

# WORKING DOCUMENT ON POSSIBLE ECODESIGN AND ENERGY LABELLING REQUIREMENTS FOR SOLID FUEL BOILERS (< 500 kW)

## Table of Contents

<b>Explanatory Notes .....</b>	<b>2</b>
Form of the implementing measures .....	2
Scope .....	3
Market structure of the products covered by this working document .....	4
<b>Ecodesign requirements.....</b>	<b>5</b>
Definitions .....	5
Calculations for ecodesign requirements .....	7
Ecodesign requirements (including information requirements).....	8
<i>Approach for setting requirements for seasonal space heating energy efficiency.....</i>	<i>8</i>
<i>Requirements for seasonal space heating energy efficiency.....</i>	<i>11</i>
<i>Requirements for water heating energy efficiency.....</i>	<i>12</i>
<i>Emission Limit Values.....</i>	<i>13</i>
<i>Emissions of carbon monoxides .....</i>	<i>14</i>
<i>Emissions of organic gaseous compounds .....</i>	<i>14</i>
<i>Emissions of particulate matter.....</i>	<i>15</i>
<i>Requirements for product information.....</i>	<i>16</i>
<i>Conformity assessment.....</i>	<i>19</i>
<i>Verification procedure for market surveillance purposes.....</i>	<i>19</i>
<i>Indicative Benchmarks .....</i>	<i>19</i>
<i>Review .....</i>	<i>19</i>
<b>Energy labelling requirements .....</b>	<b>20</b>
Labelling of the package .....	20
<i>Energy efficiency classes.....</i>	<i>21</i>
<i>Responsibilities of suppliers and timetable .....</i>	<i>23</i>
<i>Responsibilities of dealers.....</i>	<i>25</i>
<i>Measurement and calculation methods.....</i>	<i>26</i>
<i>Verification procedure for market surveillance purposes.....</i>	<i>26</i>
<i>Review .....</i>	<i>26</i>

## **EXPLANATORY NOTES**

This working document sets out ecodesign and energy labelling requirements for solid fuel boilers. The Lot 15 preparatory study showed that solid fuel combustion installations, including boilers, are significant energy users. The energy savings potential for the entire industry, based on differences between current sales and best available technologies (BAT), is in the order of 5-15% depending on the product type. In the total product lifecycle it is clear that energy consumption and emissions are overwhelmingly greatest during the use phase – accounting for up to 99% of the product's total energy use over the lifetime, and 43% to 98% of the product's total emissions of particulate matter depending on the product type.

Many types of boilers, cause local air pollution and thus indirectly health problems, particularly with regard to particulate matter. Using current best practice, there are many well-proven design/operation steps that can be taken to reduce the environmental and health impact, depending on the type of product. The particulate matter emissions reduction potential for the entire industry, based on differences between current sales and BAT technologies, is in the order of 20% to more than 70% depending on the product type.

Implementing minimum efficiency performance standards, emission limit values and a labelling scheme can significantly reduce energy consumption and emissions. This working document therefore proposes ecodesign and energy labelling requirements related to solid fuel boilers (with a rated capacity below 500kW).

### **Form of the implementing measures**

The intention is to establish ecodesign requirements (minimum efficiency performance standards and emission limit values), a labelling scheme (efficiency performance), and the provision of supplementary product information for the placing on the market of the boilers as specified in the scope below.

In addition, it establishes a labelling scheme and the provision of supplementary product information for packages including such boilers placed on the market with temperature controls, solar device and/or passive flue heat recovery devices.

The intention is to give to the implementing measures the form of two directly applicable regulations.

## Scope

This proposal concerns solid fuel combustion installations used for indirect indoor space heating - hereafter referred to as boiler space heater - and for space heating in combination with supply of heat to deliver hot drinking and sanitary water - hereafter referred to as boiler combination heater. It targets appliances with a rated capacity below 500 kW nominal heat output, and designed to be fired by one or more types of solid fuel.

Boiler space heaters and boiler combination heaters are hereafter referred to as boilers.

Boiler combination heaters were not explicitly part of the Lot 15 preparatory study but have been included in the scope of this working document, since no specific other lot covers boiler combination heaters. Although less data is available for this product category than for boiler space heaters, boiler combination heater and boiler space heaters are based to a large extent on the same technology.

Solid fuel combustion installations used for *direct* indoor space heating, which were also part of the Lot 15 preparatory study are not in the scope of this proposal since the intention is to address these as part of measures related to Lot 20 'local room heating products' as their function is more similar to the products investigated under that lot.

This working document establishes ecodesign and labelling requirements for the placing on the market and/or putting into service of boilers with a rated heat output  $\leq 500$  kW.

The requirements shall not apply to:

- (a) Combustion installations used for direct indoor space heating
- (b) Boilers within the scope of Directive 2010/75/EU of the European Parliament and of the Council;
- (c) Boilers not using solid fuels
- (d) Boilers using only non-woody biomass fuels
- (e) Boilers generating heat only for the purpose of providing hot drinking or sanitarywater;
- (f) Boilers for heating and distributing gaseous heat transfer media such as vapour or air;
- (g) Cogeneration space heaters

Boilers using only non-woody biomass fuels are excluded of the proposal since they have a low market share and energy saving potentials and there is a lack of data on installations using such fuels only.

### **Market structure of the products covered by this working document**

According to the Lot 15 preparatory study, boiler space heaters sales have decreased in the 1990s, but after 2000, sales to the European market have steadily increased to around 370.000 appliances per year and are attended to keep constant over the next 10 years.

The stock of boilers will increase from 5.0 million (2010) up to 6.3 million (2020) in EU-27.

Most of the sales are made by European manufacturers and there are some importers. 80% of the appliances sold in 2007 were hand stoked, while 20% were automatic boilers. 80% of hand stoked and 85% of automatic boilers were sold in the capacity range of 10-100kW. Biomass boiler space heaters are dominating the market in most countries, but some Member States have significant shares of fossil fuel boiler sales (e.g. 54% in Czech Republic, 28% in the United Kingdom).

Impact analysis shows that implementing minimum efficiency performance standards, emission limit values and a labelling scheme can significantly reduce energy consumption and emissions.

According to preliminary works for the Lot 15 Impact Assessment, total fuel consumption of boilers will keep constant or decrease in the next 10 years, according to the implemented policies. In a business-as-usual scenario (no new policy implemented) the total fuel consumption is almost constant over the aforementioned period: around 275 TWh/year, although the stock of products will slightly increase. In a BAT scenario, in which only products with BAT level are purchased, the total fuel consumption of boilers may be reduced to 260 TWh/year by 2020, which corresponds to a saving potential of nearly 5.5%. Thus, the expected savings of this proposal are 15 TWh/year by 2020. The saving potential would be even larger after the whole stock of boiler has been replaced, considering the technical lifetime of a typical boiler (around 17.5 years).

