh</td>
<td>89 mg/kWh</td>
<td>107 mg/kWh</td>
</tr>
<tr>
<td>Butane G30</td>
<td>40 p.p.m (at 0 % O₂)</td>
<td>50 p.p.m (at 0 % O₂)</td>
<td>60 p.p.m (at 0 % O₂)</td>
</tr>
<tr>
<td></td>
<td>70 mg/m³ (at 3 % O₂)</td>
<td>88 mg/m³ (at 3 % O₂)</td>
<td>106 mg/m³ (at 3 % O₂)</td>
</tr>
<tr>
<td></td>
<td>71 mg/kWh</td>
<td>90 mg/kWh</td>
<td>108 mg/kWh</td>
</tr>
</tbody>
</table>

Table 1: Annual Emission Value of Nitrogen Oxides (NOx)

¹ The Dutch NOx Decree divides appliances into classes depending on the burner technology, but not on the type of gas used; European (draft) standards do not divide appliances depending on the burner technology, but instead on the type of gas used. In preparing the table, both approaches were taken into account with caution to be able to deal with the possible situations occurring in practice.
6 Test Methods

6.1 Conditions
- ambient temperature: 20 °C ± 2 K (annual average at set point 20°C)
- Relative humidity: 70% ± 5%

The appliances are supplied with the reference gas(es) of the appliance category concerned at nominal supply pressure:
- Category I\textsubscript{2L} appliances: G25
- Category I\textsubscript{3P} appliances: G31
- Category I\textsubscript{3B} and I\textsubscript{3B/P} appliances: G30
- Category II\textsubscript{2L3P} appliances: successively with G25 and G31
- Category II\textsubscript{2L3B} and II\textsubscript{2L3B/P} appliances: successively with G25 and G30

If the appliance includes a water heater, the tests shall be carried out for the situation in which the appliance provides heat only for the central heating system. The specific tests for appliances with high-low or modulating control shall be carried out only if the control is dependent on the heat demand. Appliances whose high-low or modulating control is dependent on the occurring water temperatures are considered appliances with on-off control in these test methods. Appliances with on-off control and adjustable heat input (input range) are adjusted to the highest heat input (100%).

6.2 Open-Flued Appliances
Open-flued appliances are fitted with a vertical flue gases evacuation duct with a length of 1 m and a diameter according to the manufacturer's instructions for the installer.

6.3 Room-Sealed Appliances
Room-sealed appliances are fitted with an air supply duct and a flue gases evacuation duct of the shortest length specified in the manufacturer's instructions for the installer. The inlet and outlet shall lie in zones of equal pressure.

6.4 Units

6.4.1 Boiler Series
In the case of a boiler series with ascending heat inputs the test laboratory shall select one or more representative units for the CO and NOx measurements. If the combination(s) concerned meet(s) the criteria it may be assumed that other boilers out of the series fitted with the selected burner type or series also meet the criteria provided that:
1. the ratio of the heat input of the burner to the combustion chamber volume is equal to or smaller than that of the measured combination(s);
2. both the combustion chamber geometry and the shape of the flame are in such proportion to the measured combination(s) that there is no reason to assume that the emission limits will be exceeded.
6.4.2 Alternative Burners by Test Flame Tube Measurement

If the burners of a unit series are not connected to the boilers, but to test flame tubes and then subjected to the GASKEUR/SV tests, the following conditions shall be satisfied:

1. the available test data of at least one burner tested in combination with the boiler and with the test flame tube shall be such as to enable a proper comparison;
2. the test flame tube length used during the test shall be equal to or smaller than the length of the combustion chamber of the boiler to be used;
3. the emissions and the furnace rating (i.e. the heat input to the combustion chamber) shall not exceed the values given in table 2 below:

<table>
<thead>
<tr>
<th>CO and NOx on test flame tube</th>
<th>Test flame tube adjustment</th>
<th>Boiler principle</th>
<th>Furnace rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc. to 5.1 and 5.2</td>
<td>direct flame</td>
<td>no reversed flame (e.g. 3-pass)</td>
<td>&lt; 1,500 kW/m³</td>
</tr>
<tr>
<td>Acc. to 5.1 and 5.2</td>
<td>direct flame</td>
<td>reversed flame (e.g. 2-pass)</td>
<td>&lt; 1,100 kW/m³</td>
</tr>
<tr>
<td>Acc. to 5.1 and 5.2</td>
<td>reversed flame</td>
<td>not applicable (e.g. 2- or 3-pass)</td>
<td>&lt; 1,500 kW/m³</td>
</tr>
</tbody>
</table>

Table 2: Emissions and Furnace Rating

6.4.3 Controls

If the manufacturer wants to use a burner with a different control principle (on-off, high-low, modulating) than the one used for the reference burner which is subjected to the SV tests, then additional measurements shall be carried out in accordance with the sections applicable to the control principle concerned.

