PART 2

FUELS

A. INTRODUCTION

This section should be read in conjunction with Part 1, Appliances Burning Solid Mineral Fuels and Wood. To ensure satisfactory performance of domestic solid fuel appliances it is important to use fuels that are of a suitable type and size. Guidance on the selection of fuels giving good performance for the different types of appliances from the lists of tested and approved fuels shown below is given at the head of each section, with any special notes made in the "Manufacturer's Remarks" column against the individual appliance.

The solid mineral fuels listed below have been tested and approved by HETAS LTD on behalf of the fuel producer. The testing and approval combined with a quality assurance scheme enables the fuel to carry a HETAS approval logo for which the customer should look. Petroleum coke is not recommended by HETAS for use on solid fuel burning appliances because its use can result in serious damage to grates and other appliance components in the fuel bed area. However, a number of products which contain petroleum coke or are blends of petroleum coke with other fuels have been tested and approved. For these fuels approval is conditional on the manufacturer applying and maintaining stringent product control. Some appliance manufacturers restrict the use of these fuels to appliances with high chrome or chrome steel bottom grates, which may be supplied as an optional extra. This appliance manufacturer's restriction is noted in the "Remarks Column" against the appliance name in Part 1 Appliances Burning Solid Mineral Fuels and Wood. See Introductory Note 4.6.

Many of the appliances listed burn wood logs which if from a renewable source are an environmentally friendly fuel that receives favorable treatment in Building Regulations ADL and its companion SAP 2005. See “Selecting Wood for Burning”, page 85 of this Part. For this advantage to be gained in smoke control areas the appliance must be Exempted by DEFRA. Such appliances have the symbol † beside their name. To meet these statutory clean air requirements these wood log burning appliances should be fired with dry wood which has been stored over an extended period of time to condition it – often the Statutory Instrument (SI) requires “firewood which has been split, stacked and air dried”. Appliances burning wood briquettes, wood chips and wood pellets, again from renewable sources are also now coming on the market. These, together with the wood log burners referred to above, are considered to be low net CO_2 emitters. It is essential that all appliances (boilers, cookers and roomheaters) are fired with the qualities of fuel specified by the manufacturer and if installed in Smoke Control Areas are qualities meeting the requirements of the SI exempting them from the provisions of the Clean Air Act and permitting their use in those Areas.

B. MANUFACTURED SMOKELESS FUELS

Fuels	Producers/Distributors	Approved for use on:		
		Open Fire	Closed Appliances	Gravity Feed
Ecobrite	Arigna Fuels Ltd	-	√	-
Homefire	CPL Industries Ltd	√	√	-
Homefire Ovals	" " " "	√	√	-
Phurnacite	" " " "	-	√	-
Ancit	" " " "	-	√	-
Taybrite	" " " "	-	√	-
Supertherm II	" " " "	√	-	-
Multiheat	" " " "	√	√	-
Briteheat	" " " "	-	√	-
Ecoal	" " " "	√	√	-
Maxibrite	Maxibrite Ltd	-	√	-
Briteflame	" " "	√	√	-
Newflame	" " "	√	√	-
Supacite	" " "	-	√	-
Coalite	" " "	√	√	-
Coalite Ovals	" " "	√	√	-
Therma	" " "	-	√	-
Cosycoke Briquette	" " "	√	√	-

B. MANUFACTURED SMOKELESS FUELS (continued)

Fuels	Producers/Distributors	Approved for use on:		
		Open Fire	Closed Appliance	Gravity Feed
Sunbrite Doubles Note: More than usual firelighters may be needed to ignite this product.	Monckton Coke & Chemical Co Ltd	-	√	-
Cosycoke	" " " "	√	√	-
Pureheat	Oxbow Carbon & Minerals UK Ltd.	√	√	-
Excel	" " "	√	-	-

C. NATURAL SMOKELESS FUELS

The following named natural smokeless fuels have achieved a high standard in performance tests for closed appliance fuels conducted by HETAS LTD, and are generally approved as closed appliance fuels. To ensure safe operation when using Anthracite Small Nuts on closed appliances, such as roomheaters, it is necessary to make sure that high proportions of undersize fuel and fines are not fed onto the firebed. The user should also consult the Appliance Manufacturer's operating instructions regarding the use of this size of fuel for his specific appliance.