As regard of the particulate matters emissions (PM), the emissions in 2020 lay in a range of 142 kt/year (BAU scenario) to 120 kt/year (BAT scenario); this represents a reduction potential of about 15%. Currently, indirect solid fuel boilers are responsible for 272 kt/year PM emissions.

## ECODESIGN REQUIREMENTS

The proposed ecodesign requirements are set out based on the recommendations of the Lot 15 preparatory study, the current approach for Lot 1 (gaseous and liquid fuel boilers) and further

### Definitions

For the purposes of this working document the following definitions shall apply:

- (1) 'heater' means a space heater or combination heater, which is designed to be usually fired by one or more different types of solid fuels;
- (2) 'space heater' means a device that:
  - a) provides heat to a water-based central heating system in order to reach and maintain at a desired level the indoor temperature of an enclosed space such as a building, a dwelling or a room; and
  - b) is equipped with one or more heat generators;
- (3) 'combination heater' means a space heater that is designed to also provide heat to deliver hot drinking or sanitary hot water at given temperature levels, quantities and flow rates during given intervals and is connected to an external supply of drinking or sanitary water;
- (4) 'water-based central heating system' means a system using water as heat transfer medium to distribute centrally generated heat to heat emitters for the space heating of buildings, or parts thereof;
- (5) 'heat generator' means the part of a heater that generates the heat by combustion of solid fuels;
- (6) 'rated heat output' ( $P_{\text{rated}}$ ) means the declared heat output of a solid fuel heater when providing space heating and, if applicable, water heating at standard rating conditions, expressed in kW;
- (7) 'standard rating conditions' means the operating conditions of solid fuel boilers under average climate conditions for establishing the rated heat output, seasonal space heating energy efficiency, and water heating energy;
- (8) 'solid fuel' means a fuel, which is solid at normal indoor room temperatures, including:
  - biomass fuels, including biomass in natural state in form of log wood, chipped wood, compressed wood, briquettes, sawdust and non-woody biomass such as straws, reeds, kernels and grains;
  - fossil fuels, including bituminous coal, brown coal, coke, anthracite;

- other solid fuels, including peat;
- (9) ‘boiler space heater’ means a solid fuel space heater that generates heat using the combustion of solid fuels;
  - (10) ‘boiler combination heater’ means a solid fuel boiler space heater that is designed to also provide heat to deliver hot drinking or sanitary water at given temperature levels, quantities and flow rates during given intervals and is connected to an external supply of drinking or sanitary water;
  - (11) ‘supplementary heater’ means a non-preferential heater using solid fuel or a non-preferential heater regulated by the ecodesign Lot 1 that generates heat in cases where the heat demand is greater than the rated heat output of the preferential heater;
  - (12) ‘gross calorific value moisture free’ ( $GCV_{mf}$ ): means the total amount of heat released by a unit quantity of fuel dried of all inherent moisture, when it is burned completely with oxygen, and when the products of combustion are returned to ambient temperature; this quantity includes the condensation heat of the water vapour formed by the combustion of any hydrogen contained in the fuel;
  - (13) ‘gross calorific value as received’ ( $GCV_{ar}$ ): means the total amount of heat released by a unit quantity of fuel measured with all moisture present, when it is burned completely with oxygen, and when the products of combustion are returned to ambient temperature; this quantity includes the condensation heat of the water vapour formed by the combustion of any hydrogen contained in the fuel;
  - (14) ‘seasonal space heating energy efficiency’ ( $\eta_s$ ) means the ratio between the space heating demand for a designated heating season supplied by a solid fuel heater and the annual energy consumption required to meet this demand, expressed in %;
  - (15) ‘seasonal space heating energy efficiency in active mode’ ( $\eta_{son}$ ) means a weighted average of the useful efficiency at rated heat output, and of the useful efficiency at part load, expressed in %
  - (16) ‘useful efficiency’ ( $\eta$ ) means the ratio of the useful heat output and the total energy input of a boiler space heater or boiler combination heater, expressed in %, whereby the total energy input is expressed in terms of  $GCV_{ar}$ ;
  - (17) ‘biomass conversion coefficient’ (BCC) means a coefficient applied for correction of the seasonal space heating energy efficiency in active mode of a solid fuel heater operating on biomass fuel, reflecting the renewable character of biomass fuels versus the non-renewable character of other solid fuels; the value of the biomass conversion coefficient is  $BCC = 1,4$  for biomass fuels; the value of the biomass conversion coefficient is  $BCC = 1,0$  for fossil fuels and other solid fuels;
  - (18) ‘water heating energy efficiency’ ( $\eta_{wh}$ ) means the ratio between the useful energy in the drinking or sanitary water provided by a solid fuel combination heater and the energy required for its generation, expressed in %; whereby the total energy input is expressed in terms of  $GCV_{ar}$ ;

For the purposes of the product fiche and of the Annexes II to IV, additional definitions are set out in Annex I of this document.

### *Calculations for ecodesign requirements*

As regards ecodesign requirements for energy efficiency, the Lot 15 Preparatory Study proposed minimum energy efficiency according to the energy efficiency classes defined in the prEN303-5:2010: class 2 upon adoption, class 3 after two years and class 4 or 5 after four years.

In the prEN303-5:2010, energy efficiency calculation is based on the net calorific value (NCV) of the fuel as received for full load only and is dependent on the nominal output power through a logarithmic formula.

In the proposal of this working document, energy efficiency calculation is based on the current Lot 1 approach, which is based on the GCV of the fuel as received ( $GCV_{ar}$ ). Efficiency requirement is not dependent on nominal output power, but a fixed value for the operating range within the scope.

For the Lot 15, a few changes of the Lot 1 methodology are required. The main differences are:

- The correction factors F(4) - accounting for a negative contribution to the seasonal space heating energy efficiency by ignition burner power consumption - and F(5) - applied only for cogeneration space heaters - are not applicable<sup>1</sup>.
- A correction coefficient for biomass fuels, the Biomass Conversion Coefficient (BCC), has been introduced.

The introduction of the BCC factor is justified by the fact that biomass fuels, as opposed to other solid fuels, are renewable and the CO<sub>2</sub> emissions released during the combustion of biomass fuels are compensated by the CO<sub>2</sub> absorbed during photosynthesis in a short-term carbon cycle. The BCC factor is needed because solid fuels usually have a higher 'as received' moisture content (before combustion) than oil and natural gas, so that the efficiency based on  $GCV_{ar}$  for boilers using solid fuels is lower than for the efficiency based on  $GCV_{ar}$  for boilers using oil or natural gas. Without the BCC factor boilers using oil or natural gas would in

---

<sup>1</sup> For solid fuel installations, the correction F(4) accounting for a negative contribution to the seasonal space heating energy efficiency by ignition burner power consumption is not applicable. Measurement of electricity consumption performed for standard test procedure according to EN303-5 shows that F(4) is typically lower than 0,05% and therefore not significant. This value is even lower when the test procedure takes more time, since the IGN process occurs only once per test.