6.5 Determination of Emissions at Nominal Heat Input

The NOx and CO emissions are determined after thermal equilibrium has been reached at nominal heat input. The mean of the water temperatures at the inlet and outlet of the appliance shall be 70 °C ± 3 K with a temperature differential between these two temperatures of 20 ± 2 K.

The measured emission values are recorded as "Emission value at nominal heat input", = $E_{nom}$.

6.6 Determination of Emissions at Reduced Return Water Temperature

The NOx and CO emissions are determined after thermal equilibrium has been reached at the following settings:

- Water return temperature: 40 °C ± 3 K.
- Water flow rate: Settings, external resistance, etc. as specified in article 6.5, except that the appliance control is permitted to independently operate, for example, the circulation pump.
- Heat input:
  - Appliances with on-off control are adjusted to the nominal heat input (100%).
  - Appliances with high-low control are adjusted to the lowest value specified by the manufacturer or to the nominal heat input (100%) if the lowest value is smaller than 30 %.
- Appliances with modulating control are adjusted to 30% of the nominal heat input or to the lowest heat input within the control range, if the lowest value exceeds 30%.

The measured emission values are recorded as "Emission value at minimum heat input" = "E_min".

6.7 Determination of Emissions at a Relative Heat Input Equal to 60%  
This test is carried out exclusively on modulating appliances with a nominal heat input exceeding 31.5 kW and with a minimum heat input of the modulating range smaller than or equal to 60% of the nominal heat input.

The NO_x and CO emissions are determined after thermal equilibrium has been reached at the following settings:
- Water return temperature: 50 °C ± 3 K.
- Water flow rate: Settings, external resistance, etc. as specified in article 6.5, except that the appliance control is permitted to independently operate, for example, the circulation pump.
- Heat input: Relative heat input of 60% of the nominal heat input.

The measured emission values are recorded as "Emission value at relative heat input" = "E_{60}".

6.8 Determination of the Annual Emission Value for Appliances of up to and Including 31.5 kW  
The annual emission value is calculated as the arithmetic mean of E_{nom} and E_{min}.

6.9 Determination of the Annual Emission Value for Appliances Exceeding 31.5 kW  
In the case of appliances with on-off control the annual emission value is equated with E_{nom}.

The annual emission value of appliances with high-low control is calculated using the formula summarised in Table 3 below.

The annual emission value of appliances with modulating control is calculated using the formula summarised in Table 4 below.

<table>
<thead>
<tr>
<th>B_{low} = heat input setting &quot;low&quot;</th>
<th>Calculation of annual emission value</th>
</tr>
</thead>
<tbody>
<tr>
<td>B_{low} ≥ 60 %</td>
<td>(E_{nom} + 4 * E_{min}) / 5</td>
</tr>
<tr>
<td>60 % &gt; B_{low} ≥ 50 %</td>
<td>(E_{nom} + 3 * E_{min}) / 4</td>
</tr>
<tr>
<td>50 % &gt; B_{low} ≥ 40 %</td>
<td>(E_{nom} + 2 * E_{min}) / 3</td>
</tr>
<tr>
<td>40 % &gt; B_{low} ≥ 30 %</td>
<td>(E_{nom} + E_{min}) / 2</td>
</tr>
</tbody>
</table>

Table 3: Calculation of the annual emission value of appliances with high-low control with a nominal heat input larger than 31.5 kW
Table 4: Calculation of the annual emission value of appliances with modulating control with a nominal heat input larger than 31.5 kW

<table>
<thead>
<tr>
<th>$B_{\text{min}}$</th>
<th>Calculation of annual emission value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$B_{\text{min}} \geq 60 %$</td>
<td>$(E_{\text{nom}} + 4 \times E_{\text{min}}) / 5$</td>
</tr>
<tr>
<td>$B_{\text{min}} &lt; 60 %$</td>
<td>$(E_{\text{nom}} + 2 \times E_{\text{60%}} + 2 \times E_{\text{min}}) / 5$</td>
</tr>
</tbody>
</table>

6.10 Accuracies of Measurement

In determining the required annual emission values, the overall inaccuracy of measurement shall not exceed 10%.

