GUIDANCE NOTES FOR SUBMISSIONS TO UK GOVERNMENT'S PRODUCT CHARACTERISTICS DATABASE

(GAS & OIL BOILERS ONLY)

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Summary

1. Submission Pack Version Number

The data collection program and Guidance Notes are routinely updated to reflect changes to the submission process. The submission pack provides means for manual submission of data. You will find comprehensive guidance notes and instructions.

The Submission Pack is available on the Products Characteristics Database website (www.sedbuk.com or www.boilers.org.uk). You should ensure that the version you are using correlates with that available at the website prior to making a submission. GASTEC at CRE may not accept submissions made using old versions of the Submission Pack.

As an aid to those submitting data for validation the following tables identify the latest version number and indicate the changes made.

Submission Pack Revision Table

Version Number	Issue Date	Amendment details
3.0	Dec 2003	N.A.
3.1	Jan 2003	New requirement for a dataplate to be supplied for each boiler model submitted
3.2	March 2006	Updated to reflect changes implemented in line with SAP 2005 requirements
4.0	October 2010	Updated to reflect changes implemented in line with SAP 2009 requirements
4.1	November 2010	Amendments to DHW test data requirements
4.2	**January 2011**	**Revision regarding status of DHW test data**

(Note: Current version number details are shown in bold for clarity)

2. General Points about the Boiler Efficiency Database

1. The database is intended for domestic boilers only, and there is a cut-off at 70kW. No modulating or "on/off" boilers will be accepted where the power output is greater than 70kW. Range rated boilers may have an upper limit in excess of 70kW provided that the lower limit is below 70kW.
2. The database is kept up to date on a monthly cycle with deadlines for data submission as shown in the following table:-

Programme for boiler efficiency data submission	
Completed data entries required by:-	**For database update on:-**
15 calendar days before last working day of each month	Last working day of each month
Note: Entries may be submitted at any time, but cannot be guaranteed for inclusion after the 15 day deadline	

3. Independent certification of efficiency and DHW test results is required as explained in SAP 2009 and section 1.1 of these submission notes.
4. All entries in the database are subject to technical audit.
5. Product names in the database must be unique, and it is not possible to have two entries with the same conjunction of brand name, model name and qualifier and fuel type. The way in which product names are validated has changed; photographs are now required to help in this process (please see section 1.2 for more details).
6. You are required to submit an actual example of a dataplate for each boiler submitted.

7. If any product on the database becomes obsolete (i.e. goes out of production) you must inform us. The data will continue to be held for SAP assessors use.

Because precise identification of your products is a vital part of the SAP procedure (and in future the Home Information Packs), we urge you to pay particular attention to the naming of your product. If a SAP assessor/home inspector is unable to identify your boiler beyond doubt, he will simply assign a default value, which will always be lower than can be achieved through testing. This may not present your product in its best light. We appreciate that in the domestic boiler industry it is commonplace to sell virtually identical products under a range of different trademarks/brand names or other identifiers sometimes specified by bulk purchasers; usually known as 'Badged Products'. We draw your attention to the section in the guidance notes calling for a separate entry for each of these products. In order to enable you to validate such information without repeating the entire data entry process, you will find a simple form [Appendix 2], which helps us to cross reference to the original model.

We have attempted to make the process of gathering and validating your boiler efficiency data as easy as possible in order to make the database as accurate and useful as possible. Our quality control procedures have been designed to question any data which do not conform to the government's high standards, but we will work hard to ensure that minor misunderstandings and difficulties are resolved as quickly as possible to the satisfaction of all interested parties.

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SEASONAL EFFICIENCY of DOMESTIC BOILERS in the UK [PCDB]

1. Introduction

The primary purpose of the Product Characteristics Database (PCDB) is to support the UK Government's Standard Assessment Procedure (SAP) for energy rating of dwellings by providing reliable data on the efficiency and other relevant characteristics of number of heating products. These submission notes deal specifically with gas and oil boilers.

The database has become widely known and used as a reference source of boiler efficiency information [eg UK Building Regulations - Part L].

For entries in the database it is GaC's role to verify that the efficiency and other test data submitted have been produced or accepted by an appropriately qualified Notified Body (an accredited test house subject to European standards for quality control and operations) under the Boiler Efficiency Directive.

Whilst we are happy to be the company selected to check the compliance of this information and compile it into a useable Internet format, the ultimate resolution of queries is the responsibility of BRE as the Government's operating agent.

Subsets of data extracted from the definitive database will be published in two forms; one for SAP Assessors as a computer-readable file, and the second as publicly available product information – all on an Internet web site (www.sedbuk.com). The published data will be updated at monthly intervals.

Manufacturers may continue to submit further data on new products at any time. GaC will deal with these applications within an agreed time target, and will also investigate and correct any errors reported.

When boilers published on the database go out of production, GaC should be notified so that the entry can be updated. The data will still be held so that SAP assessors can make reference to it as required.

You should be aware that once data relating to a particular boiler has been published, any modifications to that product which may affect its seasonal efficiency rating must be submitted in the form of a clearly identifiable "new" entry complete with a modified model identity. Product names in the database must be unique, and it is not possible to have two entries with the same conjunction of brand name, model name and qualifier and fuel type. This is to enable a SAP assessor to differentiate between the modified and un-modified products in the marketplace.

1.1 EFFICIENCY DATA

The purpose of this database is to hold data for a number of products (including boilers). This submission pack concerns itself with energy efficiency performance calculations for domestic boilers fuelled by natural gas, LPG or oil. Although the database will contain other descriptive and technical details as well, all boiler entries must include a SAP seasonal efficiency value. Each entry for a SAP seasonal efficiency value has an efficiency category defined as follows:-

(a) Efficiency category 1: As yet not defined

No entries under category 1 will be accepted until further notice.

(b) Efficiency category 2: Seasonal Efficiency based on certified data

Seasonal efficiency has been calculated by the method from the results of standard efficiency tests required to demonstrate compliance with the Boiler Efficiency Directive, together with other information supplied. The results of the standard tests have been certified by a suitably qualified Notified Body (i.e. an independent test house deemed competent under European rules for boiler testing) as required for SAP (2009) and have been submitted to GaC with other supporting details. GaC will have checked published entries with efficiency category 2 in accordance with their contract with BRE.

(c) Efficiency category 3: Estimated

Efficiency has been taken from SAP (2009), based on boiler type. An earlier version of SAP may have been used. Entries with efficiency category 3 are permitted for obsolete boilers only, which may not comply with the provisions of the Boiler Efficiency Directive.

Note: Information relating to this category can only be supplied by BRE

Validity and accuracy of the data within the database are paramount. Careful scrutiny of the data and the certification submitted by manufacturers, and calculation of Seasonal Efficiency values from it, are essential. To avoid any doubt or misunderstanding as to the accuracy or validity of any of your supporting efficiency data, we have devised a declaration form [Appendix 4] which should be completed and signed by an authorised signatory from whichever Notified Body carried out the Efficiency Testing required to satisfy the Boiler Efficiency Directive.

It should be noted that in certain cases we are required to seek additional clarification of submitted results (e.g. where very high boiler efficiency results have been reported by the Notified Body). We would be required to seek further explanation of the methods used to produce this data. In such circumstances we would expect to see confirmation that the test laboratory has carried out sufficient checking of measurements and calculations to ensure consistency of results.

For boilers with efficiency category 1 & 2 only, the database will indicate an energy efficiency band. For boilers with other efficiency categories, the field for the efficiency band will be left blank.

The database also provides a field to hold the energy efficiency class, expected to be defined later in a European Council directive for energy labelling. This field is to be left blank until the European labelling scheme has been defined.

It should be noted that it is now possible to submit DHW test data for boilers. This test data must be supported by either a suitable Notified Body or an independent test laboratory accredited under ISO 17025 for the relevant Standard(s).

1.2 PRODUCT IDENTIFICATION

It is essential that descriptions obtained from the database allow a SAP assessor or home inspector to identify an installed boiler reliably. Assessors and inspectors are not heating experts, and will examine only the information on boilers that is readily visible to the householder. The route to boiler identification should be viewed as follows: -

1. The product must have a unique description (i.e. distinct from any other product entered, or about to be entered, in the database). The description is made up of Brand Name, Model Name and Qualifier and Fuel type.
2. It must be possible for the SAP assessor or home inspector to identify the specific product from readily visible information.
3. Readily visible information is considered to be markings/labels on the outer case that can be seen. In addition markings/labels that can be read by means of a user moveable panel. A user moveable panel is considered to be one that may be hinged (e.g. flap or door) or a panel that can be removed without the use of tools and is intended to be used by the householder.
4. In order to demonstrate that product information is readily visible photographs will need to be supplied clearly demonstrating how the unique product description can be derived as described in 3 above. No submissions will be accepted where this evidence cannot be supplied.

5. In the case of a gas boiler that may be converted from one gas type to another in situ (e.g. NG to LPG) it is not necessary for the fuel type to be clearly visible. It is considered possible for the SAP assessor/home inspector to determine the fuel type by other means.

The process by which a product description is verified is given in Appendix 3.

It should be noted that where a unique product description cannot be demonstrated (normally by means of photographs) an entry to the database will be denied.

2 Help and Advice on Supplying Boiler Efficiency Data

2.1 How do I make a submission to the Database?

There is one route to making a submission to the database. This is:

- Manual submission

As well as the basic boiler data you will need to provide there are a number of accompanying forms and pieces of evidence you will also need to supply. To help clarify what this a table is presented below listing the forms you will need in various submission scenarios. Although this cannot be guaranteed to be exhaustive in all cases it should cover most.

Boiler Submission Scenarios and Forms/Evidence required

Forms/Evidence required	Boiler submission scenario			
	Boiler tested on fuel it burns	Badged Boiler	LPG Boiler supported by NG efficiency data	LPG Condensing Boilers only
Manual Data Entry Form (1)	✓	✓	✓	✓
Badged Boiler Form (2)	*N.A.*	✓	*N.A.*	
Product Identification Photographs (3)	✓	✓	✓	✓
Dataplate	✓	✓	✓	✓
Boiler Efficiency Directive compliant results declaration (4)	✓	✓	✓	
Boiler Efficiency Directive compliant results declaration (condensing LPG boilers) (5)	*N.A.*	*N.A.*	*N.A.*	✓
LPG Boiler Declaration Form (7)	*N.A.*	*N.A.*	✓	*N.A.*

Note: Numbers in brackets indicate the Appendix number where the appropriate form or further information can be found.

For each boiler submitted there must be the accompanying paperwork as indicated in the above matrix. As a further aid a submission checklist is provided in Appendix 8.

It is important that all forms requiring signature (apart from the Notified Body Declarations) be signed by the Technical Director of the submitting company.

2.1 Manual Entry

The Governments Standard Assessment Procedure for Energy Rating of Dwellings [SAP (2005)] states the following certification requirements: -

"Test results must be certified by a notified body accredited for the testing of boilers by an EU National Accreditation Service. The Notified Body will be required to certify that: "the full load and part load efficiency test results detailed in *[insert reference to report on the efficiency test]* have been obtained by methods deemed to satisfy the boiler efficiency directive".

A set of manual data entry forms is included in Appendix 1 – please photocopy as many as you need for all of your product data. One complete set of forms should be completed for each boiler.

Please take great care when writing in each of the boxes. Special care is needed when recording results from any testing body. Please note that the accreditation information must be substantiated with appropriate copies of accreditation certificates and test reports (alternatively, your Notified Body may confirm results in a formal signed letter or Declaration as detailed in Appendix 4). Failure to provide this evidence will prevent your product from receiving its full listing in the database. **Each form contains a signature box for the Technical Director or the equivalent person in your organisation to affirm the quality of the information supplied.** Please note that you are also required to send an actual dataplate for each boiler submitted.

The data entry form has been designed with subsequent data input in mind. Overleaf are some explanatory notes to help you fulfil the Government's requirements.

NB MANDATORY ENTRIES FOR BOILERS ARE PRINTED IN BOLD

There is a requirement for consistency in naming (a) your Company (b) the brand and (c) the actual models submitted. We will be making amendments as and when required to both categories and you should pay particular attention to that when checking your confirmation reports.

Entry 1 Original Name [up to 50 characters]

This is the name of the boiler manufacturer or company responsible for the boiler in the UK at the time the boiler was manufactured – as it appears on the boiler casing and/or the owners' instruction leaflets. **Please omit punctuation marks and spaces between initials**. Once we have confirmed a manufacturer name this format will be used for all future boiler entries appearing under that name.

Entry 2 Current Name [up to 50 characters]

This is the current name of the Manufacturer or Company responsible for this boiler in the UK. This may be different to the original name – if not mark "as above".

NB If the same boiler model is sold under more than one Manufacturer's name, then you should complete the Boiler Identity Form in Appendix 3 giving the other identities so that separate entries can be included on the database.

Entry 3 Address [up to 365 characters in total]

This format is as recommended in BS7666: Part 3 Section 2 Table 1 – hence the terminology. If your company does not have a UK address, then please try to match the format as closely as possible.

