

## THERMOL TRIAL PERFORMANCE REPORT

<b>Client</b>	<b>Trial conducted by</b>
Jindal Steel & Power Ltd., Barbil (JSPL)	Abhitech Energycon Ltd (AEL)

Abhitech Energycon Ltd (AEL), Mumbai was invited by M/s. Jindal Steel & Power Ltd., (JSPL) Barbil for conducting a fresh performance evaluation test of **Thermol** at Induration Furnace of PP-1, PP-2 and Rotary Dryers.

Meeting was held between officials of JSPL & AEL on 24th of November, 2018, to discuss the outcome of THERMOL performance evaluation test.

The **Objective of Trial** was to evaluate the effect of THERMOL on Specific Fuel Consumption

- SFC is calculated as per following formula -

$$SFC = \frac{\text{FO consumption (ltr.)}}{\text{Pellet Production ( MT)}}$$

- The following data for various parameters were recorded in Pre Trial (Annexure I) :

### Rotary Dryers

Parameters	Unit	Values
Average FO Consumption	Ltrs/day	87310
Average Feed / day	MT/day	11701.25
Average Raw material feed Moisture	%	9.35
Average Specific Fuel Consumption	Ltr./MT	7.46

### Indurating Furnace PP-1

Parameters	Unit	Values
Average FO Consumption	Ltrs/day	80600
Average Production / day	MT/day	10363.42
Average Green Ball Moisture	%	8.47
Average Mix Material Carbon %	%	1.15
Average Specific Fuel Consumption	Ltr./MT	7.78

### Indurating Furnace PP-2

Parameters	Unit	Values
Average FO Consumption	Ltrs/day	137190
Average Production / day	MT/day	11349.14
Average Green Ball Moisture	%	9.24
Average Mix Material Carbon %	%	1.1
Average Specific Fuel Consumption	Ltr./MT	12.09

- **Pre-trial** (without THERMOL addition) data is considered from 23/06/2018 till 02/08/18 (41 days).
- **Production** data is collected from the operation side above 9500 Mt/day on day-to-day basis.
- **Furnace Oil consumption** was noted from volumetric flow meter totalizer on discharge end (Day Tank 1 & Day Tank 4), on daily basis.  
The average SFC (Without Thermol) is calculated as 7.46 Ltr/Mt, 7.78 ltr/Mt and 12.09 ltr/Mt as per Annexure I.
- The 2<sup>nd</sup> Phase **Post-trial** (with THERMOL addition) data is considered from 03/08/2018 till 31/10/2018 (90 days).
- THERMOL was dosed in the ratio of 1:2,000 on v/v basis in Bulk Storage Tank no.1, 2, 3 and 4.
- The output data has been calculated with a production range above 9500Mt/day from daily shift report.
- All the procedures done in the Pre-trial period was followed during the Post-trial period.
- The following data for various parameters was recorded during Post-trial (Annexure II) :

### Rotary Dryers

Parameters	Unit	Values
Average FO Consumption	Ltrs/day	77640
Average Feed / day	MT/day	11448.98
Average Raw material Feed Moisture	%	10.00
Average Specific Fuel Consumption (With correction factor)	Ltr./MT	7.01

**Indurating Furnace PP-1**

Parameters	Unit	Values
Average FO Consumption	Ltrs/day	82990
Average Production / day	MT/day	10380.41
Average Green Ball Moisture	%	8.43
Average Mix Material Carbon %	%	1.06
Average Specific Fuel Consumption (With correction factor)	Ltr./MT	7.40

**Indurating Furnace PP-2**

Parameters	Unit	Values
Average FO Consumption	Ltrs/day	142040
Average Production / day	MT/day	11039.06
Average Green Ball Moisture	%	9.44
Average Mix Material Carbon %	%	0.92
Average Specific Fuel Consumption (With correction factor)	Ltr./MT	11.61

- ✓ The average SFC (With Thermol) is calculated as 7.01 Ltr/MT, 7.40 Ltr/Mt and 11.61 Ltr/Mt as per Annexure II.
- ✓ % Savings on Reduction in SFC with Moisture and Carbon % correction factor is calculated by the given formula:

**Rotary Dryer**

$$\% \text{ Savings} = \frac{\text{Pre SFC} - \text{Post SFC}}{\text{Pre SFC}} \times 100$$

$$\begin{aligned} \% \text{ Savings} &= \frac{7.46-7.01}{7.46} \times 100 \\ &= 6.02 \% \end{aligned}$$

**Indurating Furnace PP-1**

$$\% \text{ Savings} = \frac{\text{Pre SFC} - \text{Post SFC}}{\text{Pre SFC}} \times 100$$

$$\begin{aligned} \% \text{ Savings} &= \frac{7.78-7.40}{7.78} \times 100 \\ &= 4.91 \% \end{aligned}$$

**Indurating furnace PP-2**

$$\% \text{ Savings} = \frac{\text{Pre SFC} - \text{Post SFC}}{\text{Pre SFC}} \times 100$$

$$\begin{aligned} \% \text{ Savings} &= \frac{12.09-11.61}{12.09} \times 100 \\ &= 3.93 \% \end{aligned}$$

For JSPL	For AEL
<p style="text-align: center;"><i>Guruprasad M.G</i> 24/11/18 Mr.Guruprasad M.G (A.G.M-Operation)</p>	<p style="text-align: center;"><i>Pradeep</i> 24/11/18 Mr.Pradeep Sahoo (Asst.Manager-Sales)</p>
<p style="text-align: center;"><i>S. Pyarilal</i> 24/11/18 Mr. S. Pyarilal (Manager-Operation)</p>	<p style="text-align: center;"><i>for Anup Ball</i> 24/11/18 Mr.Shivanshu Pandey ( Asst.Manager- Tech)</p>
	<p style="text-align: center;"><i>Anup Ball</i> 24/11/18 Mr.Anup Ball ( Sr.Executive- Tech)</p>