To do so, the (concentration of the) various components shall in principle be determined with the maximum inaccuracy stated below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Inaccuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO (nitrogen oxide)</td>
<td>$\leq 8 % \text{ Rdg}$</td>
</tr>
<tr>
<td>NO$_2$ (nitrogen dioxide)</td>
<td>$\leq 8 % \text{ Rdg}$</td>
</tr>
<tr>
<td>CO$_2$ (carbon dioxide)</td>
<td>$\leq 6 % \text{ Rdg}$</td>
</tr>
<tr>
<td>CO (carbon monoxide)</td>
<td>$\leq 6 % \text{ Rdg}$</td>
</tr>
<tr>
<td>Gas pressures</td>
<td>$\leq 2 % \text{ Rdg}$</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>$\leq 5 % \text{ Rdg}$</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>$\leq 1 ^\circ\text{C}$</td>
</tr>
<tr>
<td>Flow and return boiler water temperature</td>
<td>$\leq 2 ^\circ\text{C}$</td>
</tr>
</tbody>
</table>

The measurements shall be carried out using a suitable measuring device the inaccuracy of measurement of which shall be determined according to the method specified in Annex III of document CR 1404: "Determination of Emissions from Appliances Burning Gaseous Fuels During Type-Testing", which was published by CEN in March 1994.¹

Deviations from the specified individual inaccuracies of measurement are permitted, provided the overall inaccuracy of measurement determined in accordance with the method given in document CR 1404 does not exceed the above-mentioned value of 10%.

6.11 Sampling

In the case of open-flued and room-sealed appliances fitted with a parallel connection to an air supply and flue gases evacuation system, the CO, CO$_2$, NO and NO$_2$ concentrations and the temperature of the flue gases are measured using a mechanical exhaust system shown in Figure 1.

In the case of room-sealed appliances with a concentric air supply and flue gases evacuation system, the flue gases sample is taken using a mechanical exhaust system shown in Figures 2 and 3.

In the case of a circular outlet with diameter D the measuring probe is inserted into the outlet at a distance $L = D$.

¹ This document is also available from the National Standards Institutes within the European Union.
In the case of a rectangular outlet with a hydraulic diameter $D_{hydr}$, the distance is $L = D_{hydr} = 4 \frac{A}{O}$, where $A$ is the surface and $O$ the circumference of the cross-section of the outlet.

Place the mechanical exhaust pipe horizontally in the centre of the outlet.

In the case of a circular outlet the measuring probe shall point vertically upwards. In the case of a rectangular outlet two measurements are carried with the measuring probe pointing upwards diagonally to the right and left respectively. The mean value of the results of these two measurements is taken as the outcome.

Notes to NO and NO$_2$ measurements

- Precautions shall be taken to prevent condensation in the sample line (use heated sample line).
- Rubber or silicones shall not be used in the sample route from the sampling probe up to and including the measuring device.

6.12 Conversion of Measured Values

The CO concentration in the dry, air- and water vapour-free flue gases (neutral combustion; $n = 1$) is calculated by the formula:

$$\%CO = \frac{\%CO_{2(n-1)}}{\%CO_{2(measured)}} \times \%CO_{(measured)}$$

The same procedure applies to the other components.

For test gases, the CO$_2$ concentration expressed as a percentage at $n = 1$ is given in Table 5 below.

<table>
<thead>
<tr>
<th>CO$_2$ concentration in the test gases expressed as a percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas designation</td>
</tr>
<tr>
<td>% CO$_2$ (at $n = 1$)</td>
</tr>
</tbody>
</table>

Table 5: CO$_2$ percentages in test gases

The CO concentration in the dry, air- and water vapour-free flue gases may also be calculated using the formula:

$$\%CO = \frac{21}{21 - \%O_{2(measured)}} \times \%CO_{(measured)}$$

The use of this formula is recommended if it gives a higher accuracy than the formula based on the CO$_2$ concentration.
Figure 1: Spider shaped measuring probe
Figure 2: Measuring Probe

- **For outlet diameter** $D \geq 75$ mm
  - $d$: 6.0 mm $\phi$
  - bores $x$: 1.0 mm

- **For outlet diameter** $D < 75$ mm
  - $d$: such that the outlet area is not reduced by more than 5 %
  - bores $x$: diameter such that the surface area of the three bores is $\leq 0.75 \times$ area of the measuring probe

- bores of $x$ mm $\phi$, facing the outlet
  - material: corrosion-resistant steel
  - wall thickness: 0.6 mm
  - $y$: depending on the dimensions of the wall or roof terminal
Figure 3: Position of the Measuring Probe
7 Labelling

7.1 General
If the appliance is certified on the basis of the GASKEUR Regulations and also meets the requirements set out in this Evaluation Guideline, the manufacturer may obtain the right to apply the special GASKEUR/SV label. This label must be drawn up as indicated in Annex 3 of the Evaluation Guideline Basic Label CV (Central Heating): 2010 for Central Heating Appliances.
If it involves an assembly, this label shall only be affixed to the boiler body. It is not permitted to affix this label to the add-on burner.

