Table S1: Pellet type classification according to standard developed * within this study for physical parameters: "M": medium, "G": good, and "O": optimum.

Pellet type	Diameter	Length	Mechanical durability	Bulk density	Shear resistance	Particle density	Ash melting point	Ash content	LHV	HHV	C%	O%	H%	N	Ar	Cd	Cr	Cu	Pb	Ni	Zn	pH	Class
CP1	O	O	G	O	G	G	G	O	G	G	G	M	G	M	O	O	O	O	O	O	O	M	**G**
CP2	O	G	O	O	G	G	M	O	M	G	G	G	M	O	O	O	O	O	O	O	O	G	**G**
ES18C	M	M	G	G	G	G	G	M	G	G	M	G	G	G	O	O	O	O	O	O	O	O	**G**
ES3SRF	M	M	O	G	O	O	O	M	M	M	M	O	O	O	O	O	O	O	O	O	O	M	**M**
ES6SRF	M	O	O	O	O	O	M	M	M	M	M	O	O	O	O	O	O	O	O	O	O	O	**O**
FS30CST	M	M	G	O	O	O	M	O	G	O	M	G	O	M	O	O	O	O	O	O	O	G	**O**
FS70TH	M	M	O	O	O	O	M	O	G	G	G	M	O	M	O	O	O	O	O	O	O	G	**O**
PE18TH	G	G	M	M	M	M	G	G	O	O	O	M	M	M	O	O	O	O	O	O	O	G	**M**
PE40TH	G	G	G	G	M	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	M	**G**
PR18TH	G	M	M	M	M	M	O	G	O	O	O	M	M	M	O	O	O	O	O	O	O	M	**M**
PR50TH	G	G	G	O	M	M	M	O	O	O	O	O	O	M	O	O	O	O	O	O	O	M	**O**
RP3SRF	G	M	M	M	M	G	O	M	O	O	O	M	G	G	O	O	O	O	O	O	O	O	**M**
RP6SRF	G	M	M	G	M	O	M	G	O	O	O	G	O	G	O	O	O	O	O	O	O	O	**G**

* The classification system developed within this study was as follows:

1) Identification of the variation range "X" for each parameter and for each class (M, G, O) as:
   X= (Max parameter value - Min parameter value)/Number of classes
2) Identification of the central value of the class for lower class "A", medium class "B" and upper class "C":
   A= Min parameter value + 0.5'X
   B= A + X
   C= B + X
3) Determination of the class range:
   Lower class: A ± 0.5'X
   Medium class: B ± 0.5'X
   Upper class: C ± 0.5'X
4) Definition of the quality class for each parameter according to the previously determined ranges, establishing O, G or M classes depending on the influence of the various parameters on pellet quality previously reported in Table 2. For example, the upper values of bulk density correspond to "O", while e.g. for ash content - lower values correspond to "O" class.
5) The final overall class for each pellet type corresponds to the most represented class obtained in the examination of various parameters. In case of pellet classification to two or more classes – the final assigned value was the lower one.

Table S2: Classification of various pellet types according to EN ISO 17225–2. Symbols "1" or "0" in columns indicate whether the pellet reached the minimum standard in classification for selected parameter, for which the EN ISO 17225-2 classification doesn't distinguish different classes. The classification according EN-ISO 17225-2 identified three classes: A1, A2 and B, with A1 as the best pellet quality class and B as the worst

Pellet type	Diameter	Length	Moisture	Ar	Cd	Cr	Cu	Pb	Ni	Zn	LHV	Bulk density	Durability	Ash melting point	Ash content	N *
CP1	1	1	1	1	1	1	1	1	1	1	0	0	0	A1	A2	A2
CP2	1	1	1	1	1	1	1	1	1	1	0	0	0	A1	A2	A2
ES18C	1	1	1	1	1	1	1	1	1	1	0	0	0	A1	B	A2
ES3SRF	1	1	1	1	1	1	1	1	1	1	0	0	A1	A1	A2	A1
ES6SRF	1	1	1	1	1	1	1	1	1	1	0	1	A1	A1	B	A1
FS30CST	1	1	1	1	1	1	1	1	1	1	0	0	0	A1	A1	B
FS70TH	1	1	1	1	1	1	1	1	1	1	0	1	A2	A1	A1	B
PE18TH	1	1	1	1	1	1	1	1	1	1	1	0	0	A1	A2	A2
PE40TH	1	1	1	1	1	1	1	1	1	1	1	0	0	A1	A2	A2
PR18TH	1	1	1	1	1	1	1	1	1	1	1	0	0	A1	A2	B
PR50TH	1	1	1	1	1	1	1	1	1	1	1	0	0	A1	A2	B
RP3SRF	1	1	1	1	1	1	1	1	1	1	0	0	0	A1	B	A2
RP6SRF	1	1	1	1	1	1	1	1	1	1	1	0	0	A1	A2	A2

* Data not shown in the results