Fuels	Producers/Distributors	Approved for use on:		
		Open Fire	Closed Appliances	Gravity Feed
Black Diamond Beans	Celtic Energy Ltd.	-	-	√
Black Diamond Grains	" " "	-	-	√
Onllwyn Gp 1 Large Nuts	" " "	-	√	-
Onllwyn Gp 1 Small Nuts	" " "	-	√	-

Note: Fuels marked with (*) may require higher than normal thermostat settings to ensure good banking, while those marked with (º) may require a higher than beans setting for fuel regulator plate.

D. BITUMINOUS COAL

HETAS has undertaken to supervise a voluntary Coal Quality Assessment System for high volatile Domestic Housecoal. Under this Scheme representative samples of Housecoals are tested on an open fire. The fuel supplier undertakes to maintain the coal quality at the standard of the sample submitted for test.
To be eligible for testing the coals must have a free moisture content not greater than 5%, an ash content as received of not more than 10% with a total inert material content (total moisture and ash) of not more than 15%. The sulphur content should not be more than 2%. The coals are assessed according to their average radiant heat output as measured in kW during the test. As a secondary factor account is taken of the volume of undergrate ash and the weight of overgrate residues left after the fuel has burned.

To be approved fuels listed in Section D.1 must maintain an output of at least 2.5kW with 1.5 hour refuel periods, while fuels listed in Section D.2 must meet performance requirements related to the type of appliance they are to be burned on. This information can be obtained from HETAS Ltd. Form 7B.

It should be noted that the bituminous coals listed are not by law permitted to be burned on appliances in Smoke Control Areas, except where the appliance has been exempted under Section 21 of the Clean Air Act, 1993, and is specially designed to burn selected bituminous coals. These exempted appliances were designated thus † in earlier lists, for easy recognition.

Details of the method of test and pass criteria are available from HETAS Ltd.

D.1 HOUSECOALS APPROVED FOR USE ON OPEN FIRES

Coal Name	Supplier
Large Coal/Cobble/Trebles	
Kellingley Cobbles	UK Coal
Kellingley Trebles	UK Coal
Daw Mill Large Cobbles	UK Coal
Daw Mill Trebles	UK Coal
Doubles	
Kellingley Doubles	UK Coal
Thoresby Doubles	UK Coal
Daw Mill Doubles	UK Coal

E. BITUMINOUS COAL BRIQUETTES

These fuels are non smokeless briquettes and have been tested by HETAS Ltd as open fire fuels. They have been assessed for approval in terms of their radiant heat output and overgrate and undergrate residues and have reached a satisfactory level.

Fuels	Producers/Distributors	Approved for use on:		
		Open Fire	Closed Appliances	Gravity Feed
Wildfire	CPL Industries Ltd.	√	-	-

INDEX TO MINERAL FUEL PRODUCERS/DISTRIBUTORS

Smokeless Fuels

A

Arigna Fuels Ltd
Arigna, Carrick on Shannon, Co. Roscommon, Ireland
Tel: 353 (0) 71 9646002 Fax: 353 (0) 71 9646016
email: dave@arignafuels.ie; Web: www.arignafuels.ie

C

Celtic Energy Ltd
9 Beddau Way, Castlegate Business Park
Caerphilly CF83 2AX
Tel: 02920 760990 Fax: 02920 760996
email: info@coal.com Web: www.coal.com

CPL Industries Ltd
Mill Lane, Wingerworth, Chesterfield
Derbyshire S42 6NG
Tel: 01246 277001 Fax: 01246 212212
Web: www.coals2u.co.uk

M

Maxibrite Ltd
Mwyndy Cross Industrial Estate, Llantrisant
Mid Glamorgan CF72 8PN
Tel: 01443 224283 Fax: 01443 227085
email: sales@maxibrite.co.uk; Web: www.maxibrite.co.uk

Smokeless Fuels (continued)

Monckton Coke & Chemical Co. Ltd
P.O. Box 25, Royston, Barnsley
South Yorkshire S71 4BE
Enquiries –Tel: 01226 722601

O

Oxbow Coal Ltd
Southern Way, Immingham Dock
Immingham DN40 2NX
Tel: 01469 577635 Fax:01469 572819
email: mike.cusick@oxbow.com; Web: www.oxbow.com

Bituminous Coal

U

UK Coal Mining Ltd
Harworth Park, Blyth Road, Harworth
Doncaster DN11 8DB
Enquiries – Coal 4 Energy Tel: 01977 622751

Bituminous Coal Briquettes

C

CPL Industries Ltd.,
(See contact details under Smokeless Fuels)

SELECTING WOOD FOR BURNING

WHY USE WOOD?

