

Information Sheet 1

Biomass Pellets and Briquettes

Wood pellets and briquettes are made by compressing dry sawdust or wood shreds under high pressure until the lignin softens and binds the material together. The combination of low moisture content (typically below 10%) and highly compressed material gives pellets a high volume energy density, typically three to four times that of wood chips. They are also clean, consistent and flow easily, making them particularly attractive in domestic applications. The significantly lower storage requirements compared with wood chips also make them attractive to urban applications such as schools. Pellets for domestic and small scale applications are typically 6-8 mm diameter, while those for industrial applications may be 10-12 mm. Above 25 mm diameter they are known as briquettes and can resemble a fire-log in appearance and function, though with improved storage, handling, and combustion properties.



Poor quality pellets can crumble to sawdust, or produce more ash, so it is important that pellets have been manufactured to a recognised standard. An EU-wide suite of standards for solid biofuels, including pellets, covering both the properties of the fuels, and also how they are to be evaluated, is being developed by CEN/TC 335. Specific fuel specifications and classes are defined in CEN/TS 14961. Pellets can be made from many different types of biomass, including straw, as well as wood. However, most of these non-wood pellets are not suitable for use in many pellet boilers or stoves, and certainly not most domestic systems. This is as a result of the ash properties which can give rise to clinker formation and sometimes corrosion of boiler parts.

For generic information on greenhouse gas balances of biomass and bioenergy systems see IEA Bioenergy Task 38, 'GHG impacts of pellet production from woody biomass sources in BC, Canada': www.ieabioenergy-task38.org/projects/task38casestudies.

Some web sites for woodfuel information, & wood pellet, stove and boiler suppliers

The Log Pile website www.logpile.co.uk includes comprehensive listing of pellet suppliers in the UK and also suppliers of pellet boilers and stoves

Woodfuel availability in regions across the country www.eforestry.gov.uk/woodfuel

Woodfuel in Wales www.woodfuelwales.org.uk

Woodfuel in Scotland www.usewoodfuel.co.uk

Renewable Energy Association www.r-e-a.net

European Pellet Centre www.pelletcentre.info incorporating Pellet@Las

Other information on pellet production and use

Coed Cymru www.coedcymru.org.uk/infosheets.htm

Pelletbase www.pelletbase.com

Boiler sizing worksheet www.swwf.info/buyersguide.html

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Currently installed biomass pellet manufacturing plants in the UK

This is a list of companies that we are aware of that are manufacturing biomass pellets in the UK, or have the capability to do so. There are many other suppliers of pellets in the UK and a full listing of woodfuel suppliers can be found on the Biomass Energy Centre website www.biomassenergycentre.org.uk.

Activenergy

Lincoln
Tel: 0845 021 3333
sales@activenergy.co.uk

Agripellets Ltd.

Stratford upon Avon
www.agripellets.com
Tel: 07739 225224
info@agripellets.com
(Straw pellets)

Arbuthnott Wood Pellets

Laurencekirk, Scotland
www.hotstovies.com
Tel: 01561 320417
keith@hotstovies.com

Balcas Timber Ltd.

Invergordon, Scotland & Enniskillen, NI
www.brites.eu
Tel: 07980 076599 (England)
07912 652040 (Scotland)
028 6641 1001 (NI)
brites@balcas.com

Bical Ltd.

Cullompton, Devon
www.bical.net
Tel: 01884 35899
office@bical.net
(Miscanthus pellets)

Biojoule Ltd.

Oxford
www.biojoule.co.uk
Tel: 01865 207001
info@biojoule.co.uk

Briquette and Pellet Co. Ltd.

Lowestoft
www.briquetteandpellet.co.uk
Tel: 01246 550119
sales@briquetteandpellet.co.uk

C Zero Energy Ltd.

Nuneaton, Warwickshire
www.czzero.co.uk
Tel: 02476 320561
info@czzero.co.uk

Clifford Jones Timber Ltd.