- Secondary addressable object name [eg Design Division] - up to 60 characters
- Primary addressable object name [eg Big House] - up to 60 characters
- Designated Street name - up to 100 characters
- Locality name [if appropriate] - up to 35 characters
- Town/city name - up to 30 characters
- Administrative area name [eg County] - up to 30 characters
- Postcode - up to 20 characters
- Country – if not UK - up to 30 characters

Entry 4 Telephone number [up to 25 characters]

Entry 5 Website address [up to 75 characters]

This is the actual home website address for the manufacturer [in the usual www.****.co.uk or .com configuration]. It will be used to provide a hotlink from each boiler record to the specific manufacturer's website.

Entry 6 Brand Name [up to 50 characters]

This is the name of the product brand. It is anticipated that this name will reflect the manufacturer name. It is intended that this field be used for the brand instead of including it in the Model Name (e.g. model name: ACME 123 would be Brand Name: ACME; Model Name 123).

Entry 7 Model Name [up to 50 characters]

This should be the name as it appears on the boiler casing or leaflet of owners' instructions. For boilers that comply with EN483, or other appropriate European Norms, this should be "the trade name of the appliance" shown on the data plate, as specified in EN483 or other relevant standard.

NB As highlighted in Entry 2's notes, separate entries are required for each model if the same boiler is sold under more than one model or brand name.

Entry 8 Model qualifier [up to 30 characters]:-

This is for recording any special qualifier to the model name, which may have been used to discriminate between different versions of the same model.

Entry 9 Boiler ID [up to 40 characters]

This is the boiler identifier which, when used in conjunction with the manufacturer's name, is unique for the model and all other characteristics affecting efficiency. Where known, this provides an effective short cut for identification. It could be the GC (former Gas Council) number for gas boilers or OFTEC Registration Number for an oil boiler. Alternatively, it could be any other ***unique*** identifier chosen by the manufacturer and clearly **marked on the boiler**. If not known, please leave blank.

Entry 10 First year of manufacture if known [up to 4 characters]

If you do not know, give your best estimate of the year or just leave blank.

Entry 11 Final year of manufacture [up to 8 characters]

Enter "current" if the model is still in production. If the model is no longer produced, but you do not know the final year of manufacture, then either enter your best estimate of the year or simply enter "obsolete".

Entry 12 Fuel [1 digit]

Fuel	Code	Notes
Gas	1	"Gas" means natural gas (mains gas) only
LPG	2	"LPG" means butane or propane
Oil	4	"Oil" means kerosene, or gas oil only

NB If the same boiler may be used for more than one type of fuel, then a separate entry is required for each fuel type.

Entry 13 Mounting position [1 digit]

Position	Entry code	Notes
Floor	1	
Wall	2	
Either floor or wall	3	
Back boiler	4	

Entry 14 Exposure rating [1 digit]

Rating	Code	Notes
Indoor only	1	Indoor only means "Indoor only"
Outdoor	2	Outdoor means "Outdoor only" or "Outdoor or Indoor"

Entry 15 Main Type [1 digit]

Type	Code	Notes
Regular	1	As defined in SAP (2005) (see notes in Appendix 5) – a Regular boiler is a boiler which does not have the capability to provide DHW directly, it may never the less provide DHW indirectly via a separate hot water storage cylinder located outside the boiler.
Combi	2	As defined in SAP (2005) (see notes in Appendix 5) – a Combination boiler is a boiler with a capability to provide DHW directly, in some cases containing an internal hot water store (IHWS). It also includes: - Instantaneous combination hot water boilers without an IHWS or with an IHWS not exceeding 15 litres [SAP (2005)] (see notes in Appendix 5) - Storage combination boilers with an IHWS exceeding 15 litres but not exceeding 70 litres [SAP (2005)] - Any other "combi" with an IHWS exceeding 70 litres that is not a CPSU (see notes in Appendix 5)
CPSU	3	As defined in SAP (2005) (see notes in Appendix 5) – a CPSU is a single appliance designed to provide both space heating and the production of DHW in which there is a burner that heats an IHWS. This store shall be at least 70 litres.

Entry 16 Condensing [1 digit]

Definition	Entry code	Notes
Non-condensing	1	As defined in SAP (2005) (see notes in Appendix 5) - Non-condensing means condensation is not expected [by design] within the boiler.
Condensing	2	As defined in SAP (2005) (see notes in Appendix 5) - Condensing means a boiler designed to make use of the latent heat in the combustion products by condensing water vapour within the appliance. The boiler must allow the condensate to leave the heat exchanger in liquid form by way of a condensate drain.

Entry 17 Flue Type [1 digit]

Definition	Entry code	Notes
Open	1	Open flued: The boiler will take its combustion air from the room, and discharge outside of the room
Room-Sealed	2	Room sealed: The boiler air supply and point of discharge of the flue system are outside of the room in which the boiler is installed.
Either	3	Where a boiler can operate with both an open or room-sealed flue and the dataplate makes no distinction.

Entry 18 Fan Assistance [1 digit]

Definition	Entry code	Notes
No-fan	1	
Fan	2	A fan assisted boiler is a boiler with a fan designed to supply air or remove products of combustion.

Entry 19 Ignition [1 digit]

Whether or not the boiler has a permanent pilot light

Definition	Entry code	Notes
No	1	Boiler does not have a permanent pilot light
Yes	2	Boiler has a permanent pilot light

Entry 20 Burner Control [1 digit]

Definition	Entry code	Notes
On-Off	1	This excludes a boiler with the capability to vary the fuel burning rate while maintaining continuous firing
Variable	2	This includes a boiler with the capability to vary the fuel burning rate while maintaining continuous firing

Entry 21 Electrical Power [up to 4 digits]

Definition	Entry code	Notes
Boiler on	Input actual value (W)	This is the average electrical power consumed while the boiler is firing at its highest rating, in Watts. This includes fans, motors, heaters and other electrical equipment but should exclude any pump used to circulate water outside the boiler.

Entry 22 Electrical Power [up to 4 digits]

Definition	Entry code	Notes
Boiler off	Input actual value (W)	This is the average electrical power consumed while the boiler is adjusted to fire at its highest rating (but is not firing), in Watts. This includes fans, motors, heaters and other electrical equipment but should exclude any pump used to circulate water outside the boiler

Entry 23 Subsidiary Type [1 digit]

This field is intended for the purpose of indicating the presence of special features

Definition	Entry code	Notes
Normal	0	Boiler does not have special features
With integrated PFGHRD	1	Boiler has an integrated PFGHRD (passive flue gas heat recovery device).

Note. Data for PFGHRD can only be accepted by GASTEC at CRE if the boiler is an instantaneous (not storage) combi and hot water test results are provided.

Other PFGHRD scenarios will have to be notified directly to BRE who will assess the data in accordance with SAP2009 Appendix Q.

Entry 24 Boiler Power (bottom of range)

[number of up to 7 characters - eg nnn.nnn]

For a boiler with a single rated output, this figure should be the nominal output power (to water) of the boiler in kW. (Note: If the boiler is modulating then this power **MUST** be the same as the Boiler Power (top of range) as recorded in Entry 25)

For range rated boiler this should be the minimum output power of the range declared by the manufacturer.

Entry 25 Boiler Power (top of range)

[number of up to 7 characters - eg nnn.nnn]

For a single output boiler this figure should be the nominal output power (to water) of the boiler in kW ie the same as Entry 24.

For range rated boiler this should be the maximum output power of the range declared by the manufacturer.

Boilers with heat outputs greater than 70kW are not permitted on the database.
(Note: If the power is only available in BTU/hr then it should be converted using the factor 1BTU/hr = 0.000293kW.)

Entry 26 Full load efficiency [number up to 5 characters to one decimal place e.g. nnn.n]

This is the certified net efficiency at full load (as defined in Schedule 2 of the Boiler Efficiency Directive). Supporting evidence may be:-

- A copy of the BED or CE certificate (or original signed declaration) as issued by an EU Notified Body clearing showing the test results, or
- A declaration issued and authorised by an appropriate EU Notified Body showing the boiler efficiency results for the model submitted. A declaration form is provided for this purpose (see Appendix 4)

The certificate or declaration shall clearly indicate the model to which it applies. If this model differs in any way (either physically or by model name or other identifier) from that shown on the certificate, the attached Boiler Identity Form (Appendix 2) shall be used to clearly identify all of these differences. This form shall be completed and signed as indicated.

NB In the case of storage combination boilers it is necessary to establish whether the heat loss from the internal hot water store was INCLUDED or EXCLUDED from the BED efficiency determination. This data can be provided in the manual submission form.

Entry 27 Part Load efficiency

[number up to 5 characters to one decimal place e.g. nnn.n]

This is the certified net efficiency at part load (as defined in schedule 2 of the Boiler Efficiency Directive). Supporting evidence may be:-

- A copy of the BED or CE certificate (or original signed declaration) as issued by an EU Notified Body clearing showing the test results, or
- A declaration issued and authorised by an appropriate EU Notified Body showing the boiler efficiency results for the model submitted. A declaration form is provided for this purpose (see Appendix 4)

The certificate shall clearly indicate the model to which it applies. If this model differs in any way (either physically or by model name or other identifier) from that shown on the certificate, the Boiler Identity Form (Appendix 3) shall be used to clearly identify all of these differences. This form shall be completed and signed as indicated.

Entry 28 SAP Equation Used to Calculate the Seasonal Efficiency

[up to 3 digits]

The number of the equation used to calculate the seasonal efficiency. There are very clearly defined rules [SAP (2009)] regarding these calculations. Full details of the equations, procedures and rules are given in Appendix 7.

Entry 29 SAP (2005) seasonal efficiency [number up to 4 characters]

Note: GaC will calculate this figure and notify manufacturers of their results during a 7 day checking period.

This may be entered by the manufacturer or left blank. If entered, it must be obtained using the methods indicated in entry 28 (rounded to the nearest 0.1%).

Entry 30 Efficiency Category [1 digit]

Definition	Entry code	Notes
SEDBUK	1	Not currently used.
SEDBUK	2	Calculated from certified data.

Entry 31 Test gas for LPG

It is intended to identify those LPG boilers for which efficiency test results from a NG derivative have been supplied by means of this field.

Definition	Entry code	Notes
Not applicable	blank	If this category does not apply to boiler in question.
Test gas is LPG	0	If the efficiency tests from which seasonal efficiency was calculated were carried out using LPG test gas.
Test gas is NG	1	If the efficiency tests from which seasonal efficiency was calculated were carried out using NG test gas and the modified calculation procedures (see SAP 2005).

Entry 32 LPG Condensing Boiler Uplift [1 digit]

This category applies only to LPG condensing boilers. For all other boilers this should be left blank.

Definition	Entry code	Notes
Not applicable	blank	If this category does not apply to boiler in question
Uplift included	1	If the certified net boiler efficiency reported for the LPG condensing boiler does include the 2.4% uplift as defined in EN677.
Uplift excluded	2	If the certified net boiler efficiency reported for the LPG condensing boiler does not include the 2.4% uplift as defined in EN677.

Entry 33 Boiler type for ple test [1 digit]

As defined in Schedule 2 of Statutory Instrument 1993 No 3083 (Energy Conservation) The Boiler (Efficiency) Regulations and Council Directive 92/42/EEC.

Definition	Entry code	Notes
ST = Standard	1	
LT = Low-temp	2	Includes condensing boilers using liquid fuel
GC = Gas condensing	3	

Entry 34 Seasonal Efficiency (Annual) [number up to 4 characters]

Note: GaC will calculate this figure and notify manufacturers of their results during a 7 day checking period.

This may be entered by the manufacturer or left blank. If entered, it must be obtained using the methods indicated in Appendix 6 (rounded to the nearest 0.1%).

Entry 35 SAP Winter Seasonal Efficiency [number up to 4 characters]

Note: GaC will calculate this figure and notify manufacturers of their results during a 7 day checking period.

This may be entered by the manufacturer or left blank. If entered, it must be obtained using the methods indicated in Appendix 6 (rounded to the nearest 0.1%).

Entry 36 SAP Summer Seasonal Efficiency [number up to 4 characters]

Note: GaC will calculate this figure and notify manufacturers of their results during a 7 day checking period.

This may be entered by the manufacturer or left blank. If entered, it must be obtained using the methods indicated in Appendix 6 (rounded to the nearest 0.1%).

