

WDF - COMPOSITION & ULTIMATE ANALYSIS - BOODARIE PJ

ITEM	DESCRIPTION OF WDF FEED ^{(1) (2)}	AS-REC. WEIGHT (%)	AS-REC. WEIGHT (T) ⁽¹⁾	H2O (% Wt.)	AVG. H2O (% Wt.)	CV ⁽³⁾ (kJ/kg)	AVG. CV (kJ/kg)	WDF ULTIMATE ANALYSIS (DRY BASIS - PERCENT BY WT.)								CALCULATE WDF AS-RECEIVED ULTIMATE ANALYSIS (WET BASIS - BY MASS)										TTL				
								C	H	O	N	S	Cl	Ash	Fe/Al	C	H	O	N	S	Cl	HM ⁽⁷⁾	Ash	Fe/Al	H2O					
1	MIXED FOOD	19.86	17,068	70.00	13.90	4,175	829	48.0	6.4	37.6	2.6	0.4	-	5.0	-	2457.50	327.67	1925.04	133.11	20.48	0.00	54.736	201.26	0.00	11946.20	17,066.00				
2	MIXED PAPER / CARDBOARD	12.89	11,081	10.00	1.29	15,815	2,039	43.4	5.8	44.3	0.3	0.2	-	6.0	-	4328.24	578.43	4417.99	29.92	19.95	0.00	35.640	562.83	0.00	1108.10	11,081.00				
3	MIXED WOOD	22.71	19,514	20.00	4.54	15,444	3,507	49.6	8.0	42.7	0.2	-	-	1.5	-	7743.16	936.57	8665.98	31.22	0.00	0.00	62.5876	171.58	0.00	3902.80	19,514.00				
4	MIXED TEXTILE	3.24	4,507	10.00	0.52	17,445	915	48.0	6.4	40.0	2.2	0.2	-	3.2	-	1947.02	269.50	1622.52	89.24	8.11	0.00	14.4654	115.35	0.00	450.70	4,507.00				
5	UNSORTED PLASTIC ⁽⁴⁾	14.89	12,792	-	-	38,190	5,685	87.1	8.4	4.0	0.2	-	-	0.3	-	11141.83	1074.53	511.68	25.58	0.00	0.00	41.0280	-2.65	0.00	0.00	12,792.00				
6	CHLORINATED PLASTIC ⁽⁵⁾	0.26	227	-	-	22,690	60	45.2	5.6	1.6	0.1	0.1	45.4	2.0	-	102.60	12.71	3.63	0.23	0.23	103.06	0.7281	3.81	0.00	0.00	227.00				
7	GARDEN / GREEN TRIMMINGS	7.99	6,865	60.00	4.79	6,050	483	46.0	6.0	38.0	3.4	0.3	-	6.3	-	1263.16	164.76	1043.48	93.36	8.24	0.00	22.0183	150.98	0.00	4119.00	6,865.00				
8	MIXED RUBBER ⁽¹⁰⁾	0.46	416	-	-	38,190	185	69.7	8.7	-	-	1.8	-	20.0	-	289.95	36.19	0.00	0.00	6.66	0.00	1.3342	81.87	0.00	0.00	416.00				
9	OILY RAGS - TEXTILE CONTENT	0.99	854	10.00	0.10	43,870	436	48.0	6.4	40.0	2.2	0.2	-	3.2	-	368.93	49.19	307.44	16.91	1.54	0.00	2.7391	21.86	0.00	85.40	854.00				
10	OILY RAGS - OIL CONTENT ⁽⁹⁾	0.11	95	-	-	30,000	33	85.4	14.2	-	-	-	-	0.4	-	81.13	13.49	0.00	0.00	0.00	0.00	0.3047	0.08	0.00	0.00	95.00				
11	TYRES - RUBBER CONTENT ^{(9) (10)}	12.54	10,779	-	-	31,850	3,970	83.2	10.0	1.0	0.3	1.1	0.1	4.3	-	8968.13	1077.99	107.79	32.34	118.57	10.78	34.5717	428.93	0.00	0.00	10,779.00				
12	TYRES - STEEL BELT CONTENT ⁽⁸⁾	0.22	190	-	-	-	-	-	-	-	-	-	-	-	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.6094	-0.61	190.00	0.00	190.00				
13	OIL FILTERS - ORGANIC/OIL CONTENT ⁽⁸⁾	0.03	28	-	-	30,000	10	85.4	14.2	-	-	-	-	0.4	-	23.91	3.98	0.00	0.00	0.00	0.00	0.0898	0.02	0.00	0.00	28.00				
14	OIL FILTERS - STEEL CONTENT	0.05	42	-	-	-	-	-	-	-	-	-	-	-	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.1347	-0.13	42.00	0.00	42.00				
15	FERROUS METALS	0.09	75	-	-	-	-	-	-	-	-	-	-	-	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.2405	-0.24	75.00	0.00	75.00				
16	NON-FERROUS / ALUMINUM	0.09	75	-	-	-	-	-	-	-	-	-	-	-	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.2405	-0.24	75.00	0.00	75.00				
17	GLASS	0.13	114	-	-	-	-	-	-	-	-	-	-	100.0	-	0.00	0.00	0.00	0.00	0.00	0.00	0.3656	113.63	0.00	0.00	114.00				
18	INERTS (SAND, RUBBLE, BRICKS, CONCRE	1.41	1,214	-	-	-	-	-	-	-	-	-	-	100.0	-	0.00	0.00	0.00	0.00	0.00	0.00	3.8937	1210.11	0.00	0.00	1,214.00				
TOTAL / AVERAGE		100.00 (%)	85,933 (T)		26.15 (%)		18,153 (KJ/KG)									ELEMENT BY MASS				38715.67	4636.12	16805.56	451.92	183.76	113.84	275.62	3058.41	382.00	21612.20	85,934.00
																ELEMENT BY PCT.				45.0532	5.2775	19.3238	0.5259	0.2138	0.1325	0.3207	3.5591	0.4448	25.1601	100.00

