Seven®
REFRACTORIES

TECHNOLOGY
AHEAD

NON FERROUS FOUNDRY

NON FERROUS FOUNDRY INDUSTRY REQUIREMENTS

Non ferrous foundries represent a wide range of casting applications of several metal alloys.

Not only the type of alloy but also its process and applications vary considerably, and the specific needs in terms of refractories may therefore be also quite different and specific.

In any case, the types of melting and holding furnaces are few. Even though the chemical requirements may be different, the guidelines for the refractory applications are quite clear and straightforward: efficiency and easiness of use.

OUR SOLUTIONS

Seven Refractories is committed to support the demanding needs of non-ferrous foundries and their needs of innovation, always with an eye to environmental care and efficiency.

Seven Refractories has developed a full range of refractories to cover all needs of the non ferrous foundry industry and the different alloy: such as pure copper, bronze, brass, or zinc.

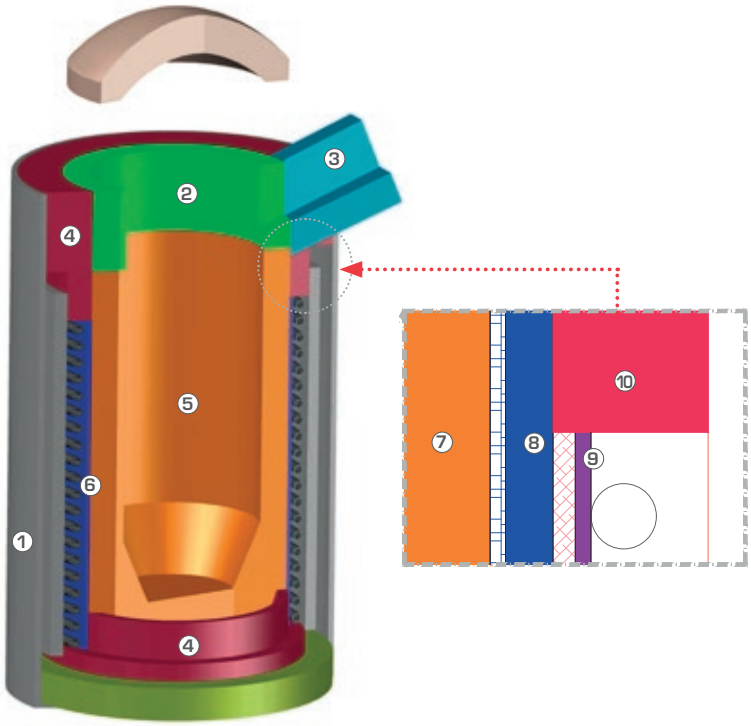
Among the different products for foundry users, no cement chemical bond refractories have to be highlighted as an easy to install and dry-out product range for the most demanding applications. They are monolithics based on a non-hydraulic bonding system which allows for higher permeability to gases and therefore much faster dry-out. No cement refractories should be considered in any refractory application with urgent need of repair and restart of operation or whenever it is difficult to perform a proper dry-out.

The main criteria behind the product range are:

- Efficiency
- Purity of the processed alloy
- Resistance against penetration of low melting metals (typically zinc)
- Friendliness and ease of installation
- Flexibility
- Reduction of pollutants and emissions
- Energy saving

1. Coreless induction furnace (CIF)

The CIF is a very common piece of equipment, flexible and well suited to melt small to medium size batches. Dry refractory mixes are the normal lining for this kind of furnace.



