Technologie- und Förderzentrum
im Kompetenzzentrum für Nachwachsende Rohstoffe
TFZ

Energy Density of Solid Biofuels

compared to heating oil and hard coal

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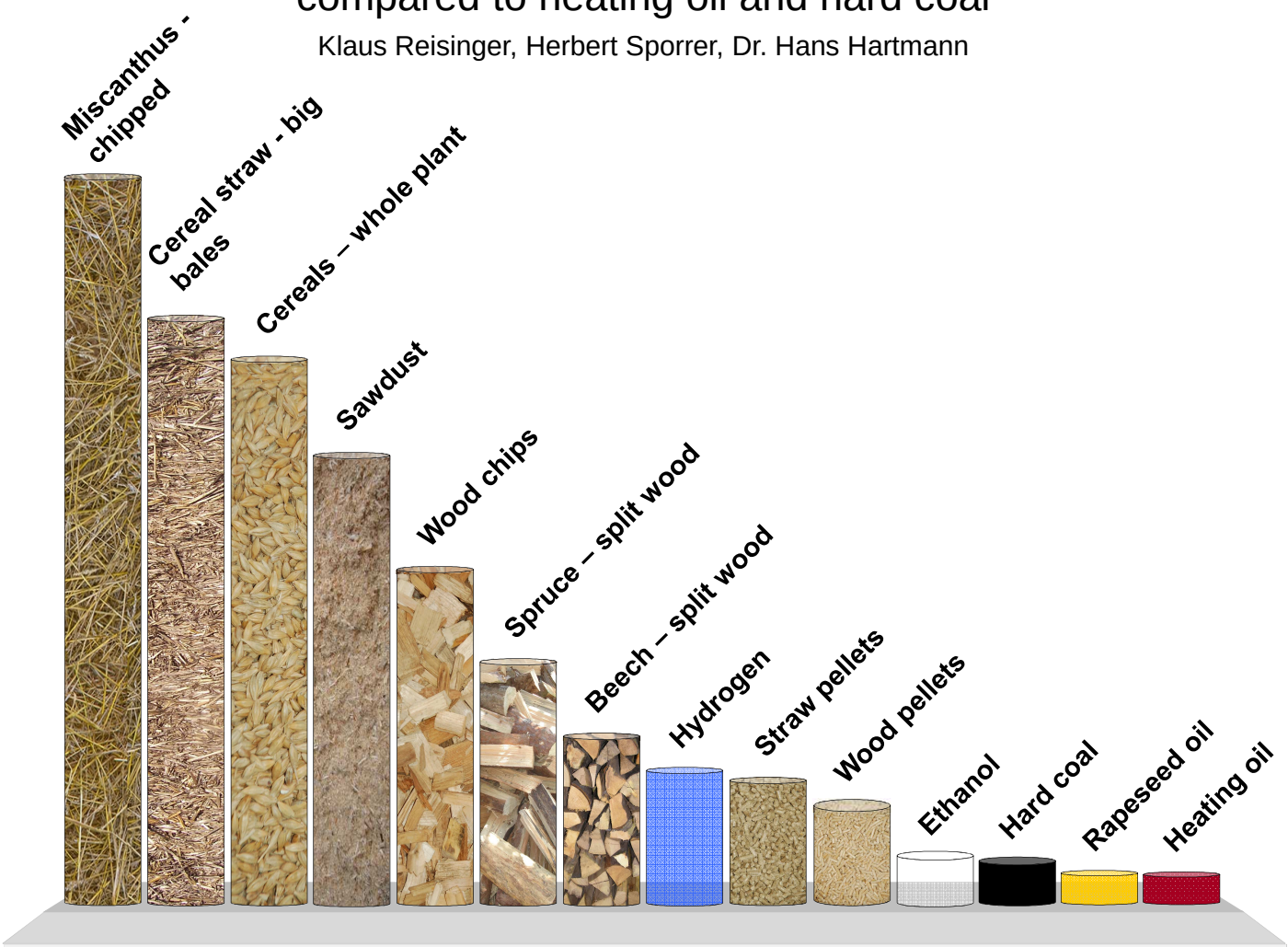

The energy content of each pillar is equal to one litre of heating oil.

Fuel	Bulk densitiy Stacking densitiy	Oil equivalent kg/l OE	Oil equivalent l fuel/l OE
Heating Oil	0,84 kg/l	0,84	1,00
Rapeseed Oil	0,92 kg/l	0,97	1,05
Hard Coal (w = 5,1 %)	860 kg/m³	1,28	1,49
Ethanol	0,79 kg/l	1,34	1,70
Wood Pellets (EN 14961-2, w = 10 %)	664 kg/m³	2,15	3,24
Straw Pellets (w = 10 %)	603 kg/m³	2,36	3,91
Hydrogen (liquid at – 252,8 °C)	0,07 kg/l	0,30	4,23
Beech, split wood (air-dried, 33 cm, w = 15 %)	445 kg/Rm	2,35	5,28
Spruce, split wood (air-dried, 33 cm, w = 15 %)	304 kg/Rm	2,30	7,54
Wood Chips (Pine, air-dried, w = 15 %)	217 kg/m³	2,25	10,35
Sawdust (Spruce, air-dried, w = 15 %)	160 kg/m³	2,30	14,35
Cereals, whole plant (air-dried, w = 15 %)	150 kg/m³	2,53	16,85
Cereal straw – cubic big bales (air-dried, w = 15 %)	140 kg/m³	2,52	18,00
Miscanthus, chipped (air-dried, w = 15 %)	110 kg/m³	2,45	22,30

Legend: w: Moisture content - OE: Oil equivalent - l: Litre – m³: 1 m³ split wood, here 33 cm logs

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