Entry 37 Store type [1 digit] Only relevant to Storage Combination Boilers

Definition	Entry code	Notes
Inapplicable	0	Select this if you have an instantaneous combination boiler i.e. with a store less than 15 litres
Primary	1	If the heat store is principally Primary water
Secondary	2	If the heat store is principally Secondary water
CPSU	3	For a CPSU

Entry 38 Store loss in test [1 digit] Only relevant to Storage Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	
Excluded	1	In the case of storage combination boilers whether the heat loss from the internal hot water store was EXCLUDED
Included	2	In the case of storage combination boilers whether the heat loss from the internal hot water store was INCLUDED

Entry 39 Store volume [number up to 7 characters e.g. nnn.nnn]

Only relevant to Storage Combination Boilers

Definition	Total volume [litres]	Notes
Primary	Input actual value	If the total store volume is less than 15 litres, the boiler can ONLY be recognised as an instantaneous combi - this means you MUST NOT fill in Entries 37, 38, 39, 40, 41, 42, 43 and 44 - and if the total store volume is greater than 15 litres, the boiler can ONLY be classified as a storage combi
Secondary	Input actual value	As above

Entry 40 Store insulation thickness [number up to 3 digits]

Only relevant to Storage Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	Efficiency category 2 only
Thickness in mm	Input actual value	The average thickness of the insulation applied to the internal hot water store

Entry 41 Store insulation type [1 digit]
Only relevant to Storage Combination Boilers

Defines the material used to insulate the internal hot water store

Definition	Entry code	Notes
Unknown	0	For other specialist insulants use the material of closest thermal conductivity.
Mineral wool	1	
Polyurethane foam	2	
Fibreglass	3	
Closest to mineral wool	4	thermal conductivity ≈ mineral wool
Closest to polyurethane foam	5	thermal conductivity ≈ polyurethane foam
Closest to fibreglass	6	thermal conductivity ≈ fibreglass

Entry 42 Store temperature [2 digits]
Only relevant to Storage Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	
Degrees Celsius	Input actual value	The average temperature of the hot water in contact with the exterior walls of the internal hot water store. The boiler shall be at its **WINTER** setting.

Entry 43 Store heat loss [up to 5 digits]

Only relevant to Storage Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	
Watts	Input actual value	The measured heat loss from the IHWS. Where this data is supplied, it should be validated using the Boiler Type & Data Validation Form.

Entry 44 Separate Store [1 digit] only relevant to Storage Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	
Included	0	If the hot water store is within the boiler casing (an "internal hot water store")
Excluded	1	If the hot water store is outside the boiler casing

Entry 45 Keep-Hot Facility

Only relevant to Instantaneous Combination Boilers

The type of "keep-hot" facility intended to keep the internal store hot while not in use.

Definition	Entry code	Notes
Unknown	Leave blank	
Not Applicable	0	There is no "keep-hot" facility.
Fuelled by gas/oil only	1	If there is a "keep-hot" facility fuelled by gas/oil only.
Powered by electric	2	If there is a "keep-hot" facility powered by electricity.
Powered by gas & electric	3	If there is a "keep-hot" facility fuelled by gas and powered by electricity.

Entry 46 “Keep-hot” Timer Only relevant to Instantaneous Combination Boilers

Definition	Entry code	Notes
Unknown/Not Applicable	Leave blank	
No Control	0	There is no “keep-hot” timer.
Timer	1	If there is a “keep-hot” timer which turns off the facility overnight.

Entry 47 “Keep-hot” Electric Heater Only relevant to Instantaneous Combination Boilers

Definition	Entry code	Notes
Unknown/Not Applicable	Leave blank	
No Electric Heating Element	0	There is no electric heating element to heat the store.
Watts	Input actual value	The power rating of the electric heating element in the internal hot water store in watts.

Entry 48 Store solar volume [number up to 7 characters e.g. nnn.nnn]

Definition	Total volume [litres]	Notes
Unknown/Not Applicable	Leave blank	
Solar Store	Input actual value	If the internal hot water store includes a dedicated solar zone, the water volume of the dedicated solar zone in litres.

Entry 49 Separate DHW tests (Please note that test results must be provided by a suitable Notified Body or laboratory accredited against ISO 17025 for the relevant Standards).

Only relevant to Combination Boilers

Definition	Entry code	Notes
Not Applicable	0	There are no separate DHW tests.
One test, using schedule (tapping cycle) 2	1	Hot water tests carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil).
Two tests, using schedules (tapping cycles) 2 & 3	2	Hot water tests carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil).
Two tests, using schedules (tapping cycles) 2 & 1	3	Hot water tests carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil).

Entry 50 Fuel energy for HW test 1 [up to 6 digits] – Clause 5.2.2.3 EN 13203-2/Clause 6.2.2.3.2 OPS 26

Only relevant to Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	If the boiler is not a combi, or if domestic hot water test 1 has not been carried out.
kWh/day	Input actual value	The fuel input energy (corrected) for domestic hot water test 1 carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil). Hot water test 1 means tested under draw-off schedule (tapping cycle) no.2 as defined in the standard.

Entry 51 Electrical energy for HW test 1 [up to 6 digits] - Clause 5.2.2.4 EN 13203-2/Clause 6.2.2.4 OPS 26

Only relevant to Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	If the boiler is not a combi, or if domestic hot water test 1 has not been carried out.
kWh/day	Input actual value	The electrical input energy (corrected) for domestic hot water test 1 carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil). Hot water test 1 means tested under draw-off schedule (tapping cycle) no.2 as defined in the standard.

Entry 52 Wasted Water in HW test 1 [up to 6 digits] - Clause 5.2.2.5 EN 13203-2/ Clause 6.2.2.5 OPS 26

Only relevant to Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	If the boiler is not a combi, or if domestic hot water test 1 has not been carried out.
%	Input actual value	This is the percentage of wasted water in domestic hot water test 1 carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil). Hot water test 1 means tested under draw-off schedule (tapping cycle) no.2 as defined in the standard

Entry 53 Fuel energy for HW test 2 [up to 6 digits] – Clause 5.2.2.3 EN 13203-2/Clause 6.2.2.3.2 OPS 26

Only relevant to Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	If the boiler is not a combi, or if domestic hot water test 2 has not been carried out.
kWh/day	Input actual value	The fuel input energy (corrected) for domestic hot water test 2 carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil). If “Separate DHW Tests” [Entry 49] is 2 then hot water test 2 means tested under draw-off schedule (tapping cycle) no.3 as defined in the standard. If “Separate DHW Tests” [Entry 49] is 3 then hot water test 2 means tested under draw-off schedule (tapping cycle) no.1 as defined in the standard.

Entry 54 Electrical energy for HW test 2 [up to 6 digits] - Clause 5.2.2.4 EN 13203-2/Clause 6.2.2.4 OPS 26

Only relevant to Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	If the boiler is not a combi, or if domestic hot water test 2 has not been carried out.
kWh/day	Input actual value	The electrical input energy (corrected) for domestic hot water test 2 carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil). If “Separate DHW Tests” [Entry 49] is 2 then hot water test 2 means tested under draw-off schedule (tapping) no.3 as defined in the standard. If “Separate DHW Tests” [Entry 49] is 3 then hot water test 2 means tested under draw-off schedule (tapping) no.1 as defined in the standard.

Entry 55 Wasted Water in HW test 2 [up to 6 digits] - Clause 5.2.2.5 EN 13203-2/Clause 6.2.2.5 OPS 26

Only relevant to Combination Boilers

Definition	Entry code	Notes
Unknown	Leave blank	If the boiler is not a combi, or if domestic hot water test 2 has not been carried out.
%	Input actual value	This is the percentage of wasted water in domestic hot water test 2 carried out on a combi boiler in accordance with EN 13203-2 (gas) or OPS 26 (oil). If "Separate DHW Tests" [Entry 49] is 2 then hot water test 2 means tested under draw-off schedule (tapping) no.3 as defined in the standard. If "Separate DHW Tests" [Entry 49] is 3 then hot water test 2 means tested under draw-off schedule (tapping) no.1 as defined in the standard.

Entry 56 Date

Date that form is submitted.

Entry 57-59 Name, Position & Signature of Person completing form

Is should be noted that this form must be signed by the Technical Director or equivalent of the company making the submission. If someone other then the Technical Director signs the forms it is a requirement that suitable documentary evidence of the authority of the signatory is provided.

Appendix 1

Manual Data Entry

Form

[one to be completed for each boiler model submitted]

PRODUCT CHARACTERISTICS DATABASE
Data Entry and Declaration Form
Gas & Oil Boilers

(One to be completed for each boiler type you wish to appear on the Product Characteristics Database – please photocopy as many forms as you require.

Entry No	Entry Title	Entry Value			
1.	**Original Name**				
2.	**Current Name**				
3.	**Address**				
Second addressable object name					
Primary addressable object name					
Designated Street name					
Locality name					
Town/City name					
Administrative area name					
Postcode					
Country (if not UK)					
4.	**Telephone No**				
5.	Manufacturer's Website Address				
6.	**Brand Name**				
7.	**Model Name**				
8.	Model Qualifier				
9.	Boiler ID				
10.	First Year of Manufacture				
11.	**Final Year of Manufacture**				
12.	**Fuel**	**1**	**2**	**4**	
13.	Mounting Position	1	2	3	4
14.	Exposure Rating	1	2		
15.	**Main Type**	**1**	**2**	**3**	
16.	**Condensing**	**1**	**2**		
17.	**Flue Type**	**1**	**2**	**3**	
18.	**Fan assistance**	**1**	**2**		
19.	**Ignition**	**1**	**2**		
20.	**Burner Control**	**1**	**2**		
21.	Electrical Power** (Firing)		Watts		
22.	Electrical Power** (Not-Firing)		Watts		
23.	**Subsidiary type**	**0**	**1**		
24.	**Boiler Power (Bottom-of-range)**		**kW**		

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25.	**Boiler Power (Top-of-range)**					**kW**	
26.	**Full Load Efficiency**					**(net)**	
27.	**Part Load Efficiency**					**(net)**	
28.	**SAP Equation appropriate**						
29.	SAP (2005) Seasonal Efficiency					%	
30.	**Efficiency Category**					**2**	
31.	Test gas for LPG		0			1	
32.	**LPG Uplift**	**0**		**1**		**2**	
33.	**Boiler type for ple test**	**1**		**2**		**3**	
34.	Seasonal Efficiency (Annual)					%	
35.	SAP Winter Seasonal Efficiency					%	
36.	SAP Summer Seasonal Efficiency					%	
37.	Store Type*	0	1	2	3		
38.	**Store loss in test***	**0**		**1**		**2**	
39.	**Store Volume***	**Primary**		**dm³**	**Secondary**		**dm³**
40.	**Store Insulation Thickness***					**mm**	
41.	Store Insulation Type*&**	0	1	2	3	4	5	6
42.	Store Temperature*&**					°C	
43.	Store Heat Loss*&**					Watts	
44.	**Separate Store***	**0**		**1**		**2**	
45.	“Keep-hot” facility	0	1	2	3		
46.	“Keep-hot” timer	0		1			
47.	“Keep-hot” electric heater	0		1		watts	
48.	Store Solar Volume					dm^3	
49.	Separate DHW tests	0	1	2	3		
50.	Fuel Energy for HW Test 1					kWh/day	
51.	Electrical Energy for HW Test 1					kWh/day	
52.	Wasted Water for HW Test 1					%	
53.	Fuel Energy for HW Test 2					kWh/day	
54.	Electrical Energy for HW Test 2					kWh/day	
55.	Wasted Water for HW Test 2					%	

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THIS SHADED SECTION MUST BE COMPLETED FOR ALL SUBMISSIONS								
Boiler Type (circle appropriate category)								
ST		**LT**		**GC**				
Note = Standard Boiler		Note = Low Temperature or Liquid Fuel Condensing Boiler		Note = Gas Condensing				
IHWS (circle appropriate category)		Included		Excluded				
IHWS Heat Loss		Indicate test method used						
Product Identification (please circle)* **		**1a**	**1b**	**1c**	**2d**	**2e**	**2f**	
56.	**Date of Submission**							
57.	**Name of Submitter**							
58.	**Position of Submitter**							
59.	**Signature of Submitter**							

Notes

* These fields are relevant only for storage Combination boilers and CPSUs as defined in SAP 2005 Appendix D Section 1. For all other boiler types they should be zero or blank.

** The information in these fields is not used in the current version of SAP, but may be used in later versions. It is only requested now to avoid the need to do so later.

*** Please identify how product is identified (refer to Appendix 3 for criteria) and circle those combinations that apply

By signing this form I also declare that all the other information included in my returns are correct and that I am the Technical Director (or equivalent).

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Appendix 2

Badged Boiler Form

[one to be completed for each badged boiler submitted *& signed by Technical Director or equivalent]*

[Please note that an actual dataplate for each model submitted is required]

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PRODUCT CHARACTERISTICS DATABASE

"Badged" Boiler Form

(Please photocopy as many as you require)

Declaration of Similarity for "Badged" Products		
This form confirms that the boiler (termed the "Badged model") is the same in all material respects (excluding cover) including thermal performance as a boiler (termed the "Master model") for which a BED Certificate is available from a Notified Body		
Name of "Master Brand"	**Name of "Master Model"**	**"Master Model" Qualifier.**
Name of "Badged Brand"	**Name of "Badged Model"**	**"Badged Model" Qualifier.**
Bagded Model Boiler Power	Lowest rating (kW)	Highest rating (kW)
Are the two boilers currently made in the same factory?		YES / NO
If NO, or if the "Master Model" is out of production please enclose details of any QA system that is in place to ensure product quality and similarity.		
I hereby confirm that the "Badged Model" listed above has the same thermal performance as the "Master Model".		
Signature		Date
Name (Please print)		Position

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Appendix 3

Product Identification Route

[Please note that an actual dataplate for each model submitted is required]

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Route to Product Identification

As described in section 1.2 it is essential that SAP assessors can readily identify boilers. To this end a mechanism has been devised to assist in the confirmation that a boiler can be easily identified.

