

# THERMACT-PC<sup>TM</sup>

(Developed in Collaboration with Indian Institute of Technology, Bombay)

## OPTIMIZING PETCOKE COMBUSTION



**ABHITECH ENERGYCON LIMITED**

## Problems in Combustion of Petcoke

Petcoke is the bottom of the barrel residue from refining heavy oils with varying Sulphur content. High GCV to Cost Ratio attracts industries to use Petcoke over coal.

"Pet coke combustion is relatively more tedious compared to bituminous coal due to lower volatile matter and lower Hydrogen to Carbon Ratio reduces ignitability (combustibility). Higher Sulphur content results in higher SOx formation and related disadvantages. Further, the higher percentage of heavy metals leads to formation of Slag in Power Plants and accretion in Kilns. The delay in burning of Char (heterogeneous combustion) leads to higher percentage of Carbon Monoxide and Unburnt carbon in ash.

## What is THERMACT-PC ?

THERMACT-PC is a fire side Combustion Catalyst developed to aid burning issues associated with Petcoke, aiming at reducing the Specific Fuel Consumption and reducing Emissions parallelly.

## Properties & Packaging of THERMACT-PC

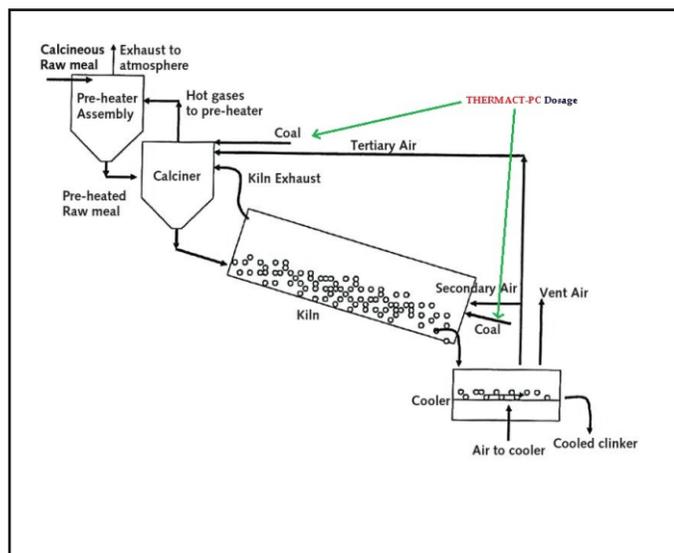
- Solid catalyst with granular particles size between 3-5 mm
- Neutral in nature; Safe for usage and handling by operating personnel
- Activated carbon as carrier for the Organic combustion catalysts



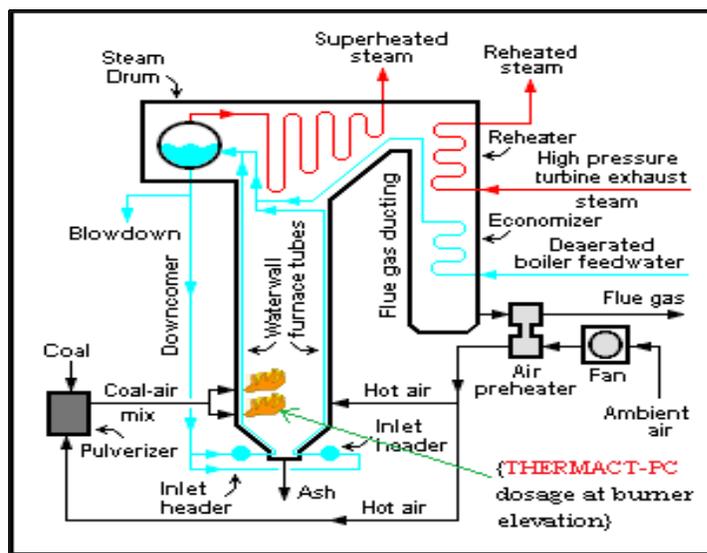
Packing : 20 kg Silsac bag

## Dosing System of THERMACT-PC

- THERMACT-PC dosing is usually done via 1 or 2 positive displacement screw feeders in the fire side zone as depicted in the schematic given below.
- Dosing is done at Both Calciner Side and Kiln side simultaneously, in case of Cement Rotary Kiln.
- In case of Power Plant boilers, dosing is preferably done via one of the inspection windows at the burner elevation.
- The dosing equipment is easy to instal and can be put up without taking any shutdown.



