

Case Study – 3

Tableware Industry – Replacing high weight HFK refractories with light weight low density **Ultralite™** filling material for kiln cars

Implementing the technology

Before CP:

The original kiln car construction was constructed from Hot Face Kyanite (HFK) bricks, having a density of around 1100 kg/m³. The cars measure almost 1 m² and the base has a depth of 180 mm.



After CP:

The kiln cars were re-designed, incorporating a periphery wall around the perimeter of each car, and filling the void with Ultralite™, which has a density of just 75 kg/m³. The construction was completed with load bearing cover slabs, placed on structural support posts. All 32 kiln cars were converted as part of this exercise.



Benefits					
Environmental	<p>Before CP:</p> <ul style="list-style-type: none"> Per Day Consumption of fuel: 889 SM³/Day Per Kg Consumption of fuel: 0.36 SM³/Kg of product <p>After CP:</p> <ul style="list-style-type: none"> Per Day Consumption of fuel: 788 SM³/Day Per Kg Consumption of fuel: 0.32 SM³/Kg of product Reduction in fuel consumption: = (889 – 788)= 101 SM³/Day = 36865 SM³/Year = Reduction in Green House Gas Emission = 77 MT. Percentage reduction of fuel consumption: 11.45% 				
Economical	<table border="1"> <thead> <tr> <th>Before CP</th> <th>After CP</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> Fuel expense per day = (Rs. 28/SM³) * (889) = Rs. 24,892/Day </td> <td> <ul style="list-style-type: none"> Fuel expense per day = (Rs. 28/SM³) * (788) = Rs. 22,064/Day Savings of Rs. 2,828 Per Day Rs. 84,840 Per Month Rs. 10,32,220 Per Annum </td> </tr> </tbody> </table> <p>Total Investment: Rs. 2,80,000/- (One time) Total Savings: Rs. 10,32,220/- Per Annum Payback Period: 4 Months</p>	Before CP	After CP	<ul style="list-style-type: none"> Fuel expense per day = (Rs. 28/SM³) * (889) = Rs. 24,892/Day 	<ul style="list-style-type: none"> Fuel expense per day = (Rs. 28/SM³) * (788) = Rs. 22,064/Day Savings of Rs. 2,828 Per Day Rs. 84,840 Per Month Rs. 10,32,220 Per Annum
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