



RAM RFN

Technical Data Sheet

Material

RAM RFN is a Silicium Carbide ramming with Graphite for iron alloy, Calcium Silicide and Metal Silicon market

further information visit www.deltaphoenix.it

General informations

Main component:	Silicium Carbide - Graphite
Melting temperature:	n.d.
Highest usage temperature:	2100 °C in reducing atmosphere
Chemical analysis after heating at 150 °C:	Si ₃ N ₄ +TiO ₂ : 6 % SiC+C : 93 % Na ₂ O+K ₂ O : 0,5-1,0 %
Mean grain size	0-5 [mm]
Density after setting:	2860 [kg/m ³]
Density after heating at 1000 °C:	2800 [kg/m ³]
Thermal conductivity:	400 °C : 0,58 [W/(m•K)] 1000 °C : 0,64 [W/(m•K)] 1350 °C : 0,90 [W/(m•K)]
Reversible expansion at 1000 °C:	0,4 %
Expansion (+) or shrinkage (-) after heating at:	200 °C : -0,2 [%] 1000 °C : 0,0 [%] 1500 °C : 0,0 [%]
Compressive strength after heating at:	180 °C : 13,73 [MPa] 1450 °C : 16,67 [MPa]
Application:	by pneumatic ramming
Drying:	see drying path described above

Fields of application

- Coating of pouring ranners of electrical furnaces for iron alloys and Calcim Silicide
- Coating of ladles for refining iron alloys and Metal Silicon



RAM RFN is an official brand of Delta Phoenix srl
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Main technical characteristics

RAM RFN is a Silicon Carbide ramming with Graphite with the following main technical characteristics:

- High thermal resistance, over 2200 °C in reducing atmosphere
- **RAM RFN** substitute Graphite bricks in the pouring holes of electrical furnaces, protecting from infiltrations of slag and liquid metal
- hot retrofitting of pouring holes and casting runners in electrical furnaces for Metal Silicon, Calcium Silicide and ferro-alloy
- Easy cleaning of ladles for Metal Silicon refining

Storage

RAM RFN package: 25 kg lastic bags on pallets of 1000-1500 kg.

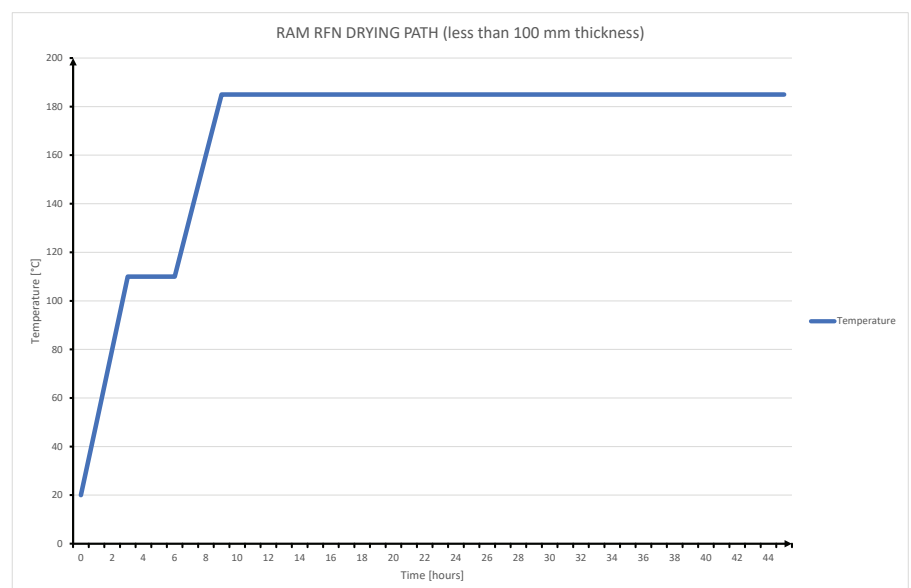
To preserve best conditions, it's necessary to store material in fresh, haired, dry warehouse, lifted from floor and far from walls.

Preservation time referred to temepratures:

- **5-6 months** in its own packaging at **12 °C**
- **3-4 months** in its own packaging at **18 °C**
- **2 months** in its own packaging at **25 °C**

Drying path

Follow the following drying path, keeping attention to temperature and time listed:



- Heat at 30 °C / h, until 110 °C
- Keep the temperature for 3 hours
- Increase the temperature in 3 hours to 180 °C
- Keep the temperature of 180 °C for 36 hours, **for thicknesses greater than 100 mm increase the time of permanence up to 48h.**



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Application

Fields of application

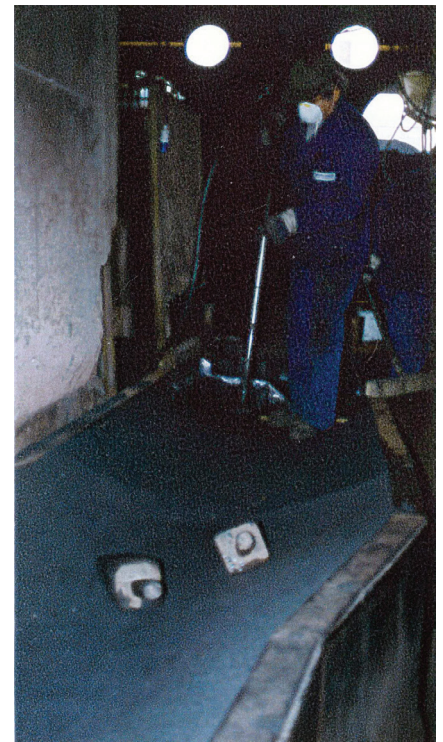
- Protective layer of casting ladles for pig-iron and steel
- Protective layer for casting runners, cupola furnaces, receivers
- Repairing of heaters' cones

Essential tools

1. Pneumatic Pestle with the following characteristics:
 - working pressure: 5.0 – 7.0 atm
 - length: 80 – 120 cm
 - weight: 7 – 9 Kg
 - stroke: approximately 160 mm
 - foot: the shape must be cylindrical (steel or rubber) and dimensions must be 80 mm in diameter and 100mm in height
2. Hammer drill demolition of 10 Kg with double handle and foot 100mm x 60mm and 25mm thickness.
3. Rake or steel drift.



Picture 1: **RAM RFN** beating process



Picture 2: Application of material on casting runners



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Implementation

The formwork must be brush with graphite grease in order to obtain a good separation of the mass:

1. Pouring the material into the shape for a thickness of 4 - 5 cm
2. Beating with pneumatic pestle perpendicularly over the surface to the maximum constipation
3. To compact longer with pneumatic pestle.
4. To scrape the surface with a rake or steel drift.
5. To put again 4-5 cm of material and repeat until the completion

Note: The upper edge of the shape to be exceeded with a height of about 5 mm so as to favor a better compaction of the entire mass, the excess material is then scraped to the correct level.

6. Close completely the top surface with a sheet metal bolted; the upper edge must be fully closed during the drying process in order to keep all the mass in pressure. Of course the piece is dried with its shape



Picture 3: manual casting of material