The correction F(5) accounting in the Lot 1 methodology for a correction applied only for cogeneration space heaters, which are not in the scope of this document, is not applicable for Lot 15 boilers.

practice be preferred over boilers using biomass fuel, while in fact the latter fuel is renewable and therefore more sustainable to use.

The Preparatory Study already mentioned the introduction of a correction factor for biomass fuel combustions installation, if these products would be regulated as Lot 1 appliances as it is proposed in this document. The BCC coefficient has been set to 1.4 so that:

- The seasonal space heating energy efficiency of most class 3 biomass fuel boilers can reach the minimum energy performance standard (MEPS) for Tier 1 of Lot 1 ( $\eta_s > 86\%$ )
- The seasonal space heating energy efficiency of biomass fuel BAT boilers will get a higher efficiency class on the label (A+) than those of gas or oil BAT boilers of Lot 1 (A), in order to promote the renewable character of biomass fuels. Further detail on this is provided in the labelling section.

*Details for the methodology applying for the calculation of the seasonal space heating energy efficiency of this proposal is provided in Annex II, point 4.*

### **Ecodesign requirements (including information requirements)**

#### **Approach for setting requirements for seasonal space heating energy efficiency**

The Lot 15 preparatory study was based on the EN303-5 defines efficiency classes dependent on the nominal output power through a logarithmic formula. Since the current Lot 1 Ecodesign approach sets a fixed efficiency requirement for installations below 70 kW and one for installations >70 kW, this proposed approach for Lot 15 deviates to a certain extent from the Lot 15 preparatory study.

For biomass fuel boilers it is proposed that:

- For tier 1: MEPS is equal to the MEPS of Lot 1. Class 3 boilers (according to EN303-5) or better (except for Class 3 wood chip boilers below 5 kW whose  $\eta_s$  is lower than 86%) fulfil the requirements. Also, many class 2 boilers in the range of 40-70 kW will remain on the market;
- For tier 2: Class 4 boilers or better fulfil the requirements. Also, many class 3 boilers in the range 40-70 kW will remain on the market;
- For tier 3: BAT boilers and most of the Class 5 boilers considered in the draft of the Lot 15 Impact Assessment fulfil the requirements.

Table 1 shows typical efficiencies for a number of biomass boilers of different prEN303-5 Classes.

Table 1: Examples of typical efficiencies of biomass boilers

<b>Boiler</b>	<b>Fuel</b>	<b>Nominal heat output, in kW</b>	<b>Class (according to prEN303-5:2010)</b>	<b>Efficiency (<math>\eta_{NCVar}</math> based) at full load, as is prEN303-5:2010, in %</b>	<b>Seasonal space heating energy efficiency (<math>\eta_s</math>), in %</b>
<b>EN303-5 class 3 boiler</b>	wood pellets	5	3	71,2	86,3 Class B
<b>EN303-5 class 3 boiler</b>	wood chips	15	3	74,1	87,1 Class B
<b>EN303-5 class 4 boiler</b>	wood chips	15	4	82,4	97,4 Class A
<b>DD Gasify Boiler BAT for Small domestic man. Boiler BAT (IA)</b>	wood logs	18	5	90,0	110,0 Class A+
<b>Non-domestic chip boiler (exclusively as space heater)</b>	wood chips	160	5	92,8	110,5 Class A+
<b>Lambda probe control with Condensation heat recovery BAT (IA)</b>	wood pellets	25	5	92,6	113,9 Class A+
<b>Pellet boiler (condensing, tested @ low temp)</b>	wood pellets	3,9	5	100,0	123,9 <sup>2</sup> Class A+

For boilers which are operated with non-biomass solid fuel, BCC = 1.0 and therefore  $\eta_s$  for non-biomass fuel boilers are quite low. No solid fuel boilers using bituminous coal, coke, brown coal briquette or anthracite achieve the MEPS required for Lot 1 Tier 1 ( $\eta_s > 86\%$ ). Therefore, it is proposed that the MEPS is adjusted for non-biomass fuel boilers as otherwise such products would be completely banned from the market, even Class 5 boilers and the BAT boiler identified in the preparatory study.

<sup>2</sup> 125% is the threshold for A++

For non-biomass fuel boilers (<70kW) it is proposed to set requirements that mean:

- For tier 1: that some Class 3 products (below 15 kW) will be removed from the market;
- For tier 2: that most of the Class 3 products will be removed from the market. Only Class 4 boilers or better achieve the MEPS;
- For tier 3: that most of the Class 4 products will be removed from the market, with some exceptions like the BAT identified in the preparatory study (a Retort boiler, Class 4). All Class 5 products achieve the MEPS. Tier 3 matches to the BAT defined in the Lot15 preparatory study for non-biomass fuel boilers.

For non-biomass fuel boilers (>70 kW) it is proposed to set requirements that mean:

- For tier 1: Class 3 boilers (according to EN303-5) or better fulfil the requirements;
- For tier 2: Class 4 boilers or better fulfil the requirements;
- For tier 3: half of the Class 4 boilers do not reach the MEPS; all Class 5 do.

According to this proposal, non-biomass fuel boilers will still be available on the market (the least efficient products will be stepwise banned), but will have a relatively low efficiency class on the label (Class 3: D, Class 4: D and C, Class5: C and B). Further detail on this is provided in the labelling section.

Table 2 shows typical efficiencies for a number of non-biomass boilers.

Table 2: Examples of typical efficiencies of non-biomass boilers

<i>Boiler</i>	<i>Fuel</i>	<i>Nominal heat output, in kW</i>	<i>Class (according to prEN303-5:2010)</i>	<i>Efficiency (<math>\eta_{NCVar}</math> based) at full load, as is prEN303-5:2010, in %</i>	<i>Seasonal space heating energy efficiency (<math>\eta_s</math>), in %</i>
<i>BC Retort boiler BaseCase (IA)</i>	<i>bituminous coal</i>	<i>25</i>	<i>3</i>	<i>82,0</i>	<i>72,2 Class D</i>
<i>Small domestic DD gasifying boiler (exclusively as space heater) BAT (IA)</i>	<i>bituminous coal</i>	<i>25</i>	<i>4</i>	<i>88,0</i>	<i>77,9 Class C</i>
<i>Large domestic DD gasifying boiler (exclusively as space heater) BAT (IA)</i>	<i>bituminous coal</i>	<i>100</i>	<i>4</i>	<i>86,0</i>	<i>76,0 Class C</i>

**Requirements for seasonal space heating energy efficiency**

Based on the above remarks, this working document proposes minimum energy efficiency ecodesign requirements and emissions limit values for the products falling under the scope of this document, as follows:

- (a) From [two years after the proposed Regulation has entered into force] the seasonal space heating energy efficiency of boilers shall not fall below the following values:

