

Allied offers a comprehensive catalog of carbon and graphite based cements, mortars, ramming materials and grouts. These dependable, industry-leading products are designed to fulfill ancillary needs in blast furnaces, cupolas, and ferroalloy furnaces.

We can fill the void.

Our product collection has expanded to include several staple products for the steel, ferroalloy and iron industries. These are the same refractory cements and pastes that you know and trust, now manufactured and sold under the Allied name.

Product	Information
C34	Two part carbonaceous heat setting cement developed specifically as a mortar for use between carbon or graphite structural shapes.
C38	Two part carbonaceous heat setting cement developed specifically as a bonding agent for use between large carbon or graphite refractory shapes.
C46	Single-component carbonaceous heat setting cement developed specifically as a mortar for use between carbon or graphite structural shapes.
CP9	Carbonaceous hot ramming paste.
EZRAM RP10	Highly thermally conductive graphitic ram, primarily used in sub-hearth, cooling pipe, and annulus between steel work and refractories.
SMART RAM® RP20	Ram with specially treated graphite flake, designed to provide excellent thermal conductivity, ease of installation and a unique expanding characteristic which can "self-correct" in case refractory movement or voids due to improper installation result in loss of cooling contact.
GR37	Two-part carbonaceous grout with expanding flake graphite. It has been used to reestablish contact between carbon refractory and cooling members, as well as stop gas leaks in blast furnace applications.
EZRAM RP3	Single component carbonaceous ram.
EZRAM RP4	Single component, carbonaceous ram for filling in contained areas behind forms or between carbon structural shapes and furnace shells.

Product	Information
HC3F	One component, clean carbon mortar for bonding carbon and graphitic materials, especially block and brick in blast furnace hearths and ferroalloy furnaces. Product is air cured and has good thermal conductivity.
HC4F	One component, grout designed for cold grout applications, specifically filling the gaps between steel shell and carbon bricks in cupolas and blast furnaces.
HC5F	One-component grout for hot applications to fill in the gaps between steel shell and carbon bricks in blast furnaces and cupolas.
HC8F	High conductivity, multi-purpose ramming mix used to repair carbon and graphite bricks in blast furnace hearths or as a patch for cracks in high carbon refractory linings.



Global **Refractory** Solutions

Graphite / Carbon Bricks

The proprietary HotPressed™ method of manufacturing produces carbon and semigraphite refractories with low permeability, high strength, superior resistance to chemical attack and outstanding thermal conductivity. These HotPressed™ refractories have an unsurpassed track record of reliable service in metallurgical processes around the world. The automated manufacturing process ensures very high consistency in the important properties, adding to the products exceptional performance.

NMA™ HotPressed™ Carbon Brick

NMA™ Carbon bricks offer superior refractory lining performance in the most demanding metallurgical processes. Featuring:

- high density
- high cold crushing strength
- easy to handle
- high resistance to chemical attack
- high thermal conductivity
- proven HotPressed™ characteristics
- super low permeability

NMA™ KEY PROPERTIES	Typical Average
Thermal Conductivity (W/mK) (WG)	18
Permeability (millidarcys)(WG)	10
Bulk Density (g/cm³)	1.61
Crushing Strength (kPa) (AG)	35000
Ash (%)	12

NMD™ HotPressed™ Semigraphite Brick

NMD™ Semigraphite bricks offer superior performance in the most demanding blast furnace and submerged arc furnace refractory linings. Featuring:

- high resistance to chemical attack
- high density
- very high thermal conductivity
- very low ash content
- exceptionally low permeability
- proven HotPressed™ characteristics
- easy to handle

NMD™ KEY PROPERTIES	Typical Average
Thermal Conductivity (W/mK) (WG)	70
Permeability (millidarcys) (WG)	5
Bulk Density (g/cm³)	1.82
Crushing Strength (kPa) (AG)	28000
Ash (%)	9

GRAPHITES

AE-XT™ and CBY™ Graphites

Low ash and low iron graphites for blast furnace linings, hearth, stack, cooling course, bosh, and side wall blocks. Features include excellent thermal conductivity, high density, high strength and exceptional machinability.

KEY PROPERTIES	Typical Average
Thermal Conductivity (W/mK) (WG)	145
Permeability (millidarcys) (WG)	130
Bulk Density (g/cm³)	1.66
Crushing Strength (kPa) (AG)	30
Ash (%)	.07

AE-XT30™ and CS™ Graphites

Low ash and low iron graphites for blast furnace linings, hearth stack, bosh, tuyere, tapholes and side wall blocks. Features include excellent thermal conductivity, high density, high strength and exceptional machinability. Through additional processing steps, these graphites have higher density, strength, and thermal conductivity than AE-XT™ and CBY™ Graphites.

KEY PROPERTIES	Typical Average
Thermal Conductivity (W/mK) (WG)	160
Permeability (millidarcys) (WG)	50
Bulk Density (g/cm³)	1.74
Crushing Strength (kPa) (AG)	42
Ash (%)	.09

AE-XT30X™ and CSX™ Graphite

Low ash and low iron graphites for blast furnace linings, hearth, stack, cooling course, bosh, and side wall blocks. Features include excellent thermal conductivity, high density, high strength and exceptional machinability. As a result of additional process steps, AE-XT30X™ and CSX™ Graphites have higher density, strength, and thermal conductivity than AE-XT30™ and CS™ Graphites.

KEY PROPERTIES	Typical Average
Thermal Conductivity (W/mK) (WG)	175
Permeability (millidarcys) (WG)	25
Bulk Density (g/cm³)	1.78
Crushing Strength (kPa) (AG)	55
Ash (%)	.11

This information is based on data believed to be reliable but GT Refractory Solutions, LLC. makes no warranties, express or implied, as to its accuracy and assumes no liability arising out of its use. The data listed falls within the normal range of product properties but should not be used to establish specification limits or used alone as the basis of design. GTRS's liability to purchasers is expressly limited to the terms and conditions of sale. NMA™, HotPressed™ & NMD™ are all trademarks of GT Refractory Solutions, LLC. 2018