Wood from sustainable sources is a renewable, environmentally friendly energy resource. It is considered carbon neutral, in that the CO_2 released during combustion balances the CO_2 that was absorbed during its growth. As conventional energy prices continue to increase, the use of wood becomes more and more attractive.

WHAT TYPE OF WOOD TO BUY?

Wood can be divided into two major classes, either hardwood or softwood. Hardwoods are typically slow growing deciduous broadleafed trees such as Beech, Ash and Oak. They have typically tightly packed annual growth rings reflecting the fact that they are slow growing. Softwoods are typified as being fast growing evergreens or coniferous species such as Pine, Spruce and Fir. Their annual growth rings are usually bigger indicating faster growth.

FACTORS TO CONSIDER

Measured by weight, hardwoods and softwoods have similar energy contents of around 20MJ/kg (dry basis). However, hardwoods are typically twice as dense as softwoods and so, on a volume basis, you would require half the amount of hardwood to provide the same heat output as softwood. For this reason, hardwoods are preferred for burning. Softwoods are usually easier to light than hardwoods and are often used as kindling. Beech, Ash, Hornbeam and Cherry are considered to be the best hardwoods for stoves with Beech producing arguably the best flame pattern.

The major concern in terms of combustion is however the wood's moisture content. Freshly harvested wood can have water contents typically greater than 60% depending on the species and the time of year the tree was felled. Burning logs with this amount of water is not good for several reasons. As wood moisture content increases, so its useful energy content decreases, since energy is used up to drive off the excess moisture. At 60% moisture, wood can have an energy content of typically 6MJ/kg, but at 25% moisture this can increase to 14 MJ/kg.

Trying to burn wet wood not only produces excess steam but can also contribute to excessive smoke caused by incomplete combustion. Unburned fuel can result in tar like deposits on the lining of the chimney so contributing to the risk of chimney fires.

Prior to use on an appliance, it is therefore necessary to reduce the wood's moisture content to acceptable levels using a process known as seasoning. The most effective way to do this is to cut the "as felled" trees into the required lengths for the stove and split these into logs typically 40 to 150mm diameter. These split logs should be stored for a period of time until their moisture content reduces to less than 25%. For natural seasoning, it is preferable to stack the logs under cover in an open sided store to allow a natural ventilation flow across them. The seasoning process can take up to two years or more depending on the tree species, when it was felled, and the drying conditions. It is also possible to buy logs that have had accelerated seasoning by being force dried in a kiln to the required moisture content.

You should note that if you are in a smoke control area, it is illegal to burn wood except on a DEFRA exempted appliance. These appliances are marked † in the HETAS Guide.

SELECTING THE RIGHT WOOD LOG SUPPLIER

There are various factors which should influence the choice of supplier:

- From an environmental standpoint it is preferable, where possible, to select a local supplier, as this reduces the energy required to transport the fuel.
- Does the wood supply come from a sustainable source?
- Has the wood been seasoned correctly?
- What type of wood is being supplied – hardwood, softwood or a mixture of both?
- What is general size of the logs being supplied?
- It is preferable to buy logs by volume rather than weight as the influence of moisture content is removed.

The following should be avoided as combustion of these materials can give off unpleasant odours, and can also generate emissions that damage the environment and be harmful to health.

- varnished or plastic-coated wood,
- wood treated with wood preservatives,
- household waste

HETAS Solid Biomass Assurance Scheme

HETAS has developed a wood and biomass fuel quality assurance scheme with the aim of giving customers greater confidence in the fuels being supplied. In this scheme, manufacturers and suppliers of fuels are certified that the fuels they are producing satisfy the series of Technical Standards produced by TC 335 and that they have sufficient quality measures in place to ensure continued production to those standards. The fuel supplier can then use a quality mark on their packaging and promotional literature which the customer can recognise and understand.