<b>Biomass fuel boiler space heaters with rated heat output <math>\leq 70</math> kW and biomass fuel boiler combination heaters with rated heat output <math>\leq 70</math> kW</b>
The seasonal space heating energy efficiency shall not fall below 86%.
<b>Non-biomass fuel boiler space heaters with rated heat output <math>\leq 70</math> kW and non-biomass fuel boiler combination heaters with rated heat output <math>\leq 70</math> kW</b>
The seasonal space heating energy efficiency shall not fall below 65%.
<b>Biomass fuel boiler space heaters with rated heat output <math>&gt; 70</math> kW and <math>\leq 500</math> kW and biomass fuel boiler combination heaters with rated heat output <math>&gt; 70</math> kW and <math>\leq 500</math> kW:</b>
The seasonal space heating energy efficiency shall not fall below 93%.
<b>Non-biomass fuel boiler space heaters with rated heat output <math>&gt; 70</math> kW and <math>\leq 500</math> kW and non-biomass fuel boiler combination heaters with rated heat output <math>&gt; 70</math> kW and <math>\leq 500</math> kW:</b>
The seasonal space heating energy efficiency shall not fall below 68%.

- (b) From [four years after the proposed Regulation has entered into force] the seasonal space heating energy efficiency of boiler shall not fall below the following values:

<b>Biomass fuel boiler space heaters with rated heat output <math>\leq 70</math> kW and biomass fuel boiler combination heaters with rated heat output <math>\leq 70</math> kW</b>
The seasonal space heating energy efficiency shall not fall below 96%.
<b>Non-biomass fuel boiler space heaters with rated heat output <math>\leq 70</math> kW and non-biomass fuel boiler combination heaters with rated heat output <math>\leq 70</math> kW.</b>
The seasonal space heating energy efficiency shall not fall below 71%.
<b>Biomass fuel boiler space heaters with rated heat output <math>&gt; 70</math> kW and <math>\leq 500</math> kW and biomass fuel boiler combination heaters with rated heat output <math>&gt; 70</math> kW and <math>\leq 500</math> kW:</b>

The seasonal space heating energy efficiency shall not fall below 99%.
<b>Non-biomass fuel boiler space heaters with rated heat output &gt; 70 kW and ≤ 500 kW and non-biomass fuel boiler combination heaters with rated heat output &gt; 70 kW and ≤ 500 kW:</b>
The seasonal space heating energy efficiency shall not fall below 74%.

- (c) From [six years after the proposed Regulation has entered into force] the seasonal space heating energy efficiency of boilers shall not fall below the following values:

<b>Biomass fuel boiler space heaters with rated heat output ≤ 500 kW and biomass fuel boiler combination heaters with rated heat output ≤ 500 kW</b>
The seasonal space heating energy efficiency shall not fall below 108%.
<b>Non-biomass fuel boiler space heaters with rated heat output ≤ 500 kW and non-biomass fuel boiler combination heaters with rated heat output ≤ 500 kW</b>
The seasonal space heating energy efficiency shall not fall below 77%.

Table 3: Overview of the energy requirements (based on the seasonal space heating energy efficiency):

<b>Fuel</b>	<b>Rated heat output</b>	<b>Tier 1</b>	<b>MEPS Tier 2</b>	<b>Tier 3</b>
<b>biomass</b>	< 70 kW	$\eta_s > 86\%$	$\eta_s > 96\%$	$\eta_s > 108\%$
	> 70 kW	$\eta_s > 93\%$	$\eta_s > 99\%$	$\eta_s > 108\%$
<b>non-biomass</b>	< 70 kW	$\eta_s > 65\%$	$\eta_s > 71\%$	$\eta_s > 77\%$
	> 70 kW	$\eta_s > 68\%$	$\eta_s > 74\%$	$\eta_s > 77\%$

### **Requirements for water heating energy efficiency**

Solid fuel combination heaters were not part of the Lot 15 preparatory study nor was the Lot 2 preparatory study covering gaseous and solid fuel water heaters. Therefore, there is a lack of data and information for solid fuel combination heaters. However, since boiler combination heater and boiler space heaters are based to a large extent on the same technology, it is proposed that the Lot 1 methodology for water heating energy efficiency is applied for Lot 15 products. The BCC factor should be considered when calculating the water heating energy efficiency for biomass fuel installations.

- (a) From [two years after the proposed Regulation has entered into force] the water heating energy efficiency of solid fuel combination heaters shall not fall below the following values:

Declared load profile	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Water heating energy efficiency	22%	23%	26%	26%	30%	30%	30%	32%	32%	32%

- (b) From [four years after the proposed Regulation has entered into force] the water heating energy efficiency of solid fuel combination heaters shall not fall below the following values:

Declared load profile	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Water heating energy efficiency	32%	32%	32%	32%	36%	37%	38%	60%	64%	64%

To achieve the requirements specified in points (a) and (b), a minimum boiler tank size for hot water is required due to the restricted modulation of boilers firing solid fuels. The proposed minimum size is 55 Liter/kW  $P_{rated}$  for manual stocked installation and 20 Liter/kW  $P_{rated}$  for automatically stoked installations.

### Emission Limit Values

The proposed ecodesign requirements for emissions of particulate matter (PM), organic gaseous compounds (OGC) and carbon monoxide (CO) are to a large extent identical to the Lot15 Preparatory Study, which included the first tier corresponding to Emission Limit Values (ELVs) of prEN303-5:2010 Class 3 and the second tier to those of Class 4 or 5. The proposed ELVs are similar with three tiers: tier 1 asking for Class 3, tier 2 for Class 4 and tier 3 with Class 5 limits.

No ecodesign requirements are proposed for NO<sub>x</sub> as it is commonly accepted that NO<sub>x</sub> emissions from solid fuel combustion are mainly the result of fuel derived nitrogen and therefore not possible to limit through product improvements. No ecodesign requirements are proposed for dioxins and furans due to the fact that there is no unique measurement procedure and measurement is quite expensive.

In the prEN303-5:2010, ELVs depend on the heat output of the boiler ( $\leq 50\text{kW}$ ,  $> 50\text{kW}$  and  $\leq 150\text{ kW}$ ,  $> 150\text{kW}$  and  $\leq 500\text{ kW}$ ). This is also the case in this proposal.

