



FORGED IN FIRE

The Industrial Transformation of Minerals

FROM CHAMOTTE TO FUSED ALUMINA: A JOURNEY THROUGH 1300°C – 2000°C

TEMPERATURE DEFINES THE PROPERTY



1300°C – 1600°C

CHAMOTTE
(Stability)

>1600°C

CALCINED BAUXITE
(Density)

>2000°C

BROWN FUSED ALUMINA
(Hardness)

CHAMOTTE: THE FOUNDATION OF STABILITY



Raw Flint Clay

PROCESS

Derived from natural clay minerals calcined at 1300°C to 1600°C .

TRANSFORMATION

Eliminates organic matter and water to create an inert, stable ceramic.

KEY PROPERTIES

Excellent thermal shock resistance and low thermal conductivity.

CHAMOTTE APPLICATIONS & ORIGIN

PRIMARY USAGE

Used in refractory bricks, castables, and kiln linings for the Steel, Cement, and Glass industries. Critical for insulation and erosion resistance.

ORIGIN

Sourced from the NIPL associated state-of-the-art unit at Bhuj, Gujarat. Producing premium-grade calcined clay products.



CALCINED BAUXITE: THE SHIELD

PROCESS

High-quality ore calcined at over 1600°C in Rotary Kilns.

TRANSFORMATION

Results in high aluminium oxide content and a dense, durable aggregate.

KEY PROPERTIES

High refractoriness, thermal stability, and mechanical strength.



BAUXITE APPLICATIONS & ORIGIN

USAGE

Primary use in refractory bricks and shapes for linings. Essential for resistance to abrasion, corrosion, and thermal shock in high-temperature, harsh conditions.

ORIGIN

Sourced from NIPL associated units at Jamnagar, Wankaner & Porbandar, Gujarat. Producing premium-grade Rotary Kiln Calcined Bauxite.



BROWN FUSED ALUMINA (BFA): THE EDGE

PROCESS

Fusing high-quality bauxite in electric arc furnaces above 2000°C.

TRANSFORMATION

Creates a dense, tough crystalline structure with low iron content.

KEY PROPERTIES

Exceptional hardness, consistent particle size, and thermal conductivity.



BFA APPLICATIONS & ORIGIN

USAGE

A key material for the Abrasives industry (grinding and cutting) due to superior abrasion resistance. Also used in high-performance Refractories for its thermal conductivity.

ORIGIN

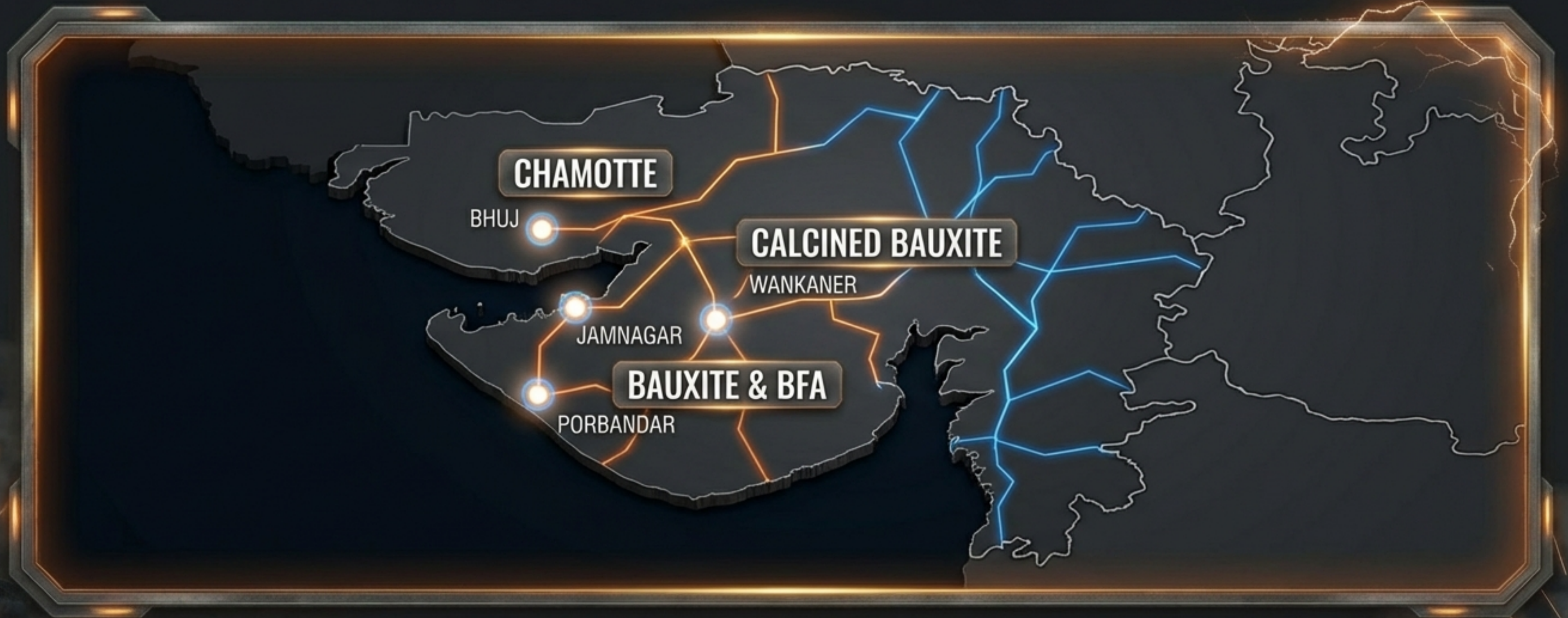
Sourced from NIPL associated units at Jamnagar & Porbandar, Gujarat. Producing premium-grade BFA products.



COMPARATIVE ANALYSIS

MATERIAL	TEMP	KEY CHARACTERISTIC	PRIMARY INDUSTRIES
Chamotte	1300-1600°C	Thermal Shock Resistance	Refractories (Insulation)
Calcined Bauxite	>1600°C	Density & Mechanical Strength	Refractories (Linings)
Brown Fused Alumina	>2000°C	Extreme Hardness	Abrasives & Refractories

THE GUJARAT MANUFACTURING ECOSYSTEM



NIPL associated state-of-the-art units providing a comprehensive range of premium-grade industrial minerals.

ENGINEERED FOR THE EXTREMES

From stable linings to abrasive edges, delivering performance where heat and wear are at their peak.



[Presenter Contact Details]