A CIF for brass melting lined with silica dry product

Color	Zones	Material type	Attention to
1	Shell		
2	Top cap	low, ultra low cement castable, patching material	thermal shock, liquid metal corrosion
3	Spout	low, ultra low cement castable	thermal shock, liquid metal corrosion
4	Upper ring and bottom	low, ultra low cement castable	thermal shock, liquid metal corrosion
5	Working lining	dry mix	sintering behavior, liquid metal corrosion
6	Safety lining	low cement, no cement castable	thermal shock, liquid metal corrosion
7	Slip plane	mica foil	
8	Slip plane	mica + fiber foil	
9	Coil grout	trowelling material	sticking and sealing behavior
10	Structural components		

Products brass and bronze	Application areas
Seven Dry 95 K SIL 02 V	working lining
Seven Dry 90 K SIL 01 W	working lining

Products copper	Application areas
Seven Dry 90 K SIL 01 W	working lining
Seven Dry 85 KB 01 V	working lining

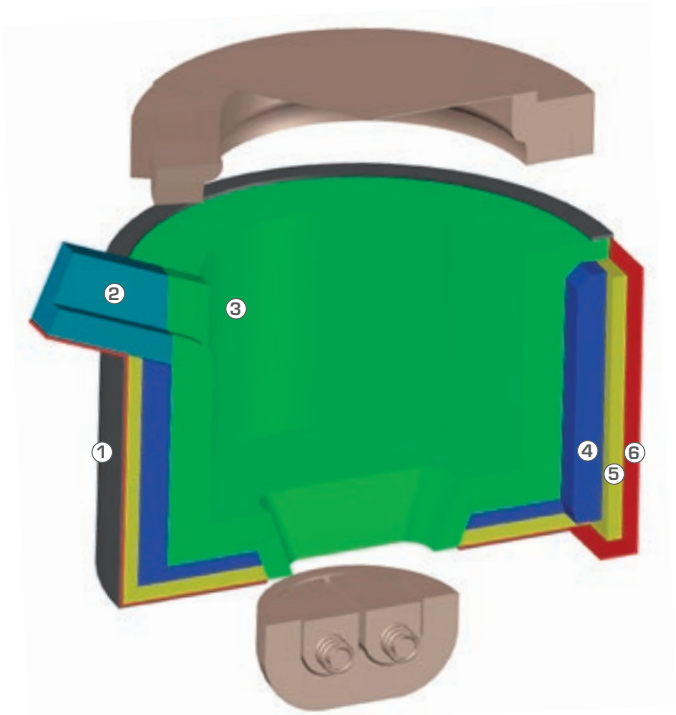
Common products	Application areas
Seven Patch 90 C SIL	working lining repair
Seven Cast 60 UD	upper and bottom ring, spout, pusher
Seven Cast 88 RBX	spout
Seven Cast 59 ND	upper and bottom ring, spout, pusher
Seven Flow 97 NR -3	safety lining
Seven Flow 60 ND 04 W	safety lining
Seven Trow 96 RR -0.02	coil grout

No cement products for repair and fast dry out	Application areas
Seven Cast 90 CR LCS	safety lining
Seven Cast 99 CF LCS	working lining repair
Seven Cast 95 C SIL	working lining repair

2. Channel induction furnace (body)

In the non ferrous foundries this type of furnace is used both for holding or melting.

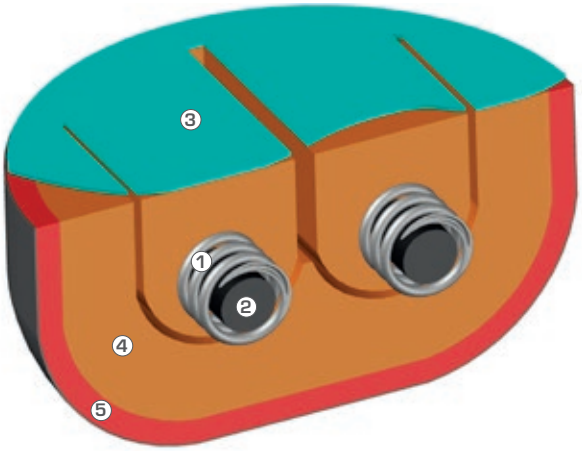
The heat source is the inductor in the bottom that heats up a loop of molten metal, where failures of refractory lining are most likely to occur. The furnace is typically operated 24 hours per day.



