

Cost Benefit Analysis of Differentiated LPG

LPG is traditionally used as the fuel for domestic and commercial cooking. Increasing the heat output/efficiency of LPG will lead to reduced fuel consumption. Differentiated Indane promoted by IOCL is expected to provide benefit to customers in terms of less consumption and higher heat output.

The additized commercial Indane has been evaluated in laboratory and further validated at customer sites during the field evaluation.

Trial at Canteen of IOC R&D:

Trial at canteen of IOC R&D was designed with using differentiated Indane vs. commercial Indane for identical 5 days (Tuesday-Saturday) in a week keeping the menu fixed for each day. As there was variation in number of meals prepared during the week, gas consumed to prepare a meal in average has been taken for comparison. The detailed of gas consumption has been provided in below **Table**.

	Commercial Indane	Differentiated Indane (Trial 1)	Differentiated Indane (Trial 2)
Consumption in 5 days (Kg)	140.00	129.00	153.00
Total no. of meals	1610	1610	1895
Consumption of LPG per meal (g)	86.957	80.683	81.135
% Saving		7.21	6.70
		~ 7%	

Study of reduction in cooking time:

An important parameter to prove with differentiated LPG is reduction in cooking time as it would give a customer ease of cooking and managing time more efficiently. Moreover, reduction in cooking time would eventually result in reduction in consumption of gas.

The experiment was designed to cook different variety of lentils (Dal) and time taken for the first whistle (pressure ejection) was noted. The test results have been provided in below **Table**.

Ingredient	500 g Moong Dal+ 500 g Masoor Dal + 2,750 g Water		1000 g Rajma + 4,500 g Water	
	Commercial Indane	Differentiated Indane	Commercial Indane	Differentiated Indane
Time for 1 st whistle	10 m 49 s	8 min 55 s	14 m 38 s	12 m 30 s
Benefit	~1 m 54s		~ 2 m 8 s	
% time reduction in cooking	~ 17		~ 14	

Trial at Belgaum area, Karnataka:

Trial at Belgaum area office was conducted with help of IOC (M). The preliminary findings are:

- Increase of flame temperature by $\sim 65^{\circ}\text{C}$ at selected customer sites
- A saving of $\sim 7\%$ has been observed at different customer sites.

For a cylinder bank with 100 cylinders, based on $\sim 7\%$ savings of LPG per cylinder, the total savings to operator will be $\sim \text{Rs. } 8400$. The savings will be both monetary and of time.

S. No.	Item Detail	Indane	Differentiated Indane
1	Mass in kg/cylinder	19.00	19.00
2	Cost of fuel cylinder	1,200.00	1,200.00
3	Cost of per Kg of LPG	63.16	63.16
4	Savings (%)	-	7.00
5	Savings of LPG (Kg) per cylinder	-	1.33
6	Monthly savings per cylinder(30 work days) (Rs.)	-	~ 84.00
7	Monthly savings for 100 cylinder (30 work days) (Rs.)	-	$\sim 8,400.00$