NOTES:

- (1) Based upon NEC WDF composition/specification Rev-D, dated 20-02-12.
- (2) Unless noted otherwise; the moisture content, ultimate analysis and CV (as-received) are based upon Perry's Chemical Engineers Handbook, 8th Edition, Robert H. Perry & Don Green, McGraw-Hill, 2008 (ISBN-13:978-0-07-142294-8).
- (3) Reported CV is at nil contingency factor.
- (4) Based upon LD and HD plastics consisting primarily of C+O+H compounds, including polyolefins such as the polyethylenes, the polyethylene copolymers (including polypropylene, polybutene-1 and poly 4-methylpentene), plus polystyrene. Includes up to 1% by weight of chlorinated plastics, which may be separately itemized in item "6".
- (5) PVC content of the waste feed is calculated at 0.26% wt.. Limit is <1.25% wt.
- (6) Based upon ultimate analysis nominated by NEC.
- (7) Heavy metal (HM) content in waste (at avg. 0.3207% wt. of as-received MSW feed) and HM constituent breakdown (%) wt.) is based upon "Best Estimate g/T" of Tables 2.25 & 2.26 of the report "Review of Environmental & Health Effects of Waste Management" published by UK-DEFRA, 2004 (DEFRA Code: PB9052A).
- (8) Heavy metal (HM) content of the waste feed is calculated at 0.3207% wt.. Limit is <2% wt.
- (9) Heavy metal (HM) content in waste in Notes "7" & "8" above is approx 150% greater than actual test results of 14 Danish WtE plants per averaged results of Table 2 of the report "Heavy Metal Content of Combustible Municipal Solid Waste in Denmark", Riber, Fredriksen, Christensen; 2005 (ISSN 0734-242X).
- (10) Rubber content of the waste feed is calculated at 13.02% wt.. Limit is <15% wt.
- (11) There is nil discernable fluorine in feed. For design purposes an amount of 0.0133% wt. at 1:10 ratio of chlorine will be added by Entech. Limit is <0.025% wt.

CALCULATE AS-RECEIVED HM CONTENT OF WDF; BY CONSTITUENT ⁽⁷⁾⁽⁸⁾⁽⁹⁾															TTL
(WET BASIS - BY MASS)															
As	Cd	Co	Cr	Cu	Hg	Mn	Ni	Pb	Sb	Sn	Tl	Vn	Zn		
ELEMENT BY MASS	0.51	0.89	0.34	5.00	34.55	0.03	19.92	1.27	46.83	3.44	29.13	59.32	1.34	73.04	275.61
ELEMENT BY PCT.	0.00059	0.00104	0.00040	0.00582	0.04020	0.00003	0.02318	0.00148	0.05450	0.00400	0.03390	0.06903	0.00158	0.08500	0.3207

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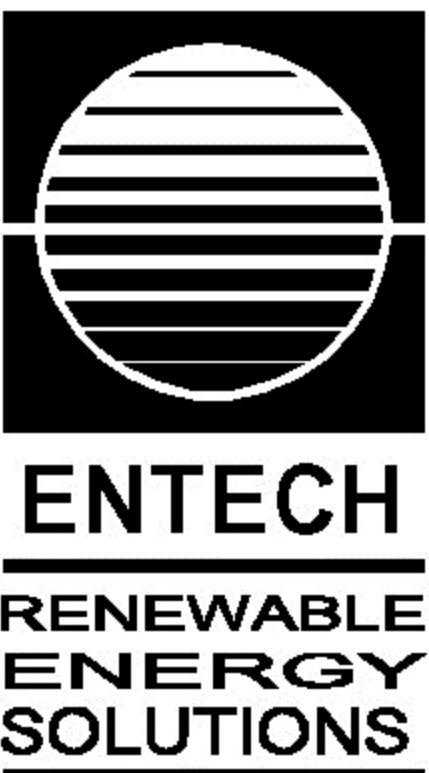
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TITLE
PROPOSED ENTECH-WIGAS-RES (72 MWt) FOR BOODARIE PJ.
WDF - COMPOSITION & ULTIMATE ANALYSIS

DRAWING No.
D120224-1

D120224-1.dwg
SHEET 1 OF 1 SHEETS