The following Emissions Values Limits are proposed (given in  $\text{mg/m}^3$  @ 10% O<sub>2</sub>, referring to dry exit flue gas, 0°C, 1013 mbar):

## **Emissions of carbon monoxides**

- (a) From [two years after the proposed Regulation has entered into force] the emissions of carbon monoxides of boiler space heaters and boiler combination heaters shall not exceed the following values:
- for solid fuel manually stoked boiler space heaters with rated heat output  $\leq 50\text{kW}$  and solid fuel manually stoked boiler combination heaters with rated heat output  $\leq 50\text{kW}$ :  $5000\text{ mg/m}^3$ ;
  - for solid fuel automatically stoked boiler space heaters with rated heat output  $\leq 50\text{kW}$  and solid fuel automatically stoked boiler combination heaters with rated heat output  $\leq 50\text{kW}$ :  $3000\text{ mg/m}^3$ ;
  - for solid fuel boiler space heaters with rated heat output  $> 50\text{kW}$  and  $\leq 150\text{ kW}$  and solid fuel boiler combination heaters with rated heat output  $> 50\text{kW}$  and  $\leq 150\text{ kW}$ :  $2500\text{ mg/m}^3$ ;
  - for solid fuel boiler space heaters with rated heat output  $> 150\text{kW}$  and solid fuel boiler combination heaters with rated heat output  $> 150\text{kW}$ :  $1200\text{ mg/m}^3$ ;
- (b) From [four years after the proposed Regulation has entered into force] the emissions of carbon monoxides of boiler space heaters and boiler combination heaters shall not exceed the following values:
- for solid fuel manually stoked boiler space heaters and solid fuel manually stoked boiler combination heaters:  $1200\text{ mg/m}^3$ ;
  - for solid fuel automatically stoked boiler space heaters and solid fuel automatically stoked boiler combination heaters:  $1000\text{ mg/m}^3$ ;
- (c) From [six years after the proposed Regulation has entered into force] the emissions of carbon monoxides of boiler space heaters and boiler combination heaters shall not exceed the following values:
- for solid fuel manually stoked boiler space heaters and solid fuel manually stoked boiler combination heaters:  $700\text{ mg/m}^3$ ;
  - for solid fuel automatically stoked boiler space heaters and solid fuel automatically stoked boiler combination heaters:  $500\text{ mg/m}^3$ ;

## **Emissions of organic gaseous compounds**

- (a) From [two years after the proposed Regulation has entered into force] the emissions of organic gaseous compounds of boiler space heaters and boiler combination heaters shall not exceed the following values:
- for solid fuel manually stoked boiler space heaters with rated heat output  $\leq 50\text{kW}$  and solid fuel manually stoked boiler combination heaters with rated heat output  $\leq 50\text{kW}$ :  $150\text{ mg/m}^3$ ;

- for solid fuel automatically stoked boiler space heaters with rated heat output  $\leq 50\text{kW}$  and solid fuel automatically stoked boiler combination heaters with rated heat output  $\leq 50\text{kW}$ :  $100 \text{ mg/m}^3$ ;
  - for solid fuel manually stoked boiler space heaters with rated heat output  $> 50\text{kW}$  and solid fuel manually stoked boiler combination heaters with rated heat output  $> 50\text{kW}$ :  $100 \text{ mg/m}^3$ ;
  - for solid fuel automatically stoked boiler space heaters with rated heat output  $> 50\text{kW}$  and solid fuel automatically stoked boiler combination heaters with rated heat output  $> 50\text{kW}$ :  $80 \text{ mg/m}^3$ ;
- (b) From [four years after the proposed Regulation has entered into force] the emissions of organic gaseous compounds of boiler space heaters and boiler combination heaters shall not exceed the following values:
- for solid fuel manually stoked boiler space heaters and solid fuel manually stoked boiler combination heaters:  $50 \text{ mg/m}^3$ ;
  - for solid fuel automatically stoked boiler space heaters and solid fuel automatically stoked boiler combination heaters:  $30 \text{ mg/m}^3$ ;
- (c) From [six years after the proposed Regulation has entered into force] the emissions of organic gaseous compounds of boiler space heaters and boiler combination heaters shall not exceed the following values:
- for solid fuel manually stoked boiler space heaters and solid fuel manually stoked boiler combination heaters:  $30 \text{ mg/m}^3$ ;
  - for solid fuel automatically stoked boiler space heaters and solid fuel automatically stoked boiler combination heaters:  $20 \text{ mg/m}^3$ ;

### **Emissions of particulate matter**

- (a) From [two years after the proposed Regulation has entered into force] the emissions of particulate matter of boiler space heaters and boiler combination heaters shall not exceed the following values:
- for biomass solid fuel boiler space heaters and biomass solid fuel boiler combination heaters:  $150 \text{ mg/m}^3$ ;
  - for non-biomass fossil solid fuel boiler space heaters with rated heat output and fossil solid fuel boiler combination heaters:  $125 \text{ mg/m}^3$ ;
- (b) From [four years after the proposed Regulation has entered into force] the emissions of particulate matter of boiler space heaters and boiler combination heaters shall not exceed the following values:
- for solid fuel manually stoked boiler space heaters and solid fuel manually stoked boiler combination heaters:  $75 \text{ mg/m}^3$ ;
  - for solid fuel automatically stoked boiler space heaters and solid fuel automatically stoked boiler combination heaters:  $60 \text{ mg/m}^3$ ;

(c) From [six years after the proposed Regulation has entered into force] the emissions of particulate matter of boiler space heaters and boiler combination heaters shall not exceed the following values:

- for solid fuel manually stoked boiler space heaters and solid fuel manually stoked boiler combination heaters: 60 mg/m<sup>3</sup>;
- for solid fuel automatically stoked boiler space heaters and solid fuel automatically stoked boiler combination heaters: 40 mg/m<sup>3</sup>;

Overview of the ELVs proposed (given in mg/m<sup>3</sup> @ 10% O<sub>2</sub>, referring to dry exit flue gas, 0°C, 1013 mbar).<sup>3</sup>

		CO			OGC			PM		
		mg/m <sup>3</sup> @ 10%O <sub>2</sub>			mg/m <sup>3</sup> @ 10%O <sub>2</sub>			mg/m <sup>3</sup> @ 10%O <sub>2</sub>		
<i>Class according to prEN303-5:2010</i>		3	4	5	3	4	5	3	4	5
<b>Tier proposed</b>		1	2	3	1	2	3	1	2	3
<b>manual</b>	<b>biomass</b>									
	<b>0-50 kW</b>	5.000	1.200	700	150	50	30	150	75	60
	<b>50-150 kW</b>	2.500	1.200	700	100	50	30	150	75	60
	<b>150-500 kW</b>	1.200	1.200	700	100	50	30	150	75	60
	<b>non-biomass</b>									
	<b>0-50 kW</b>	5.000	1.200	700	150	50	30	125	75	60
<b>automatic</b>	<b>biomass</b>									
	<b>0-50 kW</b>	3.000	1.000	500	100	30	20	150	60	40
	<b>50-150 kW</b>	2.500	1.000	500	80	30	20	150	60	40
	<b>150-500 kW</b>	1.200	1.000	500	80	30	20	150	60	40
	<b>non-biomass</b>									
	<b>0-50 kW</b>	3.000	1.000	500	100	30	20	125	60	40
	<b>50-150</b>	2.500	1.000	500	80	30	20	125	60	40
	<b>150-500</b>	1.200	1.000	500	80	30	20	125	60	40

### Requirements for product information

From [two years after the proposed Regulation has entered into force] the following product information on boilers shall be provided:

<sup>3</sup> Note: PM does not include condensable organic compounds which may form additional particulate matter when the flue gas is mixed with ambient air

- (1) The instruction manuals for installers and end-users, and free access websites of manufacturers, their authorised representatives and importers shall contain the following elements:
- for boiler space heaters and boiler combination heaters, the technical parameter set out in Table 4 of this document, measured and calculated in accordance with Annex II-IV;
  - any specific precautions that shall be taken when the boiler is assembled, installed or maintained;
  - for heat generators designed for boilers, and boiler housings to be equipped with such heat generators, their characteristics, the requirements for assembly, to ensure compliance with the ecodesign requirements for boilers and, where appropriate, the list of combinations recommended by the manufacturer;
  - information relevant for disassembly, recycling and/or disposal at end-of-life;

Product information requirements shall be provided for each solid fuel tested for the certification.