Participation in the scheme is based on evidence acceptable to the certification body (HETAS Ltd) that:-

- the product(s) meets the required standards
- the producer/supplier has staff, processes and systems in place to ensure that the product delivered meets the required standards

and on:-

- periodic audits of the producer/supplier including testing as appropriate
- compliance with the HETAS contract for listing and approval including agreement to rectify faults as appropriate

When fully operational, the scheme will be open to any company involved in the production and/or supply of biomass products including:

- Wood logs
- Pellets made from wood and other biomass
- Briquettes made from wood and other biomass
- Chips made from wood and other biomass

The scheme is currently concentrating on wood logs but it is expected that it will soon extend to cover the other forms of wood and biomass.

Scheme Benefits

- Certified HETAS suppliers can demonstrate to potential customers that they have supply chains in place and control systems that meet standards of sustainability and consistent quality.
- Inclusion in the HETAS guide/website providing ready access to end users and appliance manufacturers. Appliance manufacturers and retailers will be able to look up local suppliers for recommendation to their customers. The advantage to the appliance supplier is that they can have confidence that the first fuels provided to the customer will be of the highest quality.
- Assurance to end users that the fuels they are buying meet acceptable standards and that there are complaints processes in place should there be any dispute over fuel quality.

Fuels Certified under the HETAS solid biomass assurance scheme

Producer/Distributor	Fuels	Listings
CERTAINLY WOOD Lower Lulham Madley Hereford HR2 9JJ Tel: 01981 251796 Fax: 01981 251211 Web: www.certainlywood.co.uk Email: office@certainlywood.co.uk	Kiln dried Wood Logs Seasoned Wood Logs	1. HETAS Solid Biomass Assurance Scheme 2. WoodFuel Wales joint approval scheme
The Firewood Company Penllyn Farm Cowbridge Vale of Glamorgan CF71 7FF Tel: 0800 7837134 Tel: 01446 774000 Fax 01446 771122 Web www.firewoodcompany.co.uk Email: info@firewoodcompany.co.ukl	Seasoned Wood Logs	1. HETAS Solid Biomass Assurance Scheme 2. WoodFuel Wales joint approval scheme

Collaborative Partners and Joint Schemes

HETAS works closely with various organisations concerned with the quality of wood fuels. We are collaborating with a number of partners to agree criteria that satisfy the national Assurance Scheme as well as local needs.

WoodFuel Wales

WoodFuel Wales is a lead body representing the wood fuel industry in Wales right from wood fuel growers and suppliers to those that supply and install heating systems using woody biomass in the form of logs, chip or pellets.

The organisation is supported by the Welsh Assembly Government, Forestry Commission Wales and other regional bodies. WoodFuel Wales actively provides input on numerous issues, including the Assembly's initiatives to increase the use of Biomass and the proposed transfer of Building Regulation making powers to Wales.

HETAS and WoodFuel Wales work together on many initiatives to improve the supply and use of solid biomass in Wales. This includes providing technical input in response to the Welsh Assembly Government's Bioenergy Action Plan for Wales, which promotes greater opportunities for biomass.

WoodFuel Wales has worked with HETAS on the creation of a joint solid biomass assurance scheme for Wales. The scheme is based on rigorous methods of assessment and controls to ensure that the wood fuel is supplied and certified to a reliable and consistent high quality.

A full time Wood fuel Development Officer has been appointed by WoodFuel Wales to assist wood fuel producers in having their wood fuel assessed and certified under the joint scheme.

Members of WoodFuel Wales are amongst the first to have their fuels certified, and many more are expected to be added during 2010. These are clearly identified in the list of scheme members.

For further information about the activity and membership about WoodFuel Wales please contact.

WoodFuel Wales,
Unit 7, Dyfi Eco Park,
Machynlleth,
Powys SY20 8AX

Tel: 0845 4560342 Fax: 01654 700050
Email: info@woodfuelwales.org.uk
Website: www.woodfuelwales.org.uk