

DEM – 1 – LADEPA PROTOTYPE DATA:

Ladepa plant
Durban Ethekwini 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 □/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 : $1000 - (150 + 300)/154 \text{ kW} = 3.64 \text{ □/kwh}$
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 □/hr) - for a 192 kW Ladepa plant