Firstly the means of identifying the boiler needs to be established. It is anticipated that the following sets of circumstances may apply to most boiler products:-

1. What product information is shown on the boiler case? Is it:
   a) Full brand and model name and qualifier, giving unique description of this product
   b) Partial brand and name information
   c) No brand and name information
2. What product information is visible (by means of a moveable or removable panel) and accessible (without the use of tools) to the householder? Is it:
   d) Full brand and model name and qualifier, giving unique description of this product
   e) Partial brand and name information which together with 1b gives unique description of this product
   f) No brand and name information, or insufficient to provide a unique description

“Unique” means distinct from any other product entered, or about to be entered, in the database.

In order to meet unique description requirements applications can only be accepted in the following circumstances:

1a OR 1b + 2d or 1b + 2e OR 1c + 2d

In any of the above cases photograph(s) should be provided to demonstrate that the product description can be verified by these routes.

In all other circumstances (i.e., 1b + 2f, or 1c + 2f) applications will be refused, as it will considered that in such cases the SAP assessor or Home Inspector will not be able to readily identify the product.

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Appendix 4

Notified Body Efficiency Declaration Form

[to be completed as an alternative to copies of actual technical report sheets]

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DECLARATION MADE BY

[*Insert Name of Notified Body*]

ON BEHALF OF

[Insert Name of Manufacturer]

Tests performed on LPG/NG see note below	Original Boiler Name	UK Market Name	Full Load Efficiency (%, net)	Part Load Efficiency (%, net)

Boilers marked with an asterisk[*] are LPG models where the tests were carried out using Natural Gas [G20].

We declare that the full and part load efficiency test results detailed above have been obtained by means deemed to satisfy the Boiler Efficiency Directive (92/42/EEC). The water temperature criteria defined in the Boiler Efficiency Directive [see below] have been satisfied in obtaining these results.

Type of Boiler	Range of Power	Efficiency at rated output	Efficiency at part load
	kW	Average boiler-water temperature	Average boiler-water temperature
Standard boilers	4 to 400	70°C	≥ 50°C
Low temperature boilers[1]	4 to 400	70°C	40°C
Gas condensing boilers	4 to 400	70°C	30°C [2]

[1] Including condensing boilers using liquid fuels.
[2] Temperature of boiler water supply.

(Table reproduced from The Boiler (Efficiency) Regulations 1993)

Signed on behalf of [Insert name of Notified Body]: _____

Date: _____

Print Name: _____

Position: _____

Insert Notified Body Official Stamp if available and/or use official headed paper

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Appendix 5

Notified Body Efficiency Declaration Form

[For LPG Condensing Boilers Only]

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DECLARATION MADE BY

[*Insert Name of Notified Body*]

ON BEHALF OF

[Insert Name of Manufacturer]

DECLARATION FOR LPG CONDENSING BOILERS ONLY

Original Boiler Name	UK Market Name	Full Load Efficiency (%, net)		Part Load Efficiency (%, net)	
		Tick if figure includes 2.4% uplift		Tick if figure includes 2.4% uplift	

We declare that the full and part load efficiency test results detailed above have been obtained by means deemed to satisfy the Boiler Efficiency Directive (92/42/EEC). The water temperature criteria defined in the Boiler Efficiency Directive [see below] have been satisfied in obtaining these results.

Type of Boiler	Range of Power	Efficiency at rated output	Efficiency at part load
	kW	Average boiler-water temperature	Average boiler-water temperature
Standard boilers	4 to 400	70°C	≥ 50°C
Low temperature boilers[1]	4 to 400	70°C	40°C
Gas condensing boilers	4 to 400	70°C	30°C [2]

[1] Including condensing boilers using liquid fuels
[2] Temperature of boiler water supply

(Table reproduced from The Boiler (Efficiency) Regulations 1993)

Signed on behalf of [Insert name of Notified Body]: _____

Date: _____

Print Name: _____

Position: _____

Insert Notified Body Official Stamp if available

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Appendix 6

SAP Calculations - 2009

[the seasonal efficiency procedure explained]

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Extracted from "The Government's Standard Assessment Procedure for Energy Rating of Dwellings 2009 Edition"

Appendix D: Method of determining seasonal efficiency values for gas and oil boilers

Note: The data and equations in this appendix are for manufacturers to calculate seasonal efficiency for declaration purposes. They are not to be used by SAP assessors.

This appendix sets out, in D2 and D4, the method to be used by manufacturers to determine the Seasonal Efficiency for particular gas and oil boilers when test data have been obtained to establish conformity with Council Directive 92/42/EEC[5]. This Directive has been implemented in the UK by the Boiler (Efficiency) Regulations[6].

Manufacturers' declarations of seasonal efficiency values so calculated should be accompanied by the form of words in D3, and SAP assessors should look for the same form of words in order to ascertain that the efficiency value referred to is appropriate for SAP calculations.

Range cooker boilers with twin burners are covered by D5 and D6.

D1 Definitions

D1.1 Boiler

A gas or liquid fuelled appliance designed to provide hot water for space heating. It may (but need not) be designed to provide domestic hot water as well.

D1.2 Condensing boiler

A boiler designed to make use of the latent heat released by the condensation of water vapour in the combustion flue products. The boiler must allow the condensate to leave the heat exchanger in liquid form by way of a condensate drain. 'Condensing' may only be applied to the definitions D1.3 to D1.14 inclusive. Boilers not so designed, or without the means to remove the condensate in liquid form, are called 'non-condensing'.

D1.3 Regular boiler

A boiler which does not have the capability to provide domestic hot water directly (i.e. not a combination boiler). It may nevertheless provide domestic hot water indirectly via a separate hot water storage cylinder.

D1.4 On/off regular boiler

A regular boiler without the capability to vary the fuel burning rate whilst maintaining continuous burner firing. This includes those with alternative burning rates set once only at time of installation, referred to as range rating.

D1.5 Modulating regular boiler

A regular boiler with the capability to vary the fuel burning rate whilst maintaining continuous burner firing.

D1.6 Combination boiler

A boiler with the capability to provide domestic hot water directly, in some cases containing an internal hot water store.

[5] Council Directive 92/42/EEC on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels. Official Journal of the European Communities NO L/167/17. 21 May 1992, p. 92.
[6] The Boiler (Efficiency) Regulations 1993, SI (1993) No 3083, as amended by the Boiler (Efficiency) (Amendment) Regulations 1994, SI (1994) No 3083.

D1.7 Instantaneous combination boiler

A combination boiler without an internal hot water store, or with an internal hot water store of capacity less than 15 litres.

D1.8 On/off instantaneous combination boiler

An instantaneous combination boiler that only has a single fuel burning rate for space heating. This includes appliances with alternative burning rates set once only at time of installation, referred to as range rating.

D1.9 Modulating instantaneous combination boiler

An instantaneous combination boiler with the capability to vary the fuel burning rate whilst maintaining continuous burner firing.

D1.10 Storage combination boiler

A combination boiler with an internal hot water store of capacity at least 15 litres but less than 70 litres, OR
a combination boiler with an internal hot water store of capacity at least 70 litres, in which the feed to the space heating circuit is not taken directly from the store. If the store is at least 70 litres and the feed to the space heating circuit is taken directly from the store, treat as a CPSU (D1.13 or D1.14).

D1.11 On/off storage combination boiler

A storage combination boiler that only has a single fuel burning rate for space heating. This includes appliances with alternative burning rates set once only at time of installation, referred to as range rating.

D1.12 Modulating storage combination boiler

A storage combination boiler with the capability to vary the fuel burning rate whilst maintaining continuous burner firing.

D1.13 On/off combined primary storage unit (CPSU)

A single appliance designed to provide both space heating and the production of domestic hot water, in which there is a burner that heats a thermal store which contains mainly primary water which is in common with the space heating circuit. The store must have a capacity of at least 70 litres and the feed to the space heating circuit must be taken directly from the store. The appliance does not have the capability to vary the fuel burning rate whilst maintaining continuous burner firing. This includes those with alternative burning rates set once only at time of installation, referred to as range rating.

D1.14 Modulating combined primary storage unit (CPSU)

A single appliance designed to provide both space heating and the production of domestic hot water, in which there is a burner that heats a thermal store which contains mainly primary water which is in common with the space heating circuit. The store must have a capacity of at least 70 litres and the feed to the space heating circuit must be taken directly from the store. The appliance has the capability to vary the fuel burning rate whilst maintaining continuous burner firing.

D1.15 Low temperature boiler

A non-condensing boiler designed as a low temperature boiler and tested as a low temperature boiler as prescribed by the Boiler Efficiency Directive (i.e.; the part load test was carried out at average boiler temperature of 40°C).

D1.16 Keep-hot facility

A facility within an instantaneous combination boiler whereby water within the boiler may be kept hot while there is no demand. The water is kept hot either (i) solely by burning fuel, or (ii) by electricity, or (iii) both by burning fuel and by electricity, though not necessarily simultaneously.

D2 Method for calculating the Seasonal

The method of calculation is applicable only to boilers for which the full load and the 30% part load efficiency values, obtained by the methods deemed to satisfy Council Directive 92/42/EEC, are available. These are net efficiency values. It is essential that both test results are available and that the tests are appropriate to the type of boiler as defined in Council Directive, otherwise the calculation cannot proceed.

The efficiencies calculated by this procedure are:

a) SEDBUK (Seasonal Efficiency of Domestic Boilers in the UK). This is used as a general indicator of efficiency; it is no longer used for SAP calculations.
b) Winter and summer seasonal efficiencies for SAP calculations. The winter seasonal efficiency is used for space heating, the summer efficiency applies to DHW heating in summer, and DHW heating in winter is a combination of both.

In the calculation method the data are first converted to gross efficiency under test conditions, and then converted to a seasonal efficiency value that applies under typical conditions of use in a dwelling, allowing for standing losses.

In this Appendix, efficiencies are expressed in percent. Intermediate calculations should be done to at least four places of decimals of a percentage, and the final result rounded to one decimal place.

D2.1 SEDBUK (2009)

If the *full-load net efficiency* and*30% part-load net efficiency* test results are available the procedure is as shown below. If they are not available se section D7 to convert a SEDBUK value calcualted as specified in SAP 2005.

1. Determine fuel for boiler type.

The fuel for boiler type must be one of natural gas, LPG (butane or propane), or oil (kerosene, gas oil or biodiesel). SEDBUK(2009) cannot be calculated for other fuels.

2. Obtain test data.

Retrieve the *full-load net efficiency* and *30% part-load net efficiency* test results. Tests must have been carried out using the same fuel as the fuel for boiler type, except as provided in D4.

3. Apply correction to high test results

Apply an adjustment to full-load efficiency greater than 95.5% net and to part-load efficiency greater than 96.6% net to correct for observed bias in test results, according to Table D2.1.

Table D2.1: Efficiency correction term

Full-load efficiency (η_{FL})		**30% Part-load efficiency (η_{PL})**	
Correction if η_{FL}> 95.5%	**Correction if η_{FL}≤ 95.5%**	**Correction if η_{PL} > 96.6%**	**Correction if η_{PL} ≤ 96.6%**
-0.673 (η_{FL} - 95.5)	0	-0.213 (η_{PL} - 96.6)	0

4. Reduce to maximum net efficiency values

Table D2.2 gives the mazimum values of net efficiency for each fuel that may be used. Reduce any greater value (after adjustment according to Table D2.1) to the appropriate value given in Table D2.2.

Table D2.2: Maximum net efficiency values (in %)

	Condensing boilers			**Non-condensing boilers**	
	Natural Gas	**LPG**	**Oil**	**Gas (Incl. LPG)**	**Oil**
Full-load	98	98	98	92	92
Part-load	108	106	104	91	93

5. Convert the full and 30% part load efficiencies form net value to gross.

Use the followoing equatoin with the approporate factor from Table D2.3

$\eta_{gross} = f \times \eta_{net}$

Table D2.3 : Efficiency conversion factors

Fuel	Net-to-gross conversion factor, f
Natural gas	0.901
LPG (propane or butane)	0.921
Oil (kerosene or gas oil)	0.937
Oil (biodiesel)	0.937

6. Categorise the boiler

a) Select the appropriate category for the boiler according to the definitions given in D1.

b) If a gas or LPG boiler, determine whether it has a permanent pilot light:
if it has a permanent pilot light, set p = 1
if not, set p = 0.

c) In the case of a storage combination boiler (either on/off or modulating) determine from the test report whether the losses from the store were included in the values reported (this depends on whether the store was connected to the boiler during the tests):
if the store loss is included, set b = 1
if not, set b = 0.

d) In the case of a storage combination boiler or a CPSU, obtain the store volume, V_{cs}, in litres from the specification of the device and the standby loss factor, L, using the following equation:

if t < 10 mm: L = 0.0945 – 0.0055t
if t ≥ 10 mm: L = 0.394/t
where t is the thickness of the insulation of the store in mm.