**Table 4: Information requirements for boiler space heaters and boiler combination heaters**

Model(s): [information identifying the model(s) to which the information relates]							
Condensing boiler: [yes/no]							
Low-temperature** boiler: [yes/no]							
Stoking mode: manually/automatically							
Combination heater: [yes/no]							
Fuels which can be used in the boiler:							
Fuel for which the seasonal space heating energy efficiency is the highest:							
Tested with following fuel:				Further fuel compatible for this boiler:			
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output	Prated	x,x	kW	Seasonal space heating energy efficiency	$\eta_s$	x,x	%
Partload applicable *	Loadpart	x,x	%				
For boiler space heaters and boiler combination heaters: Useful heat output				For boiler space heaters and boiler combination heaters: Useful efficiency			
At rated heat output and high-temperature regime**	P4	x,x	kW	At rated heat output and high-temperature regime*	$\eta_4$	x,x	%
		x,x	%				
At part load and low-temperature regime***	P1	x,x	kW	At part load and low-temperature regime**	$\eta_1$	x,x	%
		x,x	%				
				Supplementary heater			
				Rated heat output	$P_{sup}$	x,x	kW
				Type of energy input			
Auxiliary electricity consumption				Other items			
At full load	elmax	x,x	kW	Standby heat loss	$P_{stby}$	x,x	kW
At part load	elmin	x,x	kW	Ignition burner power consumption	$P_{ign}$	x,x	kW
In standby mode	PSB	x,x	kW	Emissions of:	CO	x	mg/m <sup>3</sup>
				Carbon monoxide	OGC		mg/m <sup>3</sup>
				Organic gaseous	PM		mg/m <sup>3</sup>

				compounds		
				Particulate matters		
For combination heaters:						
Declared load profile				Water heating energy efficiency $\eta_{wh}$	x,x	%
Daily consumption	electricity	$Q_{elec}$	x,xxx	kWh	Daily fuel consumption $Q_{fuel}$	x,xxx kWh
Annual consumption	electricity	AEC	x	kWh	Annual fuel consumption AFC	x GJ
Contact details	Name and address of the supplier.					
* 30% or higher, according to test results.						
** High-temperature regime means 60 °C return temperature at boiler inlet and 80 °C feed temperature at boiler outlet.						
*** Low-temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other boilers 50°C return temperature (at boiler inlet).						

### Conformity assessment

The conformity assessment procedure referred to in Article 8(2) of Directive 2009/125/EC shall be the internal design control set out in Annex IV to that Directive or the management system set out in Annex V to that Directive.

For the purposes of conformity assessment, the technical documentation shall contain the product information set out above 'requirements for product information.

### Verification procedure for market surveillance purposes

When performing the market surveillance checks referred to in Article 3(2) of Directive 2009/125/EC to ensure compliance with the proposed requirements, the Member States' authorities shall apply the verification procedure set out in Annex III-2.

### Indicative Benchmarks

The indicative benchmarks for best-performing heaters available on the market are set out in Annex III-3.

### Review

The proposed requirements shall be reviewed in the light of technological progress no later than one year after Tier 3 will enter into force.

## ENERGY LABELLING REQUIREMENTS

The proposed energy labelling is based on the latest Lot 1 approach, which is like the approach of the Lot 15 preparatory study also resulting in an (indicative) seasonal efficiency, although through a less complex calculation method. Therefore, the labelling for Lot 1 and for Lot 15 boilers is to a great extent similar, also the same thresholds for the energy classes are proposed.

An A+++ to G label is proposed in order to maintain maximum visual consistency for consumers with the Lot 1 label. The same thresholds for the energy classes are proposed for further consistency with Lot 1. Since the scope of this proposal does not contain the type of Lot 1 heaters that would come under energy classes E to G, these classes of the label are not be populated in the solid fuel boiler label. Non-biomass fuel boilers will come in energy class C and D, but the best ones will be able to reach class B.

Because of the biomass conversion factor (see 'calculations for ecodesign requirements'), biomass fuel boilers will come in class A and B. The best available technology will populate class A+ (class A++ is also within reach in future). Thus, most biomass fuel boilers will populate classes that are lower than the classes populated by heaters using other types of renewable energy such as solar energy and heat pumps<sup>4</sup>. This is justified by the fact that although biomass is a renewable source, there is a limit to its availability. An alternative approach such as assigning an A+++ class for biomass fuel boilers solely on the basis of the fact that it is a renewable source would not provide an incentive to use biomass more efficiently.

Differences with the Lot 1 label are the following:

- some Lot 1 labels are not applicable (due to the scope of this proposal)
- the design of the label does not provide information on "sound power level"
- energy classes for biomass and for non-biomass fuels will both be shown in the label, if dual fuel is applicable. In that case, two arrows will be displayed.

### Labelling of the package

Regarding the labelling of a package, no changes of the Lot 1 methodology are necessary, due to the proposed approach of calculating  $\eta_s$  (see section 'Ecodesign').

In the context of this document only 'boiler space heaters' and 'boiler combination heaters' using solid fuels are considered as 'preferential heaters'. Information with regard to other heaters is only applicable considering 'supplementary heaters' as part of a 'package'.

Only in case the 'supplementary' heater is also a solid fuel boiler using biomass fuels,  $\eta_s$  for the 'supplementary' heater has to be used correspondingly for the calculation of the efficiency of a package.

---

<sup>4</sup> i.e. only those heat pumps that are taken into account under Annex VII of Directive 2009/28/EC.

## Energy efficiency classes

### *Seasonal space heating energy efficiency classes*

The seasonal space heating energy efficiency classes of a boiler shall be determined on the basis of its seasonal space heating energy efficiency as set out in Table 5.

The seasonal space heating energy efficiency of a boiler under average climate conditions shall be calculated in accordance with point 3 of Annex IV-5.

