

Refractory Solutions for Foundry Industry



Making
Materials
Matter

Super Refractories

CARBORUNDUM UNIVERSAL LIMITED



Ranipet Plant



Serkadu Plant



murugappa

Founded in 1900, Murugappa Group is one of India's leading business conglomerates. The Group has 29 businesses including ten listed Companies traded in NSE & BSE. Headquartered in Chennai, the major Companies of the Group include Carborundum Universal Ltd., CG Power and Industrial Solutions Ltd., Cholamandalam Financial Holdings Ltd., Cholamandalam Investment and Finance Company Ltd., Cholamandalam MS General Insurance Company Ltd., Coromandel International Ltd., Coromandel Engineering Company Ltd., E.I.D. Parry (India) Ltd., Parry Agro Industries Ltd., Shanthi Gears Ltd., Tube Investments of India Ltd. and Wendt (India) Ltd. The Group holds leadership position in several product lines including Abrasives, Technical Ceramics, Electro Minerals, Auto Components & Systems, Bicycles, Fertilisers, Sugar, Tea and Spirulina (Nutraceuticals). The Group has forged strong alliances with leading international companies such as Groupe Chimique Tunisien, Foskor, Mitsui Sumitomo, Morgan Advanced Materials, Yanmar & Co. and Compagnie Des Phosphat De Gafsa (CPG). The Group has a wide geographical presence all over India and spanning 6 continents. Renowned brands like BSA, Hercules, Montra, Mach City, Ballmaster, Ajax, Parry's, Chola, Gromor, Shanthi Gears and Paramfos are from the Murugappa stable. The Group fosters an environment of professionalism and has a workforce of over 53,000 employees.



CUMI was founded in 1954 as a tripartite collaboration between the Murugappa Group, The Carborundum Co., USA and the Universal Grinding Wheel Co. Ltd., U.K. The company pioneered the manufacture of Coated Abrasives and Bonded Abrasives in India in addition to the manufacture of Super Refractories, Electro Minerals, Industrial Ceramics and Ceramic Fibres. Today the company's range of over 20,000 different varieties of abrasives, refractory products and electro-minerals are manufactured in various locations across the globe. With state-of-the art facilities and strategic alliances with global partners, CUMI has achieved a reputation for quality and innovation.

Super Refractories division was started in 1965, pioneering the manufacture of Silicon Carbide, Mullite, High Alumina, Insulation bricks and low cement castables in india. Today, the company's state-of-the-art plants in india and overseas manufacture a wide range of fired, monolithics and precast products for glass, ceramics, carbon black, cement, Petrochemicals, ferrous and non-ferrous industries., with exports to major countries across the globe. Product innovation and value engineering define the division's customer centric focus and total solutions work culture. Besides the capability to manufacture customised complex shapes for critical applications, CUMI's Super refractories division also offers technical expertise and application engineering support that is customised to suit the varied needs of different user industries. In addition to being a leading supplier of specialty refractory in the Indian market, we serve customers in the Middle East, Asia, Europe, North America, Australia, ASEAN and SAARC countries.



Jabalpur Plant

Prefabricated Foundry consumable

Launders

- Tailor-made Transfer Launder for moving Metal from Crucible to Mould Chamber
- Slag Retention
- Transferring Molten Metal Under Vacuum
- Cleaning Metal Through Flootation and Filtering
- Non-Wetting and Inert Launder Material
- Launder lengths up to 4m available
- Specialised Joints ensuring leak free pouring

Tundishes

- Transferring Metal from the Furnace to Moulds
- Cleaning and Filtering Metal
- Custom Designs to Suit Furnace Configuration
- Various high alumina materials for range of alloys

Spouts Crucibles One Shot Liners
Nozzles Splash Blocks

Distribution Boxes

- Single Use Refractories
- Custom made material solutions to suit alloy composition