7. Calculate seasonal efficiency

a) Use the boiler category and other characteristics as defined in D1 (non-condensing or condensing; gas or LPG or oil; on/off or modulating) to look up the appropriate SEDBUK equation number in Table D2.4. If no equation number is given the calculation cannot proceed. Otherwise, select the appropriate equation from Table D2.5 or Table D2.6.

b) Substitute the gross full and part load efficiencies (found in step 5) and p, b, V and L (found in step 6). Note the result as η_{annual} for the purpose of D2.2.

c) Round η_{annual} to one decimal place; i.e. to the nearest 0.1%. Note the results as [x] for the purpose of the declaration in D3. The result may also be described as SEDBUK(2009)

.

Table D2.4: Boiler category table

SEDBUK Equation numbers for different boiler types	non-condensing *(see D1.2)*				low-temperature *(see D1.15)*	condensing *(see D1.2)*			
	Gas or LPG		Oil			Gas or LPG		Oil	
	on/off *(see D1.4, D1.8, D1.11, D1.13)*	modulating *(see D1.5, D1.9, D1.12, D1.14)*	on/off *(see D1.4, D1.8, D1.11)*	modulating *(see D1.5, D1.9, D1.12)*		on/off *(see D1.4, D1.8, D1.11, D1.13)*	modulating *(see D1.5, D1.9, D1.12, D1.14)*	on/off *(see D1.4, D1.8, D1.11)*	modulating *(see D1.5, D1.9, D1.12)*
regular boiler *(see D1.4, D1.5)*	101	102	201	X	X	101	102	201	X
instantaneous combi boiler *(see D1.7, D1.8, D1.9)*	103	104	202	X	X	103	104	202	X
storage combi boiler *(see D1.10, D1.11, D1.12)*	105	106	203	X	X	105	106	203	X
combined primary storage unit *(see D1.13, D1.14)*	107	107	X	X	X	10**7**	10**7**	X	X

Table D2.5: Seasonal efficiency, (annual), η, for natural gas and LPG boilers

Gas or LPG boiler type	Eq. no.	Equation
D1.4 : On/off regular	101	$\eta = 0.5(\eta_{full} + \eta_{part}) - 2.5 - 4p$
D1.5 : Modulating regular	102	$\eta = 0.5(\eta_{full} + \eta_{part}) - 2.0 - 4p$
D1.8 : On/off instantaneous combination	103	$\eta = 0.5(\eta_{full} + \eta_{part}) - 2.8 - 4p$
D1.9 : Modulating instantaneous combination	104	$\eta = 0.5(\eta_{full} + \eta_{part}) - 2.1 - 4p$
D1.11 : On/off storage combination	105	$\eta = 0.5(\eta_{full} + \eta_{part}) - 2.8 + (0.209 \times b \times L \times V_{cs}) - 4p$
D1.12 : Modulating storage combination	106	$\eta = 0.5(\eta_{full} + \eta_{part}) - 1.7 + (0.209 \times b \times L \times V_{cs}) - 4p$
D1.13 : On/ off combined primary storage unit (condensing and non-condensing) D1.14 : Modulating combined primary storage unit (condensing and non-condensing)	107	$\eta = 0.5(\eta_{full} + \eta_{part}) - (0.539 \times L \times V_{cs}) - 4p$

Table D2.6: Seasonal efficiency, *(annual)*, η, for oil boilers

Oil boiler type	Eq. No.	Equation
D1.3 : Regular	201	$\eta = 0.5(\eta_{full} + \eta_{part}) - 1.1$
D1.7 : Instantaneous combination	202	$\eta = 0.5(\eta_{full} + \eta_{part}) - 2.8$
D1.10 : Storage combination	203	$\eta = 0.5(\eta_{full} + \eta_{part}) - 2.8 + (0.209 \times b \times L \times V_{cs})$

D2.2 Seasonal efficiency for SAP

a) Modify the annual season efficiency η_{annual} obtained at step 7 b) of D2.1 to obtain the winter seasonal efficiency η_{winter} and the summer seasonal efficiency η_{summer}:

$$\eta_{winter} = \eta_{annual} + \Delta\eta_{winter}$$

$$\eta_{summer} = \eta_{annual} + \Delta\eta_{summer}$$

Where $\Delta\eta_{winter}$, and $\Delta\eta_{summer}$ are given in Table D2.7 according the fuel and boiler type.

b) Round the results to one decimal place, i.e. to nearest 0.1%. Note the η_{winter} and η_{summer} results as [y] and [z] respectively for the purpose of the declaration in D3.

Table D2.7: Seasonal efficiency offset

Fuel and boiler type	Winter offset $\Delta\eta_{winter}$	Summer offset $\Delta\eta_{summer}$
Natural gas or LPG		
D1.4 : On/off regular	+0.9	-9.2
D1.5 : Modulating regular	+1.0	-9.7
D1.8 : On/off instantaneous combi	+0.8	-8.5
D1.9 : Modulating instantaneous combi	+0.9	-9.2
D1.11 On/off storage combi	+0.7	-7.2
D1.12 : Modulating storage combi	+0.8	-8.3
D1.13 or D1.14 : CPSU	+0.22	-1.64
Oil		
D1.3 : Regular	+1.1	-10.6
D1.7 : Instantaneous combi	+1.0	-8.5
D1.10 : Storage combi	+0.9	-7.2

D3 Declaring values of seasonal efficiency

Manufacturers wishing to declare their products' seasonal efficiencies for the specific purposes of calculating SAP ratings can do so provided that:

a) they use the SEDBUK calculation procedure given in D2.1 above; and

b) the necessary boiler test data and the calculations are certified by a Notified Body accredited for the testing of boilers by an EU national accreditation service. The Notified Body must certify that: 'the full load and part load efficiency test results detailed in [*insert reference to report on the efficiency tests*] have been obtained by methods deemed to satisfy the Boiler Efficiency Directive'.

Where a manufacturer declares the SEDBUK, it shall be expressed as:

> "Seasonal Efficiency SEDBUK(2009) = [x]%
> SAP winter seasonal efficiency = [y]%
> SAP summer seasonal efficiency = [z]%
> The value is used in the UK Government's Standard Assessment Procedure (SAP) for energy rating of dwellings. The test data from which it has been calculated have been certified by [*insert name and/or identification of Notified Body*]."

Data for several products may be presented in tabulated form, in which case the second paragraph of the declaration should be incorporated as a note to the table.

D4 Method for calculating the SEDBUK for boilers fuelled by LPG but tested with natural gas

If the fuel for boiler type is LPG but the fuel used to obtain efficiency test results is natural gas then seasonal efficiency may be calculated subject to certain conditions using the procedure given below. The seasonal efficiency will be lower than if the fuel used to obtain the test results had been LPG.

1. Note the restrictions set out at the start of D2, which still apply.

2. Any differences between the boiler fuelled by natural gas (used to obtain full-load and 30% part-load efficiency test results) and the boiler fuelled by LPG (for which the SEDBUK is required) must be minor. Examples of minor differences are a change of gas injector or adjustment by a single screw on the gas valve.

3. Determine the net heat input on a net calorific value basis for both the natural gas boiler and the LPG boiler. The LPG figure must lie within ± 5% of the natural gas figure.

4. Determine by measurement the percentage dry CO_2 by volume at the maximum heat input for both the natural gas boiler and the LPG boiler. From the results calculate the excess air fractions for both boilers. The calculated excess air fraction for the LPG boiler must not exceed that for the natural gas boiler by more than 5% (of the natural gas excess air fraction).

5. Retrieve the *full-load net efficiency* and *30% part-load net efficiency* test results.

6. Apply correction to high test results as in step 3 of D2.1.

7. If the boiler is a condensing boiler then deduct 2.2 percentage points form the 30% part-load net efficiency test results.

8. Follow the calculation procedure in D2.1 from step 4 onwards and in D2.2, taking the fuel for boiler type as LPG.

D5 Method for calculating Seasonal Efficiency and Case Emission value of a twin-burner range cooker boiler

1. The method of calculation of the Seasonal Efficiency is applicable only to cooker boilers for which the full load and the 30% part load efficiency values for the boiler function, obtained by the methods deemed to satisfy Council Directive 92/42/EEC, are available.
   Note: A range cooker boiler which does not have the capability to provide domestic hot water directly (i.e. is not a combination boiler), but which may nevertheless provide domestic hot water indirectly via a separate hot water storage cylinder exactly matches the definition D1.3 for a Regular Boiler. Consequently the methods deemed to satisfy 92/42/EEC for a Regular Boiler will equally satisfy this requirement for the equivalent type of range cooker boiler.

   These efficiencies are for the heat transferred to water and are carried out with the cooker burner turned off,

   When undertaking the efficiency test, record
   - input power (net) at full load conditions, $\Phi_{input,net}$, in kW.
   - heat transfer to the water under full load conditions, Φ_{water}, in kW
   - flue loss (net) under full load conditions, $\Phi_{flue,net}$, in kW according to the method given in EN 304:1992 + Amendment 1: 1998 or other method assured by the independent test laboratory as providing comparable results for the product under test.

   Note: Independent test laboratory is qualified in D6 b.

2. Calculate the seasonal efficiencies according to D2 using the appropriate equation for a regular boiler.

3. Calculate the case heat emission at full load from: -

   $$\Phi_{case} = \Phi_{input,net} - \Phi_{water} - \Phi_{flue,net}$$

   where Φ_{water} is the heat transferred to water under full load conditions;
   $\Phi_{flue,net}$ is the flue gas loss measured according to BS EN 304.

4. If Φ_{case} < 0.2 kW and the case temperatures of the range cooker are below 80°C, the case emission may, as an alternative, be derived from measurements of the case temperatures according to Supplement 1 to OFTEC Standard OFS A101, subject to a maximum figure of Φ_{case} = 0.2 kW.
   Note: Supplement 1 to OFTEC Standard OFS A101 (applicable for oil and gas) can be obtained from OFTEC (Oil Firing Technical Association), Tel 0845 6585080, Fax 0845 6585181, e-mail enquiries@oftec.org

5. If Φ_{case} exceeds either of 0.05 × Φ_{water} or 1 kW, reduce Φ_{case} to 0.05 × Φ_{water} or 1 kW (whichever is the smaller).

6. Provide the values of Φ_{case} and Φ_{water} in kW as part of the test report.

D6 Declaring values of seasonal efficiency and heat emission from the case for twin-burner range cooker boilers

Manufacturers wishing to declare their products' seasonal efficiencies and case emission values for the specific purposes of calculating SAP ratings can do so provided that:

a) They use the calculation procedure given in D5 above; and

b) The necessary boiler test data and calculations are certified by an independent Test Laboratory notified under the Council Directive 92/42/EEC on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels (known as a "Notified Body").

Where a manufacturer declares the seasonal efficiency and the case emission value, it shall be expressed as:-

> Seasonal Efficiency SEDBUK(2009) = [x]%
> SAP winter seasonal efficiency = [y]%
> SAP summer seasonal efficiency = [z]%
> Case heat emission at full load = [c] kW
> Heat transfer to water at full load = [w] kW
> The values are used in the UK Government's Standard Assessment Procedure (SAP) for the energy rating of dwellings. The test data from which they have been calculated has been certified by [*insert name and/or identification of Notified Body*].

Data for several products may be presented in tabulated form, in which case the last paragraph of the declaration should be incorporated as a note to the table.

D7 Conversion of SEDBUK values obtained for SAP 2005

Where the *full-load net efficiency* and *30% part-load net efficiency* test results are not available it is possible to derive efficiencies for SAP 2009 from a SEDBUK calculated as specified in SAP2005. However, the method is approximate and better results will be obtained from following the procedure in D2.1.

1. Determine fuel for boiler type

The fuel for boiler type must be one of natural gas, LPG (butane or propane), or oil (kerosene or gas oil).

2. Determine boiler type

Determine the boiler type from the first column of Table D7.1, referring to the definitions in D1. If it is not know whether the boiler is on/off or modulating assume that it is on/off. Note the coefficients k_1 and k_2 for the boiler type in Table D7.1.

Table D7.1 : Boiler types and conversion coefficients

Gas or LPG boiler types	**k_1**	**k_2**	**k_3**
D7.1n : On/off regular (non-condensing)	-6.5	3.8	-6.5
D7.1c : Pn/off regular (condensing)	-2.5	1.45	-2.5
D7.2n : Modulating regular (non-condensing)	-2.0	3.15	-2.0
D7.2c : Modulating regular (condensing)	-2.0	-0.95	-2.0
D7.3n : On/off instantaneous combination (non-condensing)	-6.8	-3.7	-6.8
D7.3c : On/off instantaneous combination (condensing)	-2.8	-5.0	-2.8
D7.4n : Modulating instantaneous combination (non-condensing)	-6.1	4.15	-6.1
D7.4c : Modulating instantaneous combination (condensing)	-2.1	-0.7	-2.1
D7.5n : On/off storage combination (non-condensing)	-6.59	-0.5	-6.59
D7.5c : On/off storage combination (condensing)	-6.59	-0.5	-6.59
D7.6n : Modulating storage combination (non-condensing)	-1.7	3.0	-1.7
D7.6c : Modulating storage combination (condensing)	-1.7	-1.0	-1.7
D7.7n : On/off or modulating combined primary storage unit (non-condensing)	-0.64	-1.25	-0.64
D7.7c : : On/off or modulating combined primary storage unit (condensing)	-0.28	-3.15	-0.28
Oil boiler type	**k_1**	**k_2**	**k_3**
D7.8n : Regular (non-condensing)	0	-5.2	-1.1
D7.8c : Regular (condensing)	0	1.1	-1.1
D7.9n : Instantaneous combination (non-condensing)	-2.8	1.45	-2.8
D7.9c : Instantaneous combination (condensing)	-2.8	-0.25	-2.8
D7.10n : Storage combination (non-condensing)	-2.8	-2.8	-2.8
D7.10c Storage combination (condensing)	-2.8	-0.95	-2.8

3. Calculate notional full-load and part-load net efficiencies

Calculate the notional *full-load net efficiency* and *30% part-load net efficiency* using the equations:

$$\eta_{\text{nflnet}} = (SEDBUK_{2005} - k_1) \div f + k_2$$

$$\eta_{\text{nplnet}} = (SEDBUK_{2005} - k_1) \div f + k_2$$

where f is the efficiency conversion factor in Table D2.3.