Ruthin, Wales
www.cjtimber.com
Tel: 01824 702157
paul.clarke@cjtimber.com

Cornish Wood Fuels

Wadebridge, Cornwall
www.cornishwoodfuels.co.uk
Tel: 01726 890561
info@cornishwoodfuels.co.uk

Dalkia

Staines, Middlesex
www.dalkia.co.uk/wood-pellet-fuel
Tel: 0800 980 8110
woodpellets@dalkia.co.uk

Duffield Wood Pellets

Ripon, N. Yorkshire
www.duffieldwoodpellets.com
Tel: 01765 640564
info@duffieldwoodpellets.com

Ecowood Fuels Ltd.

Cullompton, Devon
www.ecowoodfuels.co.uk
Tel: 01823 680546
fuel@brookridge.co.uk

Elford Biofuels Ltd.

Wheaton Aston, Staffs.
Tel: 01785 841151

Fast Forward Energy

Llandrindod Wells, Powys
Tel: 01597 823835
p.arnshaw@btconnect.com

Harvest Wood Fuels Ltd.

Guildford, Surrey
www.harvestwoodfuels.co.uk
Tel: 01252 794958
info@harvestwoodfuels.co.uk

Jack Moody Biomass

Wolverhampton
www.jackmoodyltd.co.uk
Tel: 01922 417648
mark.beasley@jackmoodyltd.co.uk

Liverpool Wood Pellets Ltd.

Liverpool
www.liverpoolwoodpellets.co.uk
Tel: 01512 369181
sales@liverpoolwoodpellets.co.uk

Neway Energy Ltd.

North Fleet
www.newayenergy.com
Tel: 01273 359031

Puffin Pellets

Auchterless, Aberdeenshire
www.puffinpellets.com
Tel: 07818 417538
mail@puffinpellets.com

Rainworth Fencing

Mansfield, Notts
www.rainworthfencing.co.uk
Tel: 01623 795066
sales@rainworthfencing.co.uk

Rural Energy Ltd.

Oakham, Rutland
www.ruralenergy.co.uk
Tel: 01664 454989
info@ruralenergy.co.uk

Strawsons Energy

Retford, Notts.
www.koolfuel.co.uk
Tel: 01777 248749
info@koolfuel.co.uk

The Renewable Fuel Co (UK)

Barking, Essex
www.renewablefuelcompanyuk.com
Tel: 07719 544287
info@renewablefuelcompanyuk.com

Verdo Renewables UK

Andover, Hants. & Grangemouth, Scotland
www.verdorenewables.co.uk
Tel: 01264 342009
sales@verdorenewables.co.uk

Wood Pellet Energy UK Ltd.

Chilton, Co. Durham
www.woodpelletenergy.co.uk
Tel: 01388 721767
enquiries@woodpelletenergy.co.uk

WTL International Ltd.

Macclesfield, Cheshire
www.wtl-int.com
01260 223284
enquiries@wtl-int.com

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Grants

For more information, see the BEC website www.biomassenergycentre.org.uk

Bio-energy Capital Grants Scheme and the Bio-energy Infrastructure Scheme
Both of these schemes support private sector biomass development, either supporting boiler installation or supply chain equipment. The schemes are both closed at time of writing but check the grants page on the BEC website for more up to date information

Farm Business Development Scheme
www.scotland.gov.uk/Publications/2004/09/19895/42622 For farmers in Scotland to allow diversification into alternative agricultural production

Low Carbon Buildings Programme
www.lowcarbonbuildings.org.uk For householders and community organisations to support the installation of low carbon and micro generation technologies.

RDPE (Rural Development Programme for England)
www.defra.gov.uk/rural/rdpe/index.htm A £3.9bn budget 2007-2013 to safeguard and enhance the rural environment and rural businesses. Woodfuel meets several criteria.

Scottish Community and Householder Renewables Initiative
www.est.org.uk/housingbuildings/funding/scotland
Provides grants, advice and project support for new community and household renewable schemes in Scotland.

Wood Energy Business Scheme
www.forestry.gov.uk/website/forestry.nsf/byunique/infd-7njg2e Scheme to encourage establishment of small to medium scale heat and CHP wood energy markets in Wales.

Some manufacturers of pelleting equipment

Alvan Blanch
www.alvanblanch.co.UK/biomass.htm

Amandus Kahl GmbH & Co.
www.akahl.de/index.php?set_lang=en

Andritz Sprout Ltd.
Tel: 01482 825119
www.andritzsprout.com
steve.arnold@andritz.com

Bliss Industries Inc.
www.bliss-industries.com

Buhler Ltd.
Tel: 020 7055 6650
www.buhlergroup.com/uk
roger.adey@buhlergroup.com

CPM Europe
Tel: 01539 560093
www.cpmeurope.nl
ridgewellp@cpmeurope.freeseerve.co.uk

Farm Feed Systems Ltd.
Tel: 01594 825106

Keep on Trucking
Tel: 0845 036 4444
www.keep-on-trucking.com

La Meccanica s.r.l.
www.lamec-pellets.com

Larus Impianti s.r.l.
www.pellet.it
UK agent Manco Energy Ltd.

Münch-Edelstahl GmbH
www.muench-edelstahl-gmbh.de

Costruzioni Nazzareno SRL
Tel: 01226 360900
www.nazzareno.it

Olio Technology
www.oliotechnology.fr

PelHeat Ltd.
www.pelheat.com
contact@pelheat.com

Pelleting Technology
Nederlands
www.ptn.nl

Pellet Pros
www.pelletpros.com

Radviliskis Machine Factory
www.factory.lt

Salmatec International UK
www.salmatec.de/en/sales@salmatec.co.uk

Sweden Power Chippers (SPC)
www.pelletpress.com
UK agent Wood Energy Ltd.

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Some prefabricated pellet storage options

- Bristore, Balcas www.balcas.com
- Biobin, Emerald Composites www.biobin.ie
- Ecowoodfuels www.ecowoodfuels.co.uk
- FlexiTank, Oekofen www.oekofen.co.uk
- GEObox, GEOfank www.pelletstank.com
- JFC www.jfc.ie
- MAFA Silos www.mafa.se
(via Wood Energy Ltd.)
- PELLETbox, PELLETtank www.solarenergyireland.com
- UV-Silo, Silobau Steinecke www.silobau-steinecke.de
- V-Mac pellet store, AMG www.amgenergy.ie
- Wood pellet silo, A.B.S. www.abs-products.de
- Prime Energy Solutions www.primeenergysolutions.ie

Comparison between wood pellets and wood chips

Wood pellets	Wood chips
Low moisture content, typically <10%	Moisture content typically ~55% from freshly harvested wood; ~30% from seasoned wood (1 yr.)
High volume energy density: 3-3.5 MWh/m ³	Relatively low volume energy density (<1 MWh/m ³ @30% MC)
Much smaller fuel hopper can be used, and/or fewer deliveries. Many different designs of pellet store available off the shelf	Large volume fuel storage required and regular deliveries. Good design of chip store and fuel feed vital for ease of fuel delivery and reliable operation
Expensive to produce. Requires consistent supply of feedstock so usually only suitable for commercial production	Woodfuel quality chippers expensive, but can be shared between users, or contracted as required, so potentially suitable for self production
Clean, dry, low dust. Flow easily so suitable for pneumatic delivery (up to 30m) and easy fuel handling	Don't flow so readily. Delivery by tipper or chipping into store; fuel handling by auger feed
Usually low ash <1%	Can be low ash, but a high proportion of bark, or soil contamination can increase this significantly
Standards important to avoid pellets crumbling to sawdust, excessive ash content, or slagging problems: CEN/TC335 solid biofuels	Standards vital to ensure moisture content suitable for boiler, and chip size and shape will not block fuel feed: CEN/TC 335, ONORM, DIN
Range of very sophisticated pellet boilers and stoves ideal for domestic applications. Larger pellet boilers good for urban applications like city schools with limited storage space	Chip boilers tend to be more appropriate for slightly larger applications, though small chip boilers are available, suited to agricultural type installations
Embodied energy higher than chips, especially if feedstock dried specially. Using clean, dry waste can divert wood from landfill	Relatively low embodied energy
Typical costs (bulk): £160 - £200 per tonne	Typical costs (bulk): £60 - £90 per tonne
Summary	
Clean, pleasant, convenient fuel; sophisticated boilers, but is more expensive	Bulky but cheap fuel, potentially suitable for self production
Relatively compact storage requirements	Boilers tend to be better suited to larger or agricultural type applications