

# **BASIC MONOLITHICS BREAKTHROUGH FOR EOF**

**Calderys plant in Odisha, India  
(CAPES) reduces lead time from  
3 months to 15 days, breaking  
import dependency**

# BACKGROUND SITUATION

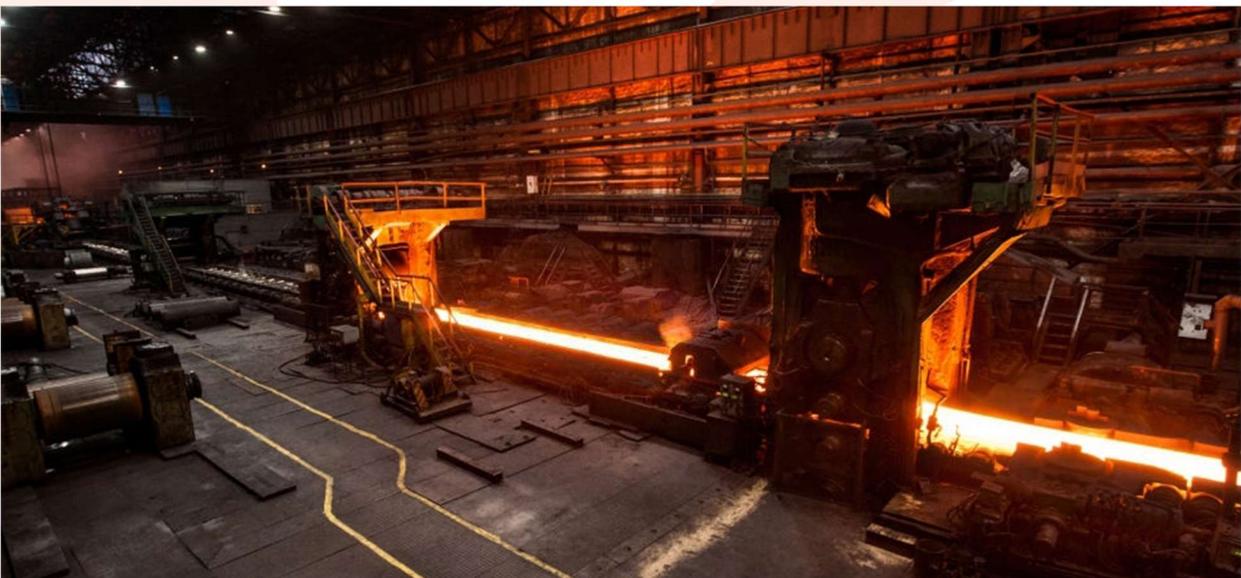
## The market context

A prominent steel producer in southern India faced a critical challenge with their Energy Optimizing Furnace (EOF) operations. The facility had been entirely dependent on imported basic monolithic refractories from a single international supplier, creating operational vulnerabilities and commercial disadvantages.



## The monopoly challenge

The existing supplier, sourcing material from abroad, imposed extended lead times of up to 90 days. This forced the customer to maintain excessive inventory levels, tying up significant working capital and warehouse space. This situation left the steel producer with limited flexibility and high operational risk.



# THE CUSTOMER'S REQUEST

The customer approached Calderys with clear objectives:

- Reduce lead time: Minimize the 3-month supply cycle that disrupted production planning due to delay in shipments
- Lower inventory burden: Eliminate the need for excessive stock holdings
- Establish supply security: Create a reliable alternative to the current supplier
- Maintain performance standards: Match or exceed the existing product quality without compromising the production

The customer valued partnership over price alone—they needed a supplier who could demonstrate commitment to their operational success.



# ANALYSIS OF THE CUSTOMER'S REQUEST

## Calderys' approach

The challenge required more than just product substitution—it demanded a fundamental shift in supply chain strategy and material sourcing.

### Key factors identified:

- Geographic disadvantage: Import dependency created inherent supply vulnerabilities
- Performance requirements: EOF applications demand high-quality basic monolithics with proven corrosion resistance. The critical areas are tuyere and EOF taphole which needs to be repaired in a timely manner.
- Competitive opportunity: Local manufacturing could transform the value proposition

### Initial trials and transparency:

Between June and November 2025, Calderys conducted performance trials using basic monolithics sourced from outside India. These trials did not meet the required performance standards. Calderys provided the customer with comprehensive technical analysis detailing the trial results and root cause evaluation.

This transparent approach established technical credibility with the customer, who approved continuation of the development program. The Calderys team then pivoted to basic monolithics from the newly operational CAPES production line in Odisha, marking a decisive turning point.



The basic monolithics production line at CAPES

# THE SOLUTION DEVELOPED BY CALDERYS

## The local manufacturing advantage

In December 2025, Caldeyrys pivoted to basic monolithics manufactured at CAPES, the Caldeyrys facility in Odisha, India. The basic monolithics production line had commenced operations in September 2025, enabling this strategic shift that leveraged Caldeyrys' investment in world-class local manufacturing capabilities.