4. Apply correction to high test results

Apply an adjustment to η_{nflnet} if it is greater than 95.5 net and to η_{nplnet} if it is greater than 96.6 net, according to Table D7.2.

Table D7.2 : Correction to notional efficiencies

Notional full-load efficiencies (η_{nflnet})		**Notional full-load efficiencies (η_{nplnet})**	
Correction if $\eta_{\text{nflnet}} > 95.5$	**Correction if $\eta_{\text{nflnet}} \leq 95.5$**	**Correction if $\eta_{\text{nplnet}} > 96.6$**	**Correction if $\eta_{\text{nplnet}} \leq 96.6$**
-0.673 (η_{nflnet} -95.5)	0	-0.213 (η_{nplnet}- 96.6)	0

5. Reduce to maximum allowable values

Table D7.3 gives the maximum value of η_{nflnet} and η_{nplnet} for each fuel that may be used. Reduce any greater value (after adjustment according to Table D7.2) to the appropriate value given in Table D7.3.

Table D7.3 : Maximum allowable values

	Condensing boilers			Non-condensing boilers	
	Natural Gas	**LPG**	**Oil**	**Gas (Incl. LPG)**	**Oil**
η_{nflnet}	98	98	98	92	92
η_{nplnet}	108	106	104	91	93

6. Calculate seasonal efficiency

a) Use the notional *full-load net efficiency* and *30% part-load net efficiency* adjusted as above to calculate annual efficiency from the equation:

$$\eta_{\text{annual}} = 0.5 \times (\eta_{\text{nflnet}} + \eta_{\text{nplnet}}) \times f + k_3$$

Where f is the efficiency conversion factor in Table D2.3 and k_3 is the coefficient for the boiler type in Table D7.1.

b) Round the results to one decimal place; i.e. to nearest 0.1%. Note the results as η_{annual} for the purpose of calculating winter seasonal efficiency and summer seasonal efficiency in D2.2.

Appendix 7

SAP Calculations - 2005

[the seasonal efficiency procedure explained]

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Extracted from "The Government's Standard Assessment Procedure for Energy Rating of Dwellings 2005 Edition"

Appendix D: Method of determining seasonal efficiency values for gas and oil boilers

Note: The data and equations in this appendix are not to be used by SAP assessors.

This appendix sets out, in D2 and D4, the method to be used by manufacturers to determine the Seasonal Efficiency of Domestic Boilers in the UK (SEDBUK) for particular gas and oil boilers when test data have been obtained to establish conformity with Council Directive 92/42/EEC[*]. This Directive has been implemented in the UK by the Boiler (Efficiency) Regulations[**].

Manufacturers' declarations of SEDBUK values so calculated should be accompanied by the form of words in D3, and SAP assessors should look for the same form of words in order to ascertain that the efficiency value referred to is appropriate for SAP calculations.

Range cooker boilers with twin burners are covered by D5 and D6.

D1 Definitions

D1.1 Boiler

A gas or liquid fuelled appliance designed to provide hot water for space heating. It may (but need not) be designed to provide domestic hot water as well.

D1.2 Condensing boiler

A boiler designed to make use of the latent heat released by the condensation of water vapour in the combustion flue products. The boiler must allow the condensate to leave the heat exchanger in liquid form by way of a condensate drain. 'Condensing' may only be applied to the definitions D1.3 to D1.14 inclusive. Boilers not so designed, or without the means to remove the condensate in liquid form, are called 'non-condensing'.

D1.3 Regular boiler

A boiler which does not have the capability to provide domestic hot water directly (i.e. not a combination boiler). It may nevertheless provide domestic hot water indirectly via a separate hot water storage cylinder.

D1.4 On/off regular boiler

A regular boiler without the capability to vary the fuel burning rate whilst maintaining continuous burner firing. This includes those with alternative burning rates set once only at time of installation, referred to as range rating.

D1.5 Modulating regular boiler

A regular boiler with the capability to vary the fuel burning rate whilst maintaining continuous burner firing.

D1.6 Combination boiler

A boiler with the capability to provide domestic hot water directly, in some cases containing an internal hot water store.

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[*] Council Directive 92/42/EEC on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels. Official Journal of the European Communities No L/167/17. 21 May 1992, p. 92

[**] The Boiler (Efficiency) Regulations 1993, SI (1993) No 3083, as amended by the Boiler (Efficiency) (Amendment) Regulations 1994, SI (1994) No 3083.

D1.7 Instantaneous combination boiler

A combination boiler without an internal hot water store, or with an internal hot water store of capacity less than 15 litres.

D1.8 On/off instantaneous combination boiler

An instantaneous combination boiler that only has a single fuel burning rate for space heating. This includes appliances with alternative burning rates set once only at time of installation, referred to as range rating.

D1.9 Modulating instantaneous combination boiler

An instantaneous combination boiler with the capability to vary the fuel burning rate whilst maintaining continuous burner firing.

D1.10 Storage combination boiler

A combination boiler with an internal hot water store of capacity at least 15 litres but less than 70 litres, OR
a combination boiler with an internal hot water store of capacity at least 70 litres, in which the feed to the space heating circuit is not taken directly from the store. If the store is at least 70 litres and the feed to the space heating circuit is taken directly from the store, treat as a CPSU (D1.13 or D1.14).

D1.11 On/off storage combination boiler

A storage combination boiler that only has a single fuel burning rate for space heating. This includes appliances with alternative burning rates set once only at time of installation, referred to as range rating.

D1.12 Modulating storage combination boiler

A storage combination boiler with the capability to vary the fuel burning rate whilst maintaining continuous burner firing.

D1.13 On/off combined primary storage unit (CPSU)

A single appliance designed to provide both space heating and the production of domestic hot water, in which there is a burner that heats a thermal store which contains mainly primary water which is in common with the space heating circuit. The store must have a capacity of at least 70 litres and the feed to the space heating circuit must be taken directly from the store. The appliance does not have the capability to vary the fuel burning rate whilst maintaining continuous burner firing. This includes those with alternative burning rates set once only at time of installation, referred to as range rating.

D1.14 Modulating combined primary storage unit (CPSU)

A single appliance designed to provide both space heating and the production of domestic hot water, in which there is a burner that heats a thermal store which contains mainly primary water which is in common with the space heating circuit. The store must have a capacity of at least 70 litres and the feed to the space heating circuit must be taken directly from the store. The appliance has the capability to vary the fuel burning rate whilst maintaining continuous burner firing.

D1.15 Low temperature boiler

A non-condensing boiler designed as a low temperature boiler and tested as a low temperature boiler as prescribed by the Boiler Efficiency Directive (i.e.; the part load test was carried out at average boiler temperature of 40°C).

D1.16 Keep-hot facility

A facility within an instantaneous combination boiler whereby water within the boiler may be kept hot while there is no demand. The water is kept hot either (i) solely by burning fuel, or (ii) by electricity, or (iii) both by burning fuel and by electricity, though not necessarily simultaneously.

D2 Method for calculating the Seasonal Efficiency of Domestic Boilers in the UK (SEDBUK)

The method of calculation is applicable only to boilers for which the full load and the 30% part load efficiency values, obtained by the methods deemed to satisfy Council Directive 92/42/EEC, are available. These are net efficiency values. It is essential that both test results are available and that the tests are appropriate to the type of boiler as defined in Council Directive, otherwise the calculation cannot proceed.

In the calculation method the data are first converted to gross efficiency under test conditions, and then converted to a seasonal efficiency value that applies under typical conditions of use in a dwelling, allowing for standing losses.

In this Appendix, efficiencies are expressed in percent. Intermediate calculations should be done to at least four places of decimals of a percentage, and the final result rounded to one decimal place.

The procedure to be adopted by manufacturers is as follows:

1. Determine fuel for boiler type.

The fuel for boiler type must be one of natural gas, LPG (butane or propane), or oil (kerosene or gas oil). SEDBUK cannot be calculated for other fuels.

2. Obtain test data.

Retrieve the *full-load net efficiency* and *30% part-load net efficiency* test results. Tests must have been carried out using the same fuel as the fuel for boiler type, except as provided in D4.

3. Reduce to maximum net efficiency values.

Table D2.1 gives the maximum values of net efficiency for each fuel that may be used for the purposes of the SAP. Reduce any greater test value to the appropriate value given in Table D2.1.

Table D2.1: Maximum net efficiency values (in %)

Condensing boilers		Non-condensing boilers	
Full load	30% part load	Full load	30% part load
101.0	107.0	92.0	91.0

4. Convert the full and 30% part load efficiencies from net values to gross. Use the following equation with the appropriate factor from Table D2.2.

$$E_{gross} = f \times E_{net}$$

Table D2.2 : Efficiency conversion factors

Fuel	Net-to-gross conversion factor, f
Natural gas	0.901
LPG (propane or butane)	0.921
Oil (kerosene or gas oil)	0.937

5. Categorise the boiler.

e) Select the appropriate category for the boiler according to the definitions given in D1.

f) If a gas or LPG boiler, determine whether it has a permanent pilot light:
if it has a permanent pilot light, set p = 1
if not, set p = 0.

g) In the case of a storage combination boiler (either on/off or modulating) determine from the test report whether the losses from the store were included in the values reported (this depends on whether the store was connected to the boiler during the tests):

if the store loss is included, set b = 1
if not, set b = 0.

h) In the case of a storage combination boiler or a CPSU, obtain the store volume, V_{cs}, in litres from the specification of the device and the standby loss factor, L, using the following equation:

if t < 10 mm: L = 0.0945 – 0.0055t
if t ≥ 10 mm: L = 0.394/t
where t is the thickness of the insulation of the store in mm.

6. Calculate seasonal efficiency

a) Use the boiler category and other characteristics as defined in D1 (non-condensing or condensing; gas or LPG or oil; on/off or modulating) to look up the appropriate SEDBUK equation number in Table D2.3. If no equation number is given the calculation cannot proceed. Otherwise, select the appropriate equation from Table D2.4 or Table D2.5.

b) Substitute the gross full and part load efficiencies (found in step 4) and p, b, V and L (found in step 5). Round the result to one decimal place; i.e., to nearest 0.1%. Note the result as [x] for the purpose of the declaration in D3.

Table D2.3: Boiler category table

SEDBUK Equation numbers for different boiler types	non-condensing *(see D1.2)*				low-temperature *(seeD1.15)*	condensing *(see D1.2)*			
	Gas or LPG		Oil			Gas or LPG		Oil	
	on/off *(see D1.4, D1.8, D1.11, D1.13)*	modulating *(see D1.5, D1.9, D1.12, D1.14)*	on/off *(see D1.4, D1.8, D1.11)*	modulating *(see D1.5, D1.9, D1.12)*		on/off *(see D1.4, D1.8, D1.11, D1.13)*	modulating *(see D1.5, D1.9, D1.12, D1.14)*	on/off *(see D1.4, D1.8, D1.11)*	modulating *(see D1.5, D1.9, D1.12)*
regular boiler *(see D1.4, D1.5)*	101	102	201	X	X	101	102	201	X
instantaneous combi boiler *(see D1.7, D1.8, D1.9)*	103	104	202	X	X	103	104	202	X
storage combi boiler *(see D1.10, D1.11, D1.12)*	105	106	203	X	X	105	106	203	X
combined primary storage unit *(see D1.13, D1.14)*	107	107	X	X	X	10**7**	10**7**	X	X

Table D2.4: Seasonal efficiency, *E*, for natural gas and LPG boilers

Gas or LPG boiler type	Eq. no.	Equation
D1.4 : On/off regular	101	$E = 0.5(E_{full} + E_{part}) - 2.5 - 4p$
D1.5 : Modulating regular	102	$E = 0.5(E_{full} + E_{part}) - 2.0 - 4p$
D1.8 : On/off instantaneous combination	103	$E = 0.5(E_{full} + E_{part}) - 2.8 - 4p$
D1.9 : Modulating instantaneous combination	104	$E = 0.5(E_{full} + E_{part}) - 2.1 - 4p$
D1.11 : On/off storage combination	105	$E = 0.5(E_{full} + E_{part}) - 2.8 + (0.209 \times b \times L \times V_{cs}) - 4p$
D1.12 : Modulating storage combination	106	$E = 0.5(E_{full} + E_{part}) - 1.7 + (0.209 \times b \times L \times V_{cs}) - 4p$
D1.13 : On/ off combined primary storage unit (condensing and non-condensing) D1.14 : Modulating combined primary storage unit (condensing and non-condensing)	107	$E = 0.5(E_{full} + E_{part}) - (0.539 \times L \times V_{cs}) - 4p$

Table D2.5: Seasonal efficiency, *E*, for oil boilers

Oil boiler type	Eq. No.	Equation
D1.3 : Regular	201	$E = 0.5(E_{full} + E_{part})$
D1.7 : Instantaneous combination	202	$E = 0.5(E_{full} + E_{part}) - 2.8$
D1.10 : Storage combination	203	$E = 0.5(E_{full} + E_{part}) - 2.8 + (0.209 \times b \times L \times V_{cs})$

D3 Declaring values of seasonal efficiency

Manufacturers wishing to declare their products' seasonal efficiencies for the specific purposes of calculating SAP ratings can do so provided that:

a) they use the SEDBUK calculation procedure given in D2 above; and

b) the necessary boiler test data and the calculations are certified by a Notified Body accredited for the testing of boilers by an EU national accreditation service. The Notified Body must certify that: 'the full load and part load efficiency test results detailed in [*insert reference to report on the efficiency tests*] have been obtained by methods deemed to satisfy the Boiler Efficiency Directive'.

