

DEM – 1 – LADEPA PROTOTYPE DATA:

Ladepa plant Durban eThekweni Municipality

Details of plant

Belt width	950 mm
Dryer width	1350 mm
Dryer length	11000 mm
Dryer height	1200 mm
Belt Apertures	300 micron
Belt drive	0.75 kW
Screw drive	1.50 kW (2 off)
Blower	5.5 kW
MIR	3 x 48 kW = 144 kW
Total Ladepa	151.75 kW

Engine required 160 kW (engine installed JD 406 x HD – 310 kW – (much too big)

Fuel diesel 7 – 8 ℓ/hr = R80/hr (USD 10.66/hr)(E 7.30/hr)

Feed	1000 kg/hr @ 30 – 35 % Solids
Detritus	15 % 150 kg/hr
Product	± 300 kg/hr @ 80 – 85 % Solids
Evaporation Rate	$1000 - (150 + 300)/154 \text{ kW} = 3.64 \text{ ℓ/kwh}$
Residence time	8 minutes (4 minutes gas 4 minutes MIR)
Product temperature	180 – 220 °C
Bagging	20 x 15 kg/hr (value R400/hr) (USD 53.33/hr) (E 36.36/hr)

Future changes:

Single Screw Compactor/Extruder with height adjustment

192 kW MIR (Total power installed 199.75 kW)

220 kW Engine

Exhaust gas only

Radiator cooling gas to atmosphere

OPEX

95 % of cost is electricity/diesel

(10 – 11 ℓ/hr) - for a 192 kW Ladepa plant