### *Seasonal space heating energy efficiency classes of boilers*

Table 5: Seasonal space heating energy efficiency classes of boilers

Seasonal space heating energy efficiency class	Seasonal space heating energy efficiency $\eta_s$ in %
A+++	$\eta_s \geq 150$
A++	$125 \leq \eta_s < 150$
A+	$98 \leq \eta_s < 125$
A	$90 \leq \eta_s < 98$
B	$82 \leq \eta_s < 90$
C	$75 \leq \eta_s < 82$
D	$36 \leq \eta_s < 75$
E	$34 \leq \eta_s < 36$
F	$30 \leq \eta_s < 34$
G	$\eta_s < 30$

### *Water heating energy efficiency classes*

The water heating energy efficiency classes of a combination heater shall be determined on the basis of its water heating energy efficiency as set out in Table 6.

The water heating energy efficiency of a combination heater shall be calculated in accordance with point 4 of Annex IV-5.

**Table 6 Water heating energy efficiency classes of combination heaters, categorised by declared load profiles,  $\eta_{wh}$  in %**

	<b>3XS</b>	<b>XXS</b>	<b>XS</b>	<b>S</b>	<b>M</b>	<b>L</b>	<b>XL</b>	<b>XXL</b>	<b>3XL</b>	<b>4XL</b>
<b>A+++</b>	$\eta_{wh} \geq 62$	$\eta_{wh} \geq 62$	$\eta_{wh} \geq 69$	$\eta_{wh} \geq 90$	$\eta_{wh} \geq 163$	$\eta_{wh} \geq 188$	$\eta_{wh} \geq 200$	$\eta_{wh} \geq 213$	$\eta_{wh} \geq 225$	$\eta_{wh} \geq 238$
<b>A++</b>	$53 \leq \eta_{wh} < 62$	$53 \leq \eta_{wh} < 62$	$61 \leq \eta_{wh} < 69$	$72 \leq \eta_{wh} < 90$	$130 \leq \eta_{wh} < 163$	$150 \leq \eta_{wh} < 188$	$160 \leq \eta_{wh} < 200$	$170 \leq \eta_{wh} < 213$	$180 \leq \eta_{wh} < 225$	$190 \leq \eta_{wh} < 238$
<b>A+</b>	$44 \leq \eta_{wh} < 53$	$44 \leq \eta_{wh} < 53$	$53 \leq \eta_{wh} < 61$	$55 \leq \eta_{wh} < 72$	$100 \leq \eta_{wh} < 130$	$115 \leq \eta_{wh} < 150$	$123 \leq \eta_{wh} < 160$	$131 \leq \eta_{wh} < 170$	$138 \leq \eta_{wh} < 180$	$146 \leq \eta_{wh} < 190$
<b>A</b>	$35 \leq \eta_{wh} < 44$	$35 \leq \eta_{wh} < 44$	$38 \leq \eta_{wh} < 53$	$38 \leq \eta_{wh} < 55$	$65 \leq \eta_{wh} < 100$	$75 \leq \eta_{wh} < 115$	$80 \leq \eta_{wh} < 123$	$85 \leq \eta_{wh} < 131$	$90 \leq \eta_{wh} < 138$	$95 \leq \eta_{wh} < 146$
<b>B</b>	$32 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 35$	$35 \leq \eta_{wh} < 38$	$35 \leq \eta_{wh} < 38$	$45 \leq \eta_{wh} < 65$	$50 \leq \eta_{wh} < 75$	$55 \leq \eta_{wh} < 80$	$60 \leq \eta_{wh} < 85$	$64 \leq \eta_{wh} < 90$	$64 \leq \eta_{wh} < 95$
<b>C</b>	$29 \leq \eta_{wh} < 32$	$29 \leq \eta_{wh} < 32$	$32 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 35$	$36 \leq \eta_{wh} < 45$	$37 \leq \eta_{wh} < 50$	$38 \leq \eta_{wh} < 55$	$40 \leq \eta_{wh} < 60$	$40 \leq \eta_{wh} < 64$	$40 \leq \eta_{wh} < 64$
<b>D</b>	$26 \leq \eta_{wh} < 29$	$26 \leq \eta_{wh} < 29$	$29 \leq \eta_{wh} < 32$	$29 \leq \eta_{wh} < 32$	$33 \leq \eta_{wh} < 36$	$34 \leq \eta_{wh} < 37$	$35 \leq \eta_{wh} < 38$	$36 \leq \eta_{wh} < 40$	$36 \leq \eta_{wh} < 40$	$36 \leq \eta_{wh} < 40$
<b>E</b>	$22 \leq \eta_{wh} < 26$	$23 \leq \eta_{wh} < 26$	$26 \leq \eta_{wh} < 29$	$26 \leq \eta_{wh} < 29$	$30 \leq \eta_{wh} < 33$	$30 \leq \eta_{wh} < 34$	$30 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 36$	$32 \leq \eta_{wh} < 36$	$32 \leq \eta_{wh} < 36$
<b>F</b>	$19 \leq \eta_{wh} < 22$	$20 \leq \eta_{wh} < 23$	$23 \leq \eta_{wh} < 26$	$23 \leq \eta_{wh} < 26$	$27 \leq \eta_{wh} < 30$	$27 \leq \eta_{wh} < 30$	$27 \leq \eta_{wh} < 30$	$28 \leq \eta_{wh} < 32$	$28 \leq \eta_{wh} < 32$	$28 \leq \eta_{wh} < 32$
<b>G</b>	$\eta_{wh} < 19$	$\eta_{wh} < 20$	$\eta_{wh} < 23$	$\eta_{wh} < 23$	$\eta_{wh} < 27$	$\eta_{wh} < 27$	$\eta_{wh} < 27$	$\eta_{wh} < 28$	$\eta_{wh} < 28$	$\eta_{wh} < 28$

*Energy efficiency classes of solar hot water storage tanks, if (part of) a solar device*

The energy efficiency class of a solar hot water storage tank, if (part of) a solar device, shall be determined on the basis of its standing loss as set out in Table 7.