Where a manufacturer declares the SEDBUK, it shall be expressed as:

> "Seasonal Efficiency (SEDBUK) = [x]%
> The value is used in the UK Government's Standard Assessment Procedure (SAP) for energy rating of dwellings. The test data from which it has been calculated have been certified by [*insert name and/or identification of Notified Body*]."

Data for several products may be presented in tabulated form, in which case the second paragraph of the declaration should be incorporated as a note to the table.

D4 Method for calculating the SEDBUK for boilers fuelled by LPG but tested with natural gas

If the fuel for boiler type is LPG but the fuel used to obtain efficiency test results is natural gas then SEDBUK may be calculated subject to certain conditions using the procedure given below. The value of SEDBUK will be lower than if the fuel used to obtain the test results had been LPG.

1. Note the restrictions set out at the start of D2, which still apply.

2. Any differences between the boiler fuelled by natural gas (used to obtain full-load and 30% part-load efficiency test results) and the boiler fuelled by LPG (for which the SEDBUK is required) must be minor. Examples of minor differences are a change of gas injector or adjustment by a single screw on the gas valve.

3. Determine the net heat input on a net calorific value basis for both the natural gas boiler and the LPG boiler. The LPG figure must lie within ± 5% of the natural gas figure.

4. Determine by measurement the percentage dry CO_2 by volume at the maximum heat input for both the natural gas boiler and the LPG boiler. From the results calculate the excess air fractions for both boilers. The calculated excess air fraction for the LPG boiler must not exceed that for the natural gas boiler by more than 5% (of the natural gas excess air fraction).

5. Retrieve the *full-load net efficiency* and *30% part-load net efficiency* test results. If the boiler is a condensing boiler then deduct 2.2 percentage points from the *30% part-load net efficiency* test result.

6. Follow the calculation procedure in D2 from step 3 onwards, taking the fuel for boiler type as LPG.

D5 Method for calculating Seasonal Efficiency and Case Emission value of a non-condensing twin-burner range cooker boiler

1. The method of calculation of the Seasonal Efficiency is applicable only to cooker boilers for which the full load and the 30% part load efficiency values for the boiler function, obtained by the methods deemed to satisfy Council Directive 92/42/EEC, are available.
   Note: A non-condensing range cooker boiler which does not have the capability to provide domestic hot water directly (i.e. is not a combination boiler), but which may nevertheless provide domestic hot water indirectly via a separate hot water storage cylinder exactly matches the definition D1.3 for a Regular Boiler. Consequently the methods deemed to satisfy 92/42/EEC for a Regular Boiler will equally satisfy this requirement for the equivalent type of range cooker boiler.

These efficiencies are for the heat transferred to water and are carried out with the cooker burner turned off,

When undertaking the efficiency test, record
- input power (net) at full load conditions, $\Phi_{input,net}$, in kW.
- heat transfer to the water under full load conditions, Φ_{water}, in kW
- flue loss (net) under full load conditions, $\Phi_{flue,net}$, in kW according to the method given in EN 304:1992 + Amendment 1: 1998 or other method assured by the independent test laboratory as providing comparable results for the product under test.

2. Calculate the SEDBUK according to D2 using the appropriate equation for a regular boiler.

3. Calculate the case heat emission at full load from: -

$$\Phi_{case} = \Phi_{input,net} - \Phi_{water} - \Phi_{flue,net}$$

where Φ_{water} is the heat transferred to water under full load conditions;
$\Phi_{flue,net}$ is the flue gas loss measured according to BS EN 304.

4. If Φ_{case} < 0.2 kW and the case temperatures of the range cooker are below 80°C, the case emission may, as an alternative, be derived from measurements of the case temperatures according to Supplement 1 to OFTEC Standard OFS A101, subject to a maximum figure of Φ_{case} = 0.2 kW.
Note: Supplement 1 to OFTEC Standard OFS A101 (applicable for oil and gas) can be obtained from OFTEC (Oil Firing Technical Association), Tel 0845 6585080, Fax 0845 6585181, e-mail enquiries@oftec.org

5. If Φ_{case} exceeds either of 0.05 × Φ_{water} or 1 kW, reduce Φ_{case} to 0.05 × Φ_{water} or 1 kW (whichever is the smaller).

6. Provide the values of Φ_{case} and Φ_{water} in kW as part of the test report.

D6 Declaring values of seasonal efficiency and heat emission from the case for twin-burner range cooker boilers

Manufacturers wishing to declare their products' seasonal efficiencies and case emission values for the specific purposes of calculating SAP ratings can do so provided that:

c) They use the calculation procedure given in D5 above; and

d) The necessary boiler test data and calculations are certified by an independent Test Laboratory notified under the Council Directive 92/42/EEC on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels (known as a "Notified Body").

Where a manufacturer declares the seasonal efficiency and the case emission value, it shall be expressed as:-

> Seasonal Efficiency (SEDBUK) = [x]%
> Case heat emission at full load = [y] kW
> Heat transfer to water at full load = [z] kW
> The values are used in the UK Government's Standard Assessment Procedure (SAP) for the energy rating of dwellings. The test data from which they have been calculated has been certified by [*insert name and/or identification of Notified Body*].

Data for several products may be presented in tabulated form, in which case the last paragraph of the declaration should be incorporated as a note to the table.

Appendix 8

LPG Declaration Form

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PRODUCT CHARACTERISTICS DATABASE

The LPG Boiler Declaration Form (Page 1 of 2)

(Please photocopy as many as you require)

Declaration of LPG Boiler information (based on NG test data)				
LPG Model Name	**LPG Model Qualifier**			
NG Model Name (for which test data used for LPG entry)	**NG Model Qualifier** (for which test data used for LPG entry)			
The following information is declared in order to satisfy the requirements of paragraph D4 of SAP 2001and thus allow LPG entry to be made on the basis of NG boiler efficiency test data:				
1. I confirm that the difference between the NG and LPG boilers described above are minor (e.g. different injector, gas value adjustment.)			Yes	No
2. The net heat input of the LPG boiler lies within ±5% of the NG boiler.		NG Heat Input (net kW)	LPG Heat Input (net kW)	
3. Attached to this form is evidence of the measurements made to determine the percentage dry CO_2 by volume at the max. Heat input for both the NG and LPG boilers. This shows the calculation process undertaken to determine the excess air fractions and demonstrate that excess air fraction for the LPG boiler does not exceed that for the natural gas boiler by more than 5%.			Yes	No
Signature			Date	
Name (Please print)			Position	

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PRODUCT CHARACTERISTICS DATABASE

The LPG Boiler Declaration Form (Page 2 of 2)

(Please photocopy as many as you require)

Evidence of CO_2 measurements & Excess air calculations to demonstrate comparability between NG & LPG boilers described on Page 1 of this form

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Appendix 9

Submission Check List

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Boiler Data Submission Check-list

For each boiler model you submit, please check that you have included all relevant data and supporting evidence as follows:-

Form or method of data submission	Where you can find it	✔
Manual Data Entry and Declaration Form	**Appendix 1**	
Boiler Identity Form - your declaration of similarity for "Badged" products	Appendix 2	
An actual example of the boiler dataplate (i.e. the plate or label fixed to the appliance)	**In your product's technical file**	
Photographic Evidence of boiler identification (i.e. photos clearly showing how the product is uniquely identified by the SAP assessor or Home Inspector – making clear whether they are visible [on the case or via accessible control panel])	**See Appendix 3**	
Extract(s) from Technical Report recording efficiency data as measured [Note: this must include independent certified evidence from a Notified Body that the efficiency data presented was measured in accordance with the methods required by the Boiler Efficiency Directive]	In your product's technical file	
In absence of above, we can accept a signed declaration of results from the Notified Body which carried out the tests (NB LPG Condensing boilers require separate declaration)	**Appendix 4 & 5**	
Copy of CE Certificate for the model submitted	In your product's technical file	
The LPG Boiler Declaration Form (if required) – submission is for a LPG boiler for which NG test results are to be used	Appendix 7	
Please Note: The working language of the database is English – submissions from International Notified Bodies should include translations into English		

Note: Those items that are mandatory requirements for each boiler application are highlighted in bold print.

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Terms and Conditions applicable to the listing of individual branded product performance data as an input to the National Calculation Methodologies for dwellings

Introduction

The UK Government's Standard Assessment Procedure for Energy Rating of Dwellings (SAP) and the incorporated version Reduced Data SAP (RDSAP) are the UK's National Calculation Methodologies (NCM) for dwellings. To assess a dwelling's energy performance data is needed that describes the dwelling in terms of the energy performance of the installed construction components and building services equipment. Such data is either generic, determined by the materials and type of product used ("type data") or specific, where validated individual branded product performance data has been made available ("product data").

Product data is held in either the SAP Appendix Q database or the Product Characteristics Database (PCDB). Since the incorporation of new technology types in the PCDB can only be undertaken when new versions of SAP are issued, product data for new technology types are held initially in the SAP Appendix Q database.

Appendix Q of SAP provides a means whereby validated individual branded product performance information can be accessed and used as an adjunct to the SAP calculation. A product's performance information is determined by testing against a specification that has been agreed by DECC's NCM contractor, the relevant manufacturer(s) and industry sector representatives. Product data that is listed in the SAP Appendix Q database may migrate to the PCDB when a new version of SAP, incorporating the relevant calculation process, is released. The data will also remain in the Appendix Q database until obsolete versions of SAP have been withdrawn or where it is impractical to include it within the PCDB.

Product's data will be used in preference to any default value to determine the energy performance of the dwelling, providing the product is installed in the dwelling being assessed and can be recognised and identified by the Dwelling Assessor. Acceptance of product data as an input to the NCMs does not denote any form of endorsement, nor does it imply that the dwelling's energy performance rating is better than that obtained using alternative products.

The Appendix Q database and PCDB are provided solely to support the NCMs; they are not intended to support the marketing efforts of manufacturers. To this end, these Terms and Conditions outline how product data listed in the SAP Appendix Q database or PCDB can be referenced in marketing and promotional material.

All manufacturers and suppliers who apply for their products to be recognised as product data must submit validated evidence of performance, produced by testing against an agreed test specification, and agree to be bound by these Terms and Conditions.

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Purpose

The purpose of these Terms and Conditions is to set out the requirements relating to the provision of product data. They also set out the steps to be taken when a breach, or alleged breach, of Terms and Conditions has occurred that might cause false or misleading product data to be used in a dwelling assessment.

In order to recognise product data it is necessary that:

(i) The product has a unique and identifiable name that distinguishes it from all others, including seemingly identical products with different outputs;
(ii) The manufacturer or supplier of the product undertakes not to make any alteration to the product affecting its energy performance while continuing to supply it under the same unique name;
(iii) Product data has been obtained by testing against an agreed test specification for that category of technology or type or product;
(iv) Such tests and measurements are carried out fairly and impartially in accordance with the specified method, and are independently produced and/or certified by a third-party organisation with no association to the product manufacturer, other than the specific contract to undertake this work;
(v) Results from the tests and measurements are accurate and robust and have been accepted by DECC's NCM Contractor for use by the NCMs;
(vi) Where the method of analysis in SAP relies on certain assumptions that depend on certain design, installation and commissioning procedures, adherence to these procedures must be assured by the production of suitable instructions issued by the manufacturer or supplier.

Definitions

"**Brand name**" is the name used by the manufacturer or supplier for a product and forms part of the unique identifier for a specific product.

"Company" refers to any manufacturer or supplier that is responsible for placing the product on sale in the UK market and seeks to have product data recognised as an input to the NCMs.

"DECC" the Department of Energy and Climate Change in the UK.

"NCM Contractor" refers to the company that is contracted to maintain and develop the National Calculation Methodologies (NCM) on behalf of DECC**.**

"SAP" is the UK Government's National Calculation Methodology (NCM) for dwellings, known as the Standard Assessment Procedure for Energy Rating of Dwellings. It is used for assessing the energy performance of either new or existing dwellings.