## Technical approach

The Innovation and technology team developed optimized basic monolithic formulations utilizing application-specific raw materials to meet the demanding requirements of EOF operations, including thermal shock resistance, slag corrosion resistance, and thermal stability.

**Tuyere No. 2 –Tuyere life: 150 heats – Heat No: 4154 - 4164**

**Bottom life: 516 heats – Soaking time: 20 minutes**

**Gunning quantity: 400kg – Gunning life: 11 heats**



90 % after 1<sup>st</sup> heat residual



85% after 2<sup>nd</sup> heat residual



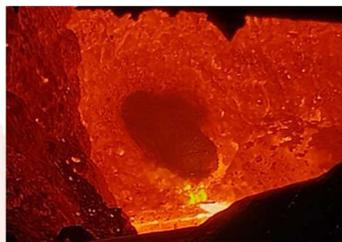
70 % after 3<sup>rd</sup> heat residual



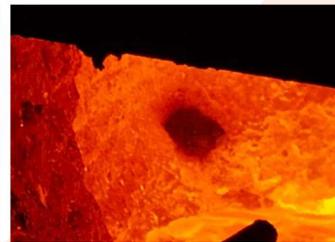
60-65 % after 4<sup>th</sup> heat residual



50% after 5<sup>th</sup> heat residual



30-35 % after 6<sup>th</sup> heat residual



25% after 7<sup>th</sup> heat residual



15 to 20% after 8<sup>th</sup> heat residual



10 % after 9<sup>th</sup> heat residual



5-10% after 10<sup>th</sup> heat residual



Wash out after 11<sup>th</sup> heat

# BENEFITS BROUGHT BY THE SOLUTION

The basic monolithics solution from CAPES delivered comprehensive value across multiple dimensions:

## Operational efficiency

- **83% lead time reduction:** From 90 to 15 days, enabling just-in-time supply strategies
- **Lower inventory costs:** Eliminated the need for excessive safety stock
- **Improved production planning:** Predictable, short lead times enhanced operational flexibility

## Performance assurance

- **Proven EOF performance:** Successful trials validate product quality, especially in critical zones of tuyere–stadium and EOF taphole.
- **Stickability:** Excellent level with maximum 5% rebound loss
- **Durability:** Calderys EOF gunning mass has consistently given life of 10+ heats in most critical tuyere area.
- **Corrosion & erosion resistance:** Excellent ability to resist against the turbulence flow of liquid metal slag
- **Technical support:** Access to Calderys India's local technical team for immediate assistance
- **Continuous improvement:** Partnership approach enabling ongoing optimization

## Commercial advantage

- **Reduced working capital:** Freed capital previously tied up in inventory
- **Competitive supply terms:** Local manufacturing enabled more favorable commercial arrangements
- **Supply chain resilience:** Eliminated single-source dependency and import vulnerabilities

## Strategic partnership

- **Transparency and trust:** Honest communication throughout the development process
- **Customer commitment:** Demonstrated dedication to finding the right solution
- **Long-term relationship:** Customer planning additional orders for Q1 2026

# PRODUCT PRESENTATION: BASIC MONOLITHICS FROM THE CALDERYS PLANT IN ODISHA (CAPES)

Calderys has been developing high-performance basic gunning masses, EAF hearth dry vibratory mass (DVM), and tundish DVM, combining global technical expertise with local manufacturing capabilities at the new Calderys plant in Odisha, India (CAPES). The basic monolithics products portfolio from CAPES encompasses a comprehensive range specifically formulated for demanding steel production applications:

## BASIC GUNNING MASSES

- **Ruhrstahl-Heraeus (R-H) gunning:** For hot repair of degassing unit snorkels
- **Electric Arc Furnace (EAF) gunning:** For hotspots, oxy-fuel jet areas, and slag doors
- **Energy Optimizing Furnace (EOF) gunning:** For tuyere & stadium zones experiencing severe wear
- **Ladle gunning:** For slag and metal zone repair during secondary steelmaking

## DRY VIBRATORY MASSES (DVM)

- **EAF hearth DVM:** Sacrificial layer between liquid hot metal-slag and EAF hearth bricks
- **Tundish DVM:** Working lining for continuous casting tundish

**Click here** to read the full article on basic monolithics from CAPES and explore how the products will extend furnace life, reduce operational costs, and enhance production efficiency for Indian steelmakers.



# CALDERYS' EXPERTISE AND SERVICE

Beyond product supply, Calderys team in India provides comprehensive technical support:

- **Application engineering:** Tailored solutions for specific customer requirements
- **Installation guidance:** Expert support during application
- **Performance monitoring:** Ongoing technical assistance
- **Continuous development:** Partnership approach to product optimization

With deep local market knowledge and global technical resources, Calderys is positioned as a strategic partner for Indian steel producers seeking reliable, high-performance refractory solutions.

For more information about basic monolithics and local manufacturing capabilities, contact Calderys in India or visit [www.calderys.com](http://www.calderys.com)



The Calderys plant in Odisha (CAPES),  
the world's largest single-site greenfield refractories  
and steel casting fluxes plant

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