Table 7: Energy efficiency classes of solar hot water storage tanks, if (part of) a solar device

Energy efficiency class	Standing loss S in Watts, with storage volume V in litres
A+	$S < 5,5 + 3,16 \cdot V^{0,4}$
A	$5,5 + 3,16 \cdot V^{0,4} \leq S < 8,5 + 4,25 \cdot V^{0,4}$
B	$8,5 + 4,25 \cdot V^{0,4} \leq S < 12 + 5,93 \cdot V^{0,4}$
C	$12 + 5,93 \cdot V^{0,4} \leq S < 16,66 + 8,33 \cdot V^{0,4}$
D	$16,66 + 8,33 \cdot V^{0,4} \leq S < 21 + 10,33 \cdot V^{0,4}$
E	$21 + 10,33 \cdot V^{0,4} \leq S < 26 + 13,66 \cdot V^{0,4}$
F	$26 + 13,66 \cdot V^{0,4} \leq S < 31 + 16,66 \cdot V^{0,4}$
G	$S > 31 + 16,66 \cdot V^{0,4}$

### **Responsibilities of suppliers and timetable**

1. From [two years after the Regulation has entered into force] suppliers placing boiler space heaters on the market and/or putting them into service shall ensure that:
  - (a) a printed label complying with the format and content of information set out in point 1 of Annex IV-1 is provided for each boiler space heater conforming to the seasonal space heating energy efficiency classes, whereby for boiler space heaters intended for use in packages of boiler space heater, temperature control and solar device, a second label complying with the format and content of information set out in point 3 of Annex IV-1 is provided for each boiler space heater;
  - (b) a product fiche, as set out in point 1 of Annex IV-2, is provided for each boiler space heater, whereby for boiler space heaters intended for use in packages of boiler space heater, temperature control and solar device, a second fiche, as set out in point 6 of Annex IV-2, is provided;
  - (c) the technical documentation, as set out in point 1 of Annex IV-3, is provided on request to the authorities of the Member States and to the Commission;
  - (d) any advertisement that concerns a specific boiler space heater model and contains energy-related or price information includes a reference to the seasonal space heating energy efficiency class under average climate conditions for that model;
  - (e) any technical promotional material that concerns a specific boiler space heater model and describes its specific technical parameters includes a reference to the seasonal space heating energy efficiency class under average climate conditions for that model;
2. From [two years after the Regulation has entered into force] suppliers placing combination heaters on the market and/or putting them into service shall ensure that:

- (a) a printed label complying with the format and content of information set out in point 2 of Annex IV-1 is provided for each combination heater conforming to the seasonal space heating energy efficiency classes and water heating energy efficiency classes, whereby for combination heaters intended for use in packages of combination heater, temperature control, solar device and passive flue heat recovery device, a second label complying with the format and content of information set out in point 4 of Annex IV-1 is provided for each combination heater;
  - (b) a product fiche, as set out in point 2 of Annex IV-2, is provided for each combination heater, whereby for combination heaters intended for use in packages of combination heater, temperature control, solar device and passive flue heat recovery device, a second fiche, as set out in point 7 of Annex IV-2, is provided;
  - (c) the technical documentation, as set out in point 2 of Annex IV-3, is provided on request to the authorities of the Member States and to the Commission;
  - (d) any advertisement that concerns a specific combination heater model and contains energy-related or price information includes a reference to the seasonal space heating energy efficiency class and water heating energy efficiency class under average climate conditions for that model;
  - (e) any technical promotional material that concerns a specific combination heater model and describes its specific technical parameters includes a reference to the seasonal space heating energy efficiency class and water heating energy efficiency class under average climate conditions for that model;
3. From [two years after the Regulation has entered into force] suppliers placing temperature controls on the market and/or putting them into service shall ensure that:
  - (a) a product fiche, as set out in point 3 of Annex IV-2, is provided;
  - (b) the technical documentation, as set out in point 3 of Annex IV-3, is provided on request to the authorities of the Member States and to the Commission.
4. From [two years after the Regulation has entered into force] suppliers placing solar devices on the market and/or putting them into service shall ensure that:
  - (a) a product fiche, as set out in point 4 of Annex IV-2, is provided;
  - (b) the technical documentation, as set out in point 4 of Annex IV-3, is provided on request to the authorities of the Member States and to the Commission.
5. From [two years after the Regulation has entered into force] suppliers placing passive flue heat recovery devices on the market and/or putting them into service shall ensure that:
  - (a) a product fiche, as set out in point 5 of Annex IV-2, is provided;
  - (b) the technical documentation, as set out in point 5 of Annex IV-3 is provided on request to the authorities of the Member States and to the Commission.

## **Responsibilities of dealers**

1. Dealers of boiler space heaters shall ensure that:
  - (a) each boiler space heater, at the point of sale, bears the label provided by suppliers, as set out in point 1 of Annex IV-1, on the outside of the front of the appliance, in such a way as to be clearly visible;
  - (b) boiler space heaters offered for sale, hire or hire-purchase, where the end-user cannot be expected to see the space heater displayed, are marketed with the information provided by the suppliers in accordance with point 1 of Annex IV-4;
  - (c) any advertisement that concerns a specific space heater model and contains energy-related or price information includes a reference to the seasonal space heating energy efficiency class under average climate conditions for that model;
  - (d) any technical promotional material that concerns a specific space heater model and describes its specific technical parameters includes a reference to the seasonal space heating energy efficiency class under average climate conditions for that model.
2. Dealers of boiler combination heaters shall ensure that:
  - (a) each boiler combination heater, at the point of sale, bears the label provided by suppliers, as set out in point 2 of Annex IV-1, on the outside of the front of the appliance, in such a way as to be clearly visible;
  - (b) boiler combination heaters offered for sale, hire or hire-purchase, where the end-user cannot be expected to see the combination heater displayed, are marketed with the information provided by the suppliers in accordance with point 2 of Annex IV-4;
  - (c) any advertisement that concerns a specific combination heater model and contains energy-related or price information includes a reference to the seasonal space heating energy efficiency class and water heating energy efficiency class under average climate conditions for that model;
  - (d) any technical promotional material that concerns a specific combination heater model and describes its specific technical parameters includes a reference to the seasonal space heating energy efficiency class and water heating energy efficiency class under average climate conditions for that model.
3. Dealers of packages of boiler space heater, temperature control and solar device shall ensure, based on the label and fiches provided by suppliers, that any offer for a specific package includes the seasonal space heating energy efficiency and the seasonal space heating energy efficiency class for that package under average, colder or warmer climate conditions, as applicable, by displaying with the package the label set out in point 3 of Annex IV-1 and providing the fiche set out in point 6 of Annex IV-2, duly filled in according to the characteristics of that package.
4. Dealers of packages of boiler combination heater, temperature control, solar device and passive flue heat recovery device shall ensure, based on the label and fiches provided by suppliers, that any offer for a specific package of combination heater, temperature control, solar device and passive flue heat recovery device includes the seasonal space heating energy efficiency, the water heating energy efficiency, the seasonal space heating energy efficiency class and the water heating energy

efficiency class for that package under average, colder or warmer climate conditions, as applicable, by displaying with the package the label set out in point 4 of Annex IV-1 and providing the fiche set out in point 7 of Annex IV-2, duly filled in according to the characteristics of that package.

### **Measurement and calculation methods**

The information to be provided shall be obtained by reliable, accurate and reproducible measurement and calculation methods which take into account the recognised state-of-the-art measurement and calculation methods, as set out in Annex IV-5.

### **Verification procedure for market surveillance purposes**

Member States shall apply the procedure set out in Annex IV-6 when assessing the conformity of the declared seasonal space heating energy efficiency class, water heating energy efficiency class, seasonal space heating energy efficiency and water heating energy efficiency boilers.

### **Review**

The proposed requirements shall be reviewed in the light of technological progress no later than seven years after its entry into force.