Application Guidelines for Ferrous Foundry

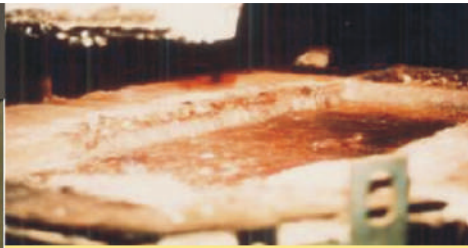
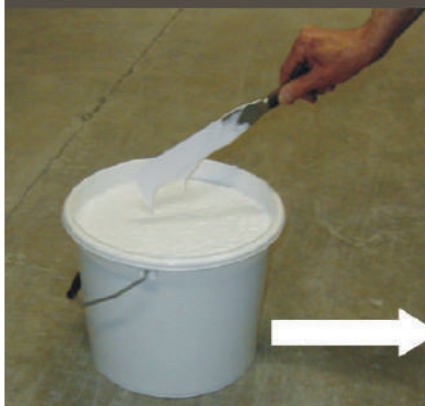
FERROUS FOUNDRY APPLICATIONS	CUMICAST EF 951M	CUMICRETE CA 392	CUMICRETE CA 66	CUMICRETE CK 14	CUMIFRAC R1	CUMIHICAST 90	CUMIHICAST EXTRA	CUMIHICAST SUPER	CUMILAG 29	CUMILAG 32	CUMILITE W	CUMIRAM RA 83	CUMIRAM EL2SRM	CUMIRAM RA20M	CUMIGUN M45SC	CUMICRETE CA392S	CUMILOX 201 HF	CUMILOX M SPL	CUMILITE HF	CUMILOX 92P	CUMILOX 70 B
	Electric Arc Furnace Roof-Delta Section & Launder		■				■	■													
Coreless Induction Furnace Crucible Lining												■									
Coreless Induction Furnace Cover, Spout & Tops		■					■														
Channel Induction Furnace Main Bath/Reservoir			■																		
Channel Induction Furnace - Inductor Lining				■										■							
Channel Induction Furnace - Roof		■		■				■													
Channel Induction Furnace - Backup Insulation Layer									■												
Tundish	■																				
Tundish Baffle Plate																		■			
Collar and Top Plug in Casting																			■		
Crucible for Melting																				■	
Distribution Box																					■
Bottom Pouring Nozzle																					■
Metallurgical Furnaces																					
Hot Face Insulation Brick								■	■	■											
Burner Blocks, Pier Blocks & Supports							■	■	■	■											
Heating Element Carrier Bricks & Shapes											■										
Foundry Casting Chills/Denseners					■																
Cupola Furnace													■			■					
Ladle																■					
Holding Furnace		■															■				



Application Guidelines for Non-Ferrous Foundries

NON-FERROUS FOUNDRY APPLICATIONS	CUMIHICAST EXTRA	CUMIBOND LA 102	CUMICRETE C 9 G	CUMICRETE CA 392	CUMICRETE CA 58	CUMICRETE CA 66	CUMICRETE CA 96	CUMICRETE CV 531	CUMICRETE CIV 101	CUMIHICAST 90	CUMIHICAST SUPER	CUMILITE W	CUMIRAM RA 20M	CUMIRAM RA 83	CUMIREX	FUSED SILICA	FUSED SILICA LC	MIDCAST	PLASCAST	ALCAST EXTRA	ALCAST EXTRA HS	ALBOND	MORBOD AL	MORFLOW 165 AL	MORFLOW 165	HIGUN 170	PLASGUN	MORGUN AL	ALPATCH	ALCOAT
	Aluminium & Aluminium Alloys																													
Reverberatory Furnace Roofs & Doors																														
Reverberatory Furnace Walls																														
Ladles																														
Coreless and Channel Induction Furnace Lining																														
Induction Furnace, Channel or Coreless, Upper Case(POT)																														
Induction Furnace, Channel, Inductor Back up																														
Induction Furnace, Lining, Coreless Coating & Lips																														
Melting & Holding Furnace																														
Melting & Holding Furnace Roof																														
Melting & Holding Furnace Roof Backup																														
Melting & Holding Furnace - Upper Walls																														
Melting & Holding Furnace - Lower Walls																														
Melting & Holding Furnace - Floor																														
Melting & Holding Furnace - Door																														
Melting & Holding Furnace - Door Jamb																														
Melting & Holding Furnace - Maintenance Gunning																														
Melting & Holding Furnace - Maintenance																														
Degassing, Filtration and Head Boxes																														
Lauder																														
Repairing of Al Non Contact Areas																														
Copper & Copper Alloys																														
Melting and Holding Furnace - Main Body & Inductor																														
Furnace Cover																														
Reverberatory Furnace																														