7.2 Additional Documentation for Assemblies
The instructions for the installer and user shall contain the following additional information about assemblies:

7.2.1 Instructions for the Installer
The instructions for the installer for assemblies shall also state that the GASKEUR/SV label only applies to the supplied assembly of boiler body and add-on burner and that any change to the supplied assembly makes the label invalid. To be perfectly clear it should also be stated that other burners cannot be used in combination with the boiler body concerned under the GASKEUR/SV scheme, unless these are, at the boiler supplier's responsibility, included in a duly signed list of burners certified for the GASKEUR/SV label for this assembly.

7.2.2 Instructions for the User
The instructions for the user for assemblies shall also state that the GASKEUR/SV label only applies to the supplied assembly of boiler body and add-on burner and that any change to the supplied assembly makes the label invalid.
8 Requirements in Respect of the Quality System

This chapter contains the requirements which have to be met by the supplier’s quality system.

8.1 Manager of the Quality System
Within the supplier’s organizational structure an employee must have been appointed who is in charge of managing the supplier’s quality system.

8.2 Internal Quality Control/Quality Plan
The supplier shall have an internal quality control scheme (IQC scheme) which is applied by him.

The following must have been demonstrably recorded in this IQC scheme:
- what aspects are checked by the producer;
- according to what methods such inspections are carried out;
- how often these inspections are carried out;
- in what way the inspection results are recorded and kept.

This IQC scheme should at least be an equivalent derivative of the model IQC scheme included in the addendum.

8.3 Procedures and Working Instructions
The supplier shall be able to submit the following:
- procedures for:
  - dealing with products showing deviations;
  - corrective actions to be taken if non-conformities are found;
  - dealing with complaints about products and/or services delivered;
- the working instructions and inspection forms used.
9 Summary of Tests and Inspections

In this chapter a summary is given of the following items, which form part of the certification process:

- Approval Programme;
- Inspection of general, constructive and functional requirements;
- Procedure for the surveillance programme;
- Inspection of the quality management system;

Furthermore, it is also indicated with which frequency the Surveillance Programme will be carried out by the CI.

9.1 Inspection Matrix

<table>
<thead>
<tr>
<th>Description of Requirements</th>
<th>Article in Evaluation Guideline</th>
<th>Investigation in relation to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Approval Programme</td>
<td>Surveillance by Kiwa after issue of the certificate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inspection</td>
</tr>
<tr>
<td>General and Constructional Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic requirements</td>
<td>4.1</td>
<td>x</td>
</tr>
<tr>
<td>Operational Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>5.1</td>
<td>x</td>
</tr>
<tr>
<td>Nitrogen oxides</td>
<td>5.2</td>
<td>x</td>
</tr>
</tbody>
</table>

1) With significant changes of the product or production process, compliance with the (product) requirements shall be reconfirmed.
2) The given inspections shall be carried out by Kiwa at their premises.
3) The inspections given for the surveillance programme shall be carried out on one appliance per technically identical series.

9.2 Inspection of the Quality Management System

The quality management system of the supplier will be inspected by the CI once per year. This assessment comprises at least the aspects as indicated in the ‘Kiwa Regulations for Product Certification’.
10 Agreements on the Implementation of Certification

10.1 General
Beside the requirements included in this Evaluation Guidelines, also the general rules for certification as included in the Kiwa Regulations for Product Certification apply.

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

10.2 Certification Staff
The staff involved in the certification may be sub-divided into:
• certification experts: they are in charge of carrying out the pre-certification tests and assessing the inspectors’ reports;
• inspectors: they are in charge of carrying out external inspections at the supplier’s works;
• decision-makers: they are in charge of taking decisions in connection with the pre-certification tests carried out, continuing the certification in connection with the inspections carried out and taking decisions on the need to take corrective actions.

10.2.1 Qualification Requirements
The qualification requirements comprise the following:
• The qualification requirements for the operational certification personnel of a CI which comply to the requirements set down in EN 45011;
• The qualification requirements for the operational personnel of a CI which have additionally been set down by the Board of Experts regarding the subject of This Evaluation Guideline.
Education and experience of the certification personnel involved shall be demonstrably registered.