Color	Zones	Material type	Attention to
1	Shell		
2	Spout	low, ultra low, no cement castable	resistance against molten metal, strength, thermal shock
3	Pot working lining	low, ultra low, no cement castable	resistance against molten metal, strength
4	Pot safety / insulation lining	gunning mix, firebricks	resistance against molten metal, thermal conductivity
5	Insulation second layer	insulating bricks, MW insulating castable	thermal conductivity, strength
6	Insulation third layer	insulating boards	thermal conductivity

Products	Application areas
Seven Cast 98 UR	pot working lining, spout
Seven Cast 50 ND 15 Y	pot working lining, spout
Seven Cast 60 NX 51 Y	pot working lining, spout
Seven Cast 70 NX 01 X	pot working lining, spout
Fireclay Brick 45	pot safety/insulation lining
Sevenlite 1300	pot safety/insulation lining
Sevenlite 1100	insulation second layer
Sevenlite 1450 LI	pot safety/insulation lining
IFB ASTM 23/26	insulation first and second layer
Micro porous board	insulation third layer
Ceramic fiber board	insulation second/third layer
No cement products for fast dry out	**Application areas**
Seven Cast 50 CD 15 Y LCS	pot working lining, spout
Seven Cast 90 CR LCS	pot working lining, spout

3. Channel inductors



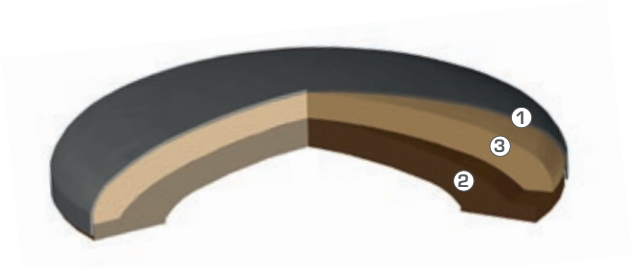
Color	Zones	Material type	Attention to
1	COIL		
2	CORE		
3	Inductor coupling	patching or mouldable mix	resistance against molten metal, patching behavior
4	Inductor working lining	dry mix	sintering behavior, resistance against molten metal
5	Inductor insulation	insulating boards	density, thermal conductivity

Products copper	Application areas
Seven Dry 85 KB 01 V	working lining
Seven Ram 90 K SIL	working lining
Seven Cast A 90 RR	working lining

Products brass and bronze	Application areas
Seven Ram 90 K SIL	working lining
Seven Cast A 90 RR	working lining

Products common	Application areas
Seven Patch 62 C ZIR	inductor coupling
Seven Cem 99 K CRO	inductor coupling, separating mass
Micro porous board	insulation
Ceramic fiber paper	insulation

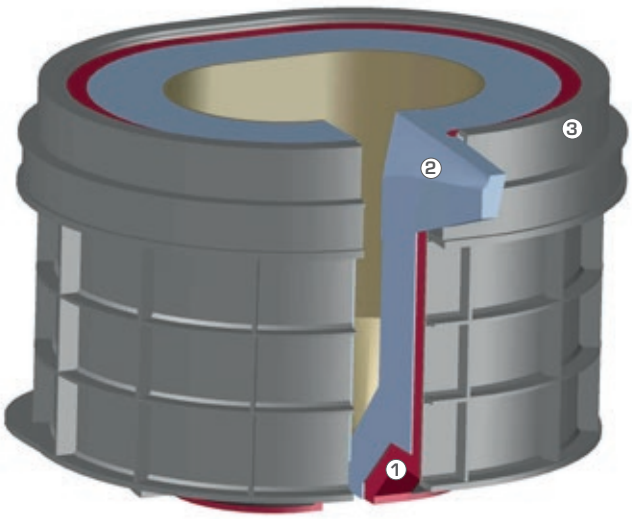
4. Cover



Color	Zones	Material type	Attention to
1	Shell		
2	Working lining	low, ultra low cement or insulating castable	thermal shock, thermal conductivity
3	Insulation	ceramic fiber board	thermal conductivity

Products	Application areas
Seven Cast 59 ND	working lining
Seven Cast 60 UD	working lining
Sevenlite 1300	working lining
Ceramic fiber board	insulation

5. Ladle



Color	