



SUMMARY ON PERFORMANCE EVALUATION REPORT OF THERMOL

Date – 18-06-2019

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|--------------------------------|--|
| Performance study conducted at | National Aluminium Company Ltd (NALCO) Alumina Refinery - Damanjodi |
| Application | Calciner-C (2000TPD), |
| Purchase Order no | REF/MMP/1000041668/209/4500051642,DT:-14.02.2019 |
| Performance study conducted by | AbhitechEnergycon Ltd, Mumbai (AEL) |

Performance study Objective –

- **Reduction in Specific Fuel Consumption (SFC).**

SFC was calculated as per following formula –

$$\text{SFC} = \frac{\text{HFO consumption (kg)}}{\text{Alumina Production (MT)}}$$

Evaluation (without THERMOL): Prior to start Thermol dosing, Pre study data were collected from 5th Mar-2019 to 18th Mar-2019(13 Days).

Evaluation (with THERMOL):Thermol dosing continued and data collect from 21th Mar-2019 to 5th May-2019(44 Days).

- 8th Mar'19 pre study data were not calculated due to 4 hrs calciner is under shut down.
- 5th April '19 & 6th April '19 with Thermol data were not calculated due to calciner is under unit shutdown.

Thermol Dosing:

Thermol addition was done in the ratio of 1:2000 (V/V basis) in Calciner-C, HFO day tank (175 KL) with the help of dosing pump during HFO transfer to day tank.

| PERFORMANCE REPORT | | | | |
|--------------------|--|--------|---|--|
| S.NO | PERTICULARS | UNITS | Pre-study (5 th Mar'19 to 18 th Mar'19) | Post-study (21 th Mar'19 to 5 th May'19) |
| 1 | NO. OF DAYS PERFORMANCE STUDY CONDUCTED | DAYS | 13 | 44 |
| 2 | AVERAGE SPECIFIC FUEL CONSUMPTION | KG/TON | 73.53 | 71.93 |
| 3 | AVERAGE HFO CONSUMPTION | KG | 127732.92 | 125700.00 |
| 4 | TOTAL HFO CONSUMPTION | KG | 1660528.00 | 5530800.00 |
| 5 | AVERAGE HYDRATE FEED | MT | 2840.91 | 2868.06 |
| 6 | AVERAGE ALUMINA PRODUCTION | MT | 1738.00 | 1750.07 |
| 7 | AVERAGE MOISTURE | % | 6.46 | 6.70 |
| 8 | SAVING % | % | 2.19 | |
| 9 | SAVING % (WITH MOISTURE CORRECTION) | % | 2.69 | |
| 10 | HFO SAVING | KL | 158.28 | |
| 11 | TOTAL THERMOL CONSUMPTION OF MARCH MONTH | LTR | 2719.43 | |

✓
✓
24/6/19
JOUHAR
Manager (Chem.)



- All the daily parameters were recorded from DCS generated history.
- Daily HFO consumption was calculated from DCS generated integrator reading of HFO mass flow meter.
- Daily Hydrate flow was calculated from DCS generated integrator reading of Hydrate weighfeeder.
- Daily Alumina Production was calculated from given formula:
$$\text{Actual Alumina} = \text{Total Hydrate} \times 0.654 \times (1-m \%)$$

Conclusion of Performance Study:

Based on data analysis, it is concluded that the use of THERMOL in Calciner-C has resulted in **reduction in SFC by 2.69%**.

In concurrence of the above,

NALCO – Alumina Refinery

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