"RDSAP" is a Reduced Data version of SAP. It is used to assess the energy performance of existing dwellings only. The methodology is incorporated within the SAP document.

"Dwelling Assessor" is an individual who is suitably qualified to undertake energy performance assessments on existing and or new-build dwellings.

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"NCM (SAP) Identifier" is a unique identifiable name for a particular product that distinguishes it from all others.

"Model name" is the name chosen by the manufacturer or supplier for a product and forms part of the unique NCM (SAP) identifier for a specific product.

"Model qualifier" is chosen by the manufacturer or supplier to distinguish variants of a product model and forms part of the unique NCM (SAP) identifier for a specific product.

"Product" herein refers to a product, system, or material for installation in a dwelling that may affect the energy rating of the dwelling.

"Product Characteristics Database" (PCDB) is the database in which product data is stored and accessed by Dwelling Assessors for the purposes of SAP assessments.

"Product data" refers to the validated data that has been supplied by a manufacturer relating to a particular named product and accepted by DECC's NCM contractor.

"SAP Appendix Q database" is the database in which products and product data relating to new technology types and categories are stored and accessed by Dwelling Assessors.

"**Technology category**" is a sub-category of Technology Type and is used (if required) to fully define a product's operation, e.g. where several operational modes and/or methods may exist.

"**Technology type**" is a class of products having a particular function or operation.

Terms and Conditions

1. Product Data

a. Product data may be retained and displayed in websites and databases that support dwelling assessments, notably the SAP Appendix Q database and PCDB.
b. The manufacturer or supplier of the product (whoever made the application) accepts responsibility for the product data published pertaining to the product listed in those databases.
c. Neither DECC nor DECC's NCM contractor accepts responsibility for the correctness of the product data, however, as DECC has a duty of care to ensure that the information that it makes publically available is accurate and robust it will take steps to positively confirm the accuracy and robustness of the data provided, this may including product surveillance activities.
d. Once an entry has been made in a database for any product on sale in the UK it will not normally be removed unless found to be false (see section 10: "Investigation and rectification")
e. Where the manufacturer has given explicit consent, entries in the databases may be passed to other energy performance assessment schemes at the request of the scheme operators. (The only other scheme at present is in the Republic of Ireland.)

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2. Product Labelling

a. The company agrees to affix a permanent label to uniquely identify the product. This should be placed where it is visible for the Dwelling Assessor without the need for dismantling the product or any adjacent systems. The position of the label must be notified to DECC's NCM contractor and this information made available to Dwelling Assessors. Changes to the positioning of the label must be notified and agreed by DECC's NCM contractor. If it is not possible to affix a permanent label to the product where it remains accessible and visible after installation, an alternative arrangement must be agreed with DECC's NCM contractor.

b. The wording on the label should adhere to the following format:

NCM (SAP) Identifier
Technology type: ……..…….
Technology category: ……..…….. (omit if not applicable)
Brand name: ……..……..
Model name: ……
Model qualifier: …… (omit if not applicable)

c. The combination of brand name, model name, and model qualifier (if any) in 2.b must be a unique identification of the product linked to the technical specification of the product tested and analysed for the purposes of listing in the SAP Appendix Q database and PCDB.

d. A sample label meeting the requirements 2.a-c must be submitted before a product can be listed in the SAP Appendix Q database and PCDB.

e. If a company does not affix a permanent label or affixes a non-compliant label to their recognised product(s), the offending company will be informed in writing of the non compliance and given 30 days, from the date of the letter, to prove that they are affixing a conforming label to the listed products. If the company has not resolved the non-compliance within 30 days, the product data relating to the product will be removed from the SAP Appendix Q database and/or PCDB. If the company later produces evidence that proves that it is affixing compliant labels and has done so for a period of time, at least three months, the product will be re-listed in the SAP Appendix Q database and/or PCDB. An administration fee will be charged for re-listing.

3. Product Manuals

a. In certain circumstances, the company may be requested to demonstrate that adequate provisions for system design, installation, operation and maintenance are available before product data is listed in the SAP Appendix Q database and/or PCDB. This arises where these factors are critical to energy performance, and is in addition to the standard requirement for installation/commissioning checklists and an installation certificate, which is to be signed by the installer. These documents must ensure an acceptable understanding of the requirements for all phases of design, installation, commissioning and ongoing maintenance are provided to the installer, the householder and DECC's NCM contractor. The company agrees to continue to issue stated documents without making substantive changes which could alter the energy saving performance of the product.

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4. Alterations

a. **Product Identifiers**
The identifier of a product, known as the NCM (SAP) Identifier and shown in the SAP Appendix Q database and/or PCDB, cannot be altered. If the same product is to be sold under a new name then an additional entry in the SAP Appendix Q database and/or PCDB must be created with a new identifier. This can be requested by the manufacturer or supplier on the form *Application for an Additional Listing for a Product already listed in SAP*, which can be obtained from DECC's NCM Contractor. A new permanent label with the new identifier will be required and the Agreement between the company and DECC's NCM Contractor will be modified to include the new or additional name. The original SAP Appendix Q database and/or PCDB data entries will be retained to allow Dwelling Assessors to identify units listed in the database that were installed prior to introduction of the new name. An administrative fee for the additional listing will be charged. DECC's NCM Contractor will assess the reason(s) for the application and reserves the right to deny a new entry.

b. **Product data**
While selling the product under a specific identifier, the company agrees not to undertake any modifications to any of their products listed in the SAP Appendix Q database and/or PCDB that affects their energy performance (or other performance relevant to the product; e.g, leakages rates for MVHR units). The company agrees that a new identifier will be given to any product in which such modifications have occurred, whether or not the modified product is included in the SAP Appendix Q database and/or PCDB. If the modified product is to be included in the SAP Appendix Q database and/or PCDB, a new application must be submitted, and retesting will usually be necessary. If it is discovered that modifications have been made while continuing to supply the product under the same identifier, product data will be immediately removed from the SAP Appendix Q database and/or PCDB and the company notified of this action.

5. Database Maintenance

a. DECC's NCM contractor reserves the right to make modifications to the SAP Appendix Q database and/or PCDB as appropriate. These modifications may include:
   i. Changes to product data that are incorrect
   ii. Changes to the testing and calculation procedures
   iii. Changes to technology definitions
   iv. Any other relevant changes
   v. Removal of entries in cases where these terms and conditions have been breached.

6. Marketing and Promotion

Listing of a product in the SAP Appendix Q database and/or PCDB indicates that the product has been tested to a test standard that has been agreed by DECC's NCM contractor and, where appropriate, the relevant stakeholder and trade association(s). In certain circumstances, test standards are unavailable

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and may require development or adaptation from an existing standard. This will be defined on a product specific basis.

Product data can then be accessed by Dwelling Assessors for the purposes of undertaking dwelling energy performance assessments. It should be noted:

a. Inclusion of a manufacturer's product data in the SAP Appendix Q database and/or PCDB does not represent any form of accreditation, certification, approval or recommendation by Government, its agents or contractors. Any form of language used in related promotional material or articles must not in any manner suggest otherwise.
b. Inclusion in these databases does not grant the manufacturer any right to use any Government, its agents or contractor's logos in any format.
c. Products in the database cannot be referred to in any marketing material as 'Appendix Q eligible', 'Appendix Q listed', 'PCDB eligible', 'PCDB Approved', 'SAP Approved', 'SAP Appendix Q Approved', 'SAP Q Approved' 'NCM Listed', NCM Approved' or any similar statement that indicates or suggests the product is so endorsed.
d. Promotional or other material relating to the product can make reference to the NCMs only by means of the NCM (SAP) Identifier. The following statement may be used in such material:

   "The NCM (SAP) identifier for this product is [xxx].

   No other statement referring to the NCM, SAP or RDSAP may be used in said material.
e. If a company's promotional materials or any other material does not conform to the requirements stated in 6.a-d, they will be informed in writing of the non-compliance and given 15 days, from the date of the letter, to comply. If the offending material has not been altered in accordance with the requirements in 6.a-d by the specified date, the product data will be removed from the SAP Appendix Q database and/or PCDB. The product data will not be re-listed until the marketing material has been amended. An administration fee will be charged for a re-listing.
f. Any company that promotes or indicates by any means its products are listed in the SAP Appendix Q database and/or PCDB when they are not will be referred to Trading Standards and the relevant trade association.

7. Compliance with Directives and Regulations

a. It is the sole responsibility of the company to ensure that the product meets all relevant safety and regulatory requirements. A statement to this effect must accompany any application to have their product listed in the SAP Appendix Q database and/or PCDB. This statement must also confirm any limitations on use and relevant instructions to ensure the product is safe to operate are included in the installation instructions. Products may be removed from the SAP Appendix Q database and/or PCDB or applications rejected if there are any concerns regarding product safety. Failure to remove them does not imply acceptance of responsibility for safety by DECC or DECC's NCM Contractor or any of their sub-contractors.

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8. Changes to SAP, RDSAP and SAP Appendix Q

a. During the periodic revision process, situations may arise in which SAP, RDSAP and SAP Appendix Q and the associated calculation methodologies need to be altered. Such changes may affect the energy saved and/or consumed by a device or system listed in the SAP Appendix Q database and/or PCDB.

9. Incorporation of Appendix Q methodologies into SAP/RDSAP

a. When SAP is periodically reviewed and updated DECC's NCM contractor will endeavour to incorporate Appendix Q algorithms and calculation methodologies within the main body of SAP/RDSAP. If possible, product data and any required calculation procedure will be transferred from the SAP Appendix Q database to the PCDB. DECC's NCM contractor will take all reasonable steps to ensure that database records are accurate, and will investigate and correct any reported error, but will not be held liable for any consequence of such error.
b. In the circumstances described in 9.a, these terms and conditions continue to apply to the products and product data concerned.

10. Investigation and rectification

a. DECC's NCM Contractor may investigate any new or existing entry in the SAP Appendix Q database and/or PCDB. This may be undertaken as part of a product surveillance exercise, a technical audit to establish the technical integrity of the database, or where an entry has been challenged by a third party who has reasonable grounds to suspect it may be incorrect.
b. An investigation may call for further information on the naming of products, to establish whether a product currently offered for sale possesses the relevant characteristics that have already been defined for the NCMs.
c. An investigation may call for further information to verify product data, which may include further details of measurements carried out during tests.
d. If the manufacturer is able and willing to supply the further information requested this will be analysed by DECC's NCM Contractor or an independent expert appointed by them. If, in the opinion of DECC's NCM Contractor or the expert, the further information shows that there are material differences between the product on sale and the product listed in a database, or that there are errors in the product data liable to cause incorrect dwelling assessment results, then the rectification process will be initiated.
e. If the manufacturer is unable or unwilling to supply the further information requested, their reasons will be considered by DECC's NCM Contractor or an independent expert appointed by them. If, in the opinion of DECC's NCM Contractor or the expert, the lack of further information gives reasonable cause to believe that there are material differences between the product on sale and the product as listed in the SAP Appendix Q database and/or PCDB, or that there are errors in the product data liable to cause incorrect results from SAP, then the rectification process will be initiated.

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f. If the manufacturer does not reply to a first or second request for further information, or refuses to co-operate with the investigation, then the rectification process will be initiated.
g. The rectification process will result in alterations to the SAP Appendix Q database and/or PCDB such that incorrect results from a dwelling assessment involving the product can no longer be obtained. The process will normally conclude with removal of the product from the SAP Appendix Q database and/or PCDB. This will always be the case where:
   (i) It has been discovered that a product has been offered for sale with a technical specification inferior (in terms of energy performance) to that which had been accepted at the time the application for listing in the SAP Appendix Q database and/or PCDB was made, or,
   (ii) It has been discovered that the product data is false or exaggerated or contains other errors liable to cause better results from a dwelling assessment than are justified. In other cases, at the sole discretion of DECC's NCM Contractor, the identifier or product data in the SAP Appendix Q database and/or PCDB may be changed instead of removed, and the costs of doing so will be charged to the company.
h. Before a product is removed from the SAP Appendix Q database and/or PCDB, the company will be informed and given the opportunity to make representations.
i. The names of products for which action has been taken under the rectification process will be published in the SAP Appendix Q database and/or PCDB.

11. Disclaimer

Neither DECC nor DECC's NCM Contractor nor any of their sub-contractors accept any responsibility for:

a. compliance with Directives, regulations, and other legislation relating to the sale and installation of products described in the SAP Appendix Q database or PCDB;
b. the accuracy of data concerning such products that has been supplied by manufacturers or test laboratories;
c. the fitness for purpose of such products;
d. the safety of such products;
e. the consequences of purchasing and installing any such products.

12. Terms and Conditions review and updates

These Terms and Conditions may be amended from time to time, in which case the details will be released on websites that support the SAP Appendix Q database and/or PCDB not less than 30 days in advance. Unless objections are received, companies will be deemed to have accepted the amended Terms and Conditions when they come into effect. If objections are received, companies may refuse to be bound by the new Terms and Conditions and continue to be bound by the previous ones; however, refusal may necessitate removal of the company's products from the SAP Appendix Q database and/or PCDB.