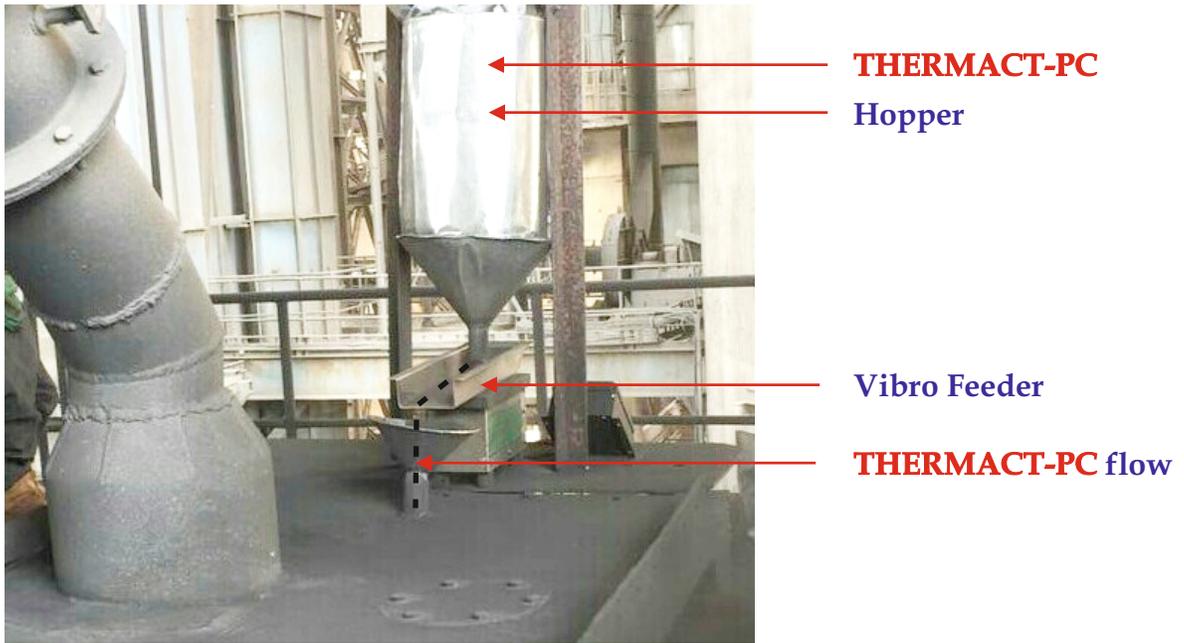
Cement Rotary Kiln



Boiler

# Dosing of THERMACT-PC

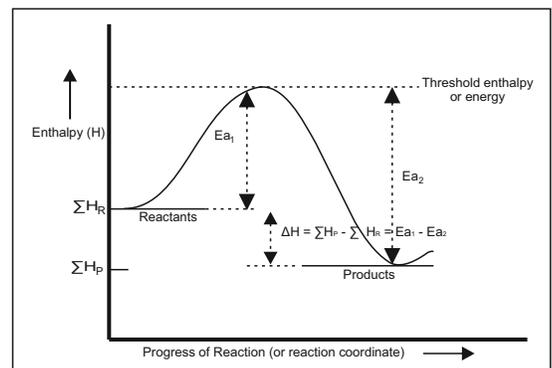
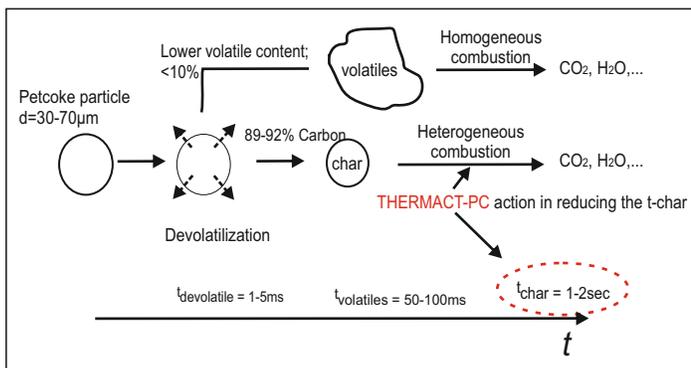
No Shutdown required for Installation of Dosing Mechanism .



Dosage : 1 kg of THERMACT-PC is added to 7-10 tons of Pet Coke

## Working Principle of THERMACT-PC

It enhances the rate of heterogeneous char combustion. This is primarily done by catalyst which reduces the activation energy needed by reactants. With improved rate, the carbon burns faster and results in lesser unburnt carbon in ash. The enhanced affinity between carbon and oxygen also permits plants to operate at lower excess air levels which helps in reduced emissions.



## Benefits of **THERMACT-PC**

- Reduction in SO<sub>x</sub>/NO<sub>x</sub> emissions.
- Reduction in Unburnt carbon in ash (LOI).
- Stable combustion and operations.
- Reduction in Specific Consumption of Coke.
- Reduction in Clinker Formation in Power Plants and retardation of accretion in Kilns.
- No CAPEX or OPEX with simple dosing procedures without stoppage of the plant.
- Application is self funded with positive ROI.

## Technical Services

- Team of Technical Executives with wide experience on various fuels and applications.
- Plant study for establishing base line for specific coal consumption, emission parameters etc.

## Development of Test Protocol

- Execution of trial - performance establishment exercise, wherein the results with THERMACT-PC will be compared with baseline data indicating clear benefits/advantages, as mentioned above.
- Technical services during the trial and regular usage of the product at No additional cost etc.

## Recognition for Green Initiatives



**SO<sub>x</sub> NO<sub>x</sub> Award  
INDIA**



**Green Era Award  
FRANCE**



**Greentech Award  
INDIA**

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