

FEEDSTOCK - STRAW

Chemical composition of Straw

The composition of Straw is as follows¹:

Carbon	43,5 %
Hydrogen	5,03 %
Sulfur	0,077 %
Chlorine	0,24 %
Oxygen	47,7 %
Cadmium	0,000004 %
Zinc	0,00044 %
Chrome	0,00017 %
Natrium	0,0105 %
Potassium	0,71 %
Calcium	0,27 %
Phosphor	0,047 %
Magnesium	0,13 %
Silicium	1,3 %
Ash total	5,68 %



Diesel yield per ton of Straw in dependency of the water content

In the following table you can see the amount of diesel you can produce from one ton of Straw in dependency of the water content.

Water content (%)	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Heating value (kwh/kg)	4,80	4,53	4,26	3,99	3,71	3,44	3,17	2,90	2,63	2,36	2,09
Heating value (MJ/kg)	17,28	16,30	15,33	14,35	13,37	12,40	11,42	10,44	9,47	8,49	7,51
Heating value (BTU/lb)	7429	7009	6589	6169	5749	5329	4909	4489	4069	3649	3229
Diesel yield (kg) (ash free)	329	311	292	273	255	236	218	199	180	162	143
Diesel yield (l) (ash free)	387	365	343	322	300	278	256	234	212	190	168
Ash (5,7 %) (kg)	57	54	51	48	46	43	40	37	34	31	29
Sulphur (0,1%) (kg)	1	1	1	1	1	1	1	1	1	1	1
Calziumhydroxide for Sulphur (kg)	4	4	4	3	3	3	3	3	2	2	2
Chlorine (0,25%) (kg)	3	2	2	2	2	2	2	2	2	1	1
Calziumhydroxide for Chlorine (kg)	5	5	5	4	4	4	4	3	3	3	3
Calziumhydroxide Inorganic (kg)	3	3	3	3	2	2	2	2	2	2	2
Inorganic total (kg)	60	57	54	51	48	45	42	39	36	33	30
Bitumen (kg)	120	114	108	102	96	90	84	78	72	66	60
Diesel yield (kg)	269	254	238	222	207	191	176	160	144	129	113
Diesel yield (l)	317	298	280	262	243	225	206	188	170	151	133

Table 1 – Diesel yield from straw in dependency of the water content