<table>
<thead>
<tr>
<th>Certification Expert</th>
<th>Inspector</th>
<th>Decision-Maker</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education – General</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevant technical higher professional education</td>
<td>senior secondary vocational education</td>
<td>Higher professional education</td>
</tr>
<tr>
<td>Internal training in certification and Kiwa policy</td>
<td>Internal training in certification and Kiwa policy</td>
<td>Internal training in certification and Kiwa policy</td>
</tr>
<tr>
<td>Training in audit skills</td>
<td>Training in audit skills</td>
<td>Training in audit skills</td>
</tr>
<tr>
<td><strong>Education-Specific</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation Guideline orientated training</td>
<td>Evaluation Guideline orientated training</td>
<td>Not applicable, unless specific requirements have been set by the Board of Experts</td>
</tr>
<tr>
<td>Specific courses and training (knowledge and skills)</td>
<td>Specific courses and training (knowledge and skills)</td>
<td></td>
</tr>
<tr>
<td><strong>Experience – General</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year relevant work experience with a minimum of 4 approval programmes of which 1 full programme independently, under supervision</td>
<td>1 year relevant work experience with a minimum of 4 approval programmes of which 1 independently, under supervision</td>
<td>4 years work experience, of which at least 1 related to certification</td>
</tr>
<tr>
<td><strong>Experience – Specific</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of Criteria on detailed level and 4 approval programmes concerning the specific Evaluation Guideline or related Evaluation Guideline</td>
<td>Knowledge of Criteria on detailed level and 4 approval programmes concerning the specific Evaluation Guideline or related Evaluation Guideline</td>
<td>Knowledge of the basics of the specific Evaluation Guideline</td>
</tr>
</tbody>
</table>

10.2.2 **Qualification**

The qualification of the Certification staff shall be demonstrated by means of assessing the education and experience to the requirements mentioned before. In case staff is to be qualified on the basis of deflecting criteria, written records shall be kept.

The authority to qualify staff is dedicated to:
- decision makers: qualification of certification experts and inspectors,
- Management of Kiwa: qualification of decision makers.

10.3 **Report Pre Certification Tests**

The Certification Institute records the results of the pre certification tests in a report. This report shall comply with the following requirements:
- Completeness: The report will issue a verdict which will cover all the requirements set down in the Evaluation Guideline.
- Traceability: the findings on which the verdicts are based must be set down in a traceable manner;
- Basis of the Decision: The decision maker for the granting of the certification must be able to base his decision on the findings given in the report.
10.4 Decision for Granting of the Certificate
The decision for granting the certificate shall be made by a qualified decision
maker which has not been involved in the pre certification tests. The decision shall
be recorded traceable.

10.5 Layout of the Certificate
The product certificate must be drawn up according to the attached template.

10.6 Nature and Frequency of External Inspections
The certification body shall carry out Audits at the supplier at regular intervals to
check whether the supplier complies with his obligations. About the frequency of
inspections the Board of Experts decides.
At the time this Evaluation Guideline took effect, the frequency of the number of
inspection visits per year is set according to Chapter 9.

Inspections shall at least refer to:
• The suppliers IQC-scheme and the results obtained from inspections carried out
  by the supplier,
• The correct way of marking of certified products
• Complying with required procedures

The findings of each inspection carried out will be traceably registered by Kiwa in
a report.

10.7 Corrections, Additions and Interpretations of Requirements
Corrections and additions will be drawn up by the TC GASKEUR and may or may
not be approved by the Board of Experts.

The TC GASKEUR may register interpretations of the requirements set out in this
Evaluation Guideline in a separate interpretation document.
11 Titles of Standards

11.1 Standards/Normative Documents:
The standards can be found in Chapter 11 of the Evaluation Guideline GASKEUR for the Basic Label CV (Central Heating): 2010 for Central Heating Appliances.
I Model Certificate

The relevant model certificates can be found in the Evaluation Guideline GASKEUR for the Basic Label CV (Central Heating):2010 for Central Heating Appliances.
II Model IQC-scheme or Framework IQC Scheme

The relevant IQC scheme or Framework IQC scheme can be found in the Evaluation Guideline GASKEUR for the Basic Label CV (Central Heating):2010 for Central Heating Appliances.
III GASKEUR Labels

The relevant GASKEUR labels can be found in the Evaluation Guideline GASKEUR for the Basic Label CV (Central Heating):2010 for Central Heating Appliances.