Higher Calorific Values for some common fuels a coke, oil, wood, hydrogen and many more

The calorific value or heat of combustion or heating value of a sample of fuel is defined as the amount of heat evolved when a unit weight (or volume in the case of a sample of gaseous fuels) of the fuel is completely burnt and the products of combustion cooled to a standard temperature of 15 degree C.

It is usually expressed in Gross Calorific Value (GCV) or Higher Heating Value (HHV) and Net Calorific Value (NCV)or Lower Calorific Value (LHV).

Fuels should be compared based on the NCV.

The difference between GCV and NCV is the amount of energy that is necessary to vaporize water that is contained in the fuel or created in the combustion process when hydrogen in the fuel is combined with oxygen to form water vapor.

In general, this difference can range from as little as 2 percent to as much as 60 percent, depending on the hydrogen or moisture content of specific fuels.

The heat energy contained in the water vapor is generally lost as the combustion gases leave the appliance vent or chimney.

Some types of combustion appliances, however, such as high efficiency "condensing" forced-air furnaces, are able to capture much of the heat contained in the water vapor before it leaves the furnace vent (thus the term "condensing").

Since electricity is not burned in a heating appliance, the two values are equal.

Wood heating values can vary significantly. The most important factor affecting useful Energy content is the moisture content of the wood.

Well-seasoned, air-dried wood will typically have a moisture content of around 20 % (when compared to a "bone dry" sample of the wood).

A very rough approximation of the effect of moisture content on the heating value is for every percent increase in moisture content (relative to a bone-dry sample) there is a one percent decrease in heating value.

The calorific value of coal varies considerably depending on the ash, moisture content and the type of coal while calorific value of fuel oils are much more consistent.

The calorific values provided in the following table are the Gross Calorific Values (GCV). GCVs are commonly used in energy calculations in the United States.

Fuel	Higher Calorific Value (Gross Calorific Value - GCV)
Solid	kJ/kg
Anthracite	32'500 – 34'000
Bituminous coal	17'000 – 23'250
Charcoal	29'600
Coke	28'000 – 31'000
Lignite	16'300
Peat	13'800 – 20'500
Semi anthracite	26'700 – 32'500
Wood (dry)	14'400 – 17'400
Gaseous	kJ/Nm^3
Acetylene	58'531
n-Butane	133'559
Hydrogen	12'769
Natural gas	42'119
Propane	101'321
Town gas	18'000
Liquid	kJ/kg
Acetone	29'000
Alcohol, 96 %	30'000
Ether	43'000
Kerosene (kJ/l)	35'000
Gas oil (kJ/l)	38'000
Glycerin	19'000
Heavy fuel oil (kJ/l)	41'200
Oils, vegetable	39'000 – 48'000
Petrol	48'000
Petroleum	43'000
Tar	36'000
Terpentine	44'000

Gross Calorific Values (GCV), Net Calorific Values (NCV) and Density for most common gases can be found in the table below:

Fuel Gas	kJ/kg		kJ/Nm^3		Density
	GCV	NCV	GCV	NCV	kg/Nm^3
Hydrogen	141'886	119'554	12'769	10'760	0.090
Methane	55'617	50'016	39'900	35'881	0.717
Ethane	51'916	47'520	69'920	64'058	1.348
Ethylene	50'325	47'185	63'221	59'453	1.260
Natural Gas	67'851	61'303	42'119	38'058	0.621
Propane	50'367	46'390	101'321	93'156	2.008
Propylene	48'986	45'804	93'784	87'504	1.910
n-Butane	49'530	45'762	133'559	123'092	2.690
Iso-Butane	49'446	45'636	132'722	122'255	2.679
Butylene-1	48'483	45'343	125'185	116'812	2.576
Iso-Pentane-liquid	48'567	44'924	-	-	0.000
LPG (average)	49'907	46'042	117'230	107'915	2.344
Acetylene	49'957	48'207	58'531	56'480	1.172
Carbon Monoxide	10'094	10'094	12'619	12'619	1.250