Tri-Mor Alcoat – Refractory Coating



No Coating



Coated with Alcoat

Die casting Holding Furnace after 6 Months operation

- Supplied ready to use
- Completely non-wetted by aluminium
- Suitable for launders, furnace linings, tools etc

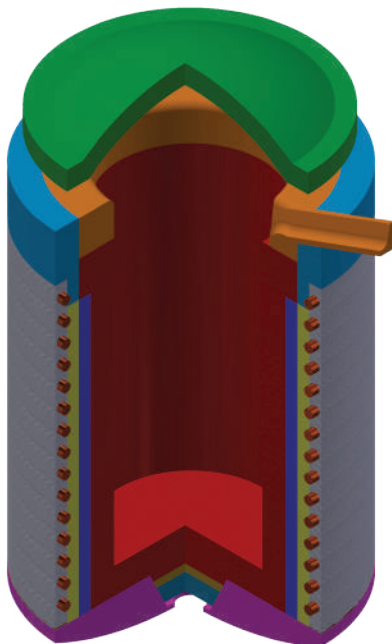


Data Sheet : Dry Ramming Mass

PROPERTIES	UNIT	CUMIRAM DV 70S	CUMIRAM DV 92A	CUMIRAM DV 91A	CUMIRAM DV 91M	CUMIRAM DV 63A	CUMIRAM DV 63AC	CUMIRAM DV 94A	CUMIRAM DV 94 AF
Type of Metal		Alloy Steel & Super Alloys	Steel	Aluminium	Steel & Steel Alloy	Aluminium & Zinc	Copper	Aluminium & Aluminium Alloys	Ferrous Metals & Alloys
Chemical Analysis (Typical)									
MgO		29.0	5.00	0.50	91.0	0.30	0.30	0.05	0.05
SiO ₂		0.30	0.50	3.50	0.30	33.5	33.5	3.00	5.00
Al ₂ O ₃	%	70.5	92.0	91.5	6.50	64.0	64.0	94.5	94.0
Fe ₂ O ₃		0.05	0.30	0.15	0.20	0.85	0.85	0.05	0.05
Physical Properties (Typical)									
Packed Density	gm/cc	2.70	2.96	2.95	2.72	2.55	2.55	2.70	2.88
Rammed Density	gm/cc	2.77	3.02	3.02	2.75	2.60	2.60	2.85	3.05

PROPERTIES	UNIT	CUMIRAM DV 87 A	CUMIRAM DV 87 AM	CUMIRAM DV 87 AL	CUMIRAM DV 87 AM-M	CUMIRAM DV 87 BC	CUMI SPOUT*	CUMI PATCH-P**	CUMI PATCH-NP***
Type of Metal		Steel & Steel Alloys	Steel & Steel Alloys	Steel & Steel Alloys	Nickel - Super Alloys, Fe-Ni Alloys & Special Steels	Copper - Nickel & Copper Alloys		Steel	Steel
Chemical Analysis (Typical)									
MgO		11.6	14	11.76	13.5	10.6	-	11.5	11.5
SiO ₂		0.20	0.18	0.24	0.44	0.50	13.0	-	-
Al ₂ O ₃	%	87.0	84.0	86.0	85.4	85.0	82.0	78.0	78.0
Fe ₂ O ₃		0.11	0.14	0.12	0.12	0.30	1.20	-	-
Physical Analysis (Typical)									
Packed Density	g/cc	2.65	2.73	2.74	2.73	2.95	-	-	-
Rammed Density	g/cc	2.75	2.83	2.84	2.83	3.05	3.04	-	-

* Wet Ramming (Spout/Topping)
 ** Patching Mass : Phosphorous Based
 *** Patching Mass : Non- Phosphorous Based

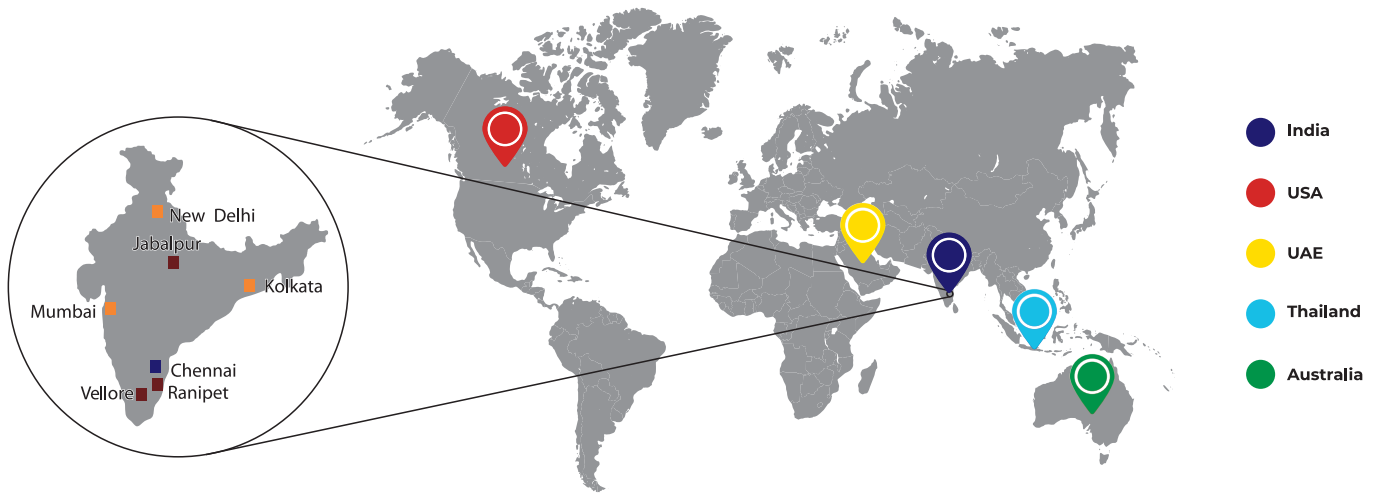


Data Sheet : Ladle Lining

CHARACTERISTICS	UNIT	CUMICRETE CA 392 S	CUMICRETE CA 392 S (0-3 MM)	CUMICRETE CA 392 F	CUMICRETE CA 85 M	
Maximum Service Temperature	°C	1700	1700	1700	1650	
Maximum Grain Size	mm.	6	3	1	6	
Bulk Density Dried at 110°C / 24 Hrs.	gm/cc,min	2.70	2.60	2.50	2.60	
Cold Crushing Strength	Kg/cm ²					
	Dried at 110°C/24 Hrs	min.	550	400	250	500
	Fired at 1000°C/3 Hrs	min.	350	250	150	300
Fired at 1550°C/3 Hrs.	min.	550	450	550 at 1450°C	550 at 1450°C	
Permanent Linear Change	%					
	Fired at 1000°C/3 Hrs	max.	+/- 0.30	+/- 0.30	+/- 0.30	+/- 0.30
	Fired at 1550°C/3 Hrs	max.	+/- 1.00	+/- 1.00	± 1.5 at 1450°C	± 1.5 at 1450°C
Recommended Water Addition	%	8 -10	8-10	10-12	9 -11	
Chemical Analysis	%					
	Al ₂ O ₃	min.	87.0	87.0	87.0	84
	Fe ₂ O ₃	max.	1.5	1.5	1.5	1.8

CUMICRETE CA 392 S is offered in two grain size distribution based on requirement of customers
 CUMICRETE CA 392 F is specially designed for coil coating application for Induction Furnaces





CUMI's Worldwide Network at Your Service

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