THERMAX LIMITED 9, COMMUNITY CENTRE, BASANT LOK, NEAR PRIYA CINEMA
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Cooling & Heating Division

THERMAX

21st August' 2008

M/s. GREENPLY INDUSTRIES LTD
PLOT NO. E/176-179, PHASE II,
RIICO INDUSTRIAL AREA, BEHROR,
DIST. ALWAR, RAJASTHAN.

Kind attn: Mr. K L SHARMA / Mr. SUBHASH CHANDER

Subject: Combipac Boiler Model CP-60/24.6/01

Dear Sir,

Please find enclosed herewith Efficiency Trial Report for the above said Boiler Model as desired by you.

Kindly acknowledge on receipt.

Thanking and assuring you of our best services, we remain

For **THERMAX LIMITED**

NEERAJ SHARMA
ASSOCIATE MANAGER
TECH. SERVICES – HEATING
COOLING & HEATING

Encl: As above

Boiler efficiency M/O Sep. 07

THERMAX

Unit CP/60/24.6/1

Parameters

Stack temp^r after Boiler — 290°C

Stack temp^r Before I.D fan — 194°C

Steam Pressure — 21 kg/cm^2

Enthalpy at given Steam Pressure — 668.9 Kcal/kg.

Water temp^r — 60°C

Co_2 % — 9.5

Bed temp^r — 600°C

F.D Hot air temp^r — 150°C

fuel used — mustard Husk.

Efficiency by Indirect method BS-845

$\Rightarrow$ η % = 100 − total losses.

Total losses are

1. Dry flue gas losses
2. Hydrogen & Moisture losses.
3. Refuse losses
4. Radiation losses.

(1) Dry flue gas losses $\Rightarrow$ $\dfrac{0.63\,(T_S - T_A)}{Co_2\,\%}$

T_S = Stack temp^r °C

T_A = Ambient temp^r °C — 38°C

After tuning CO_2 - 9.5 %. $= \frac{0.63\,(194-38)}{9.5}$

$= 10.34$ %.

Before tuning CO_2 - 5.2 %. $= \frac{0.63\,(194-38)}{5.2}$

$= 18.9$ %.

(2) H_2 — 3.9 %. Moisture 2 %.

losses $\frac{K}{GCV} = \frac{21570}{2610}$ & $\frac{6300}{2610}$

$= 8.26$ %. & 2.41 %.

(3) Refuse losses assumed — 3 %. (max.)

(4) Radiation losses — 1 %. (assumed)

Total losses $\Rightarrow 10.34 + 8.26 + 2.41 + 3 + 1$

$\Rightarrow 25.01$

% $\eta = 100 - 25.01$

$\boxed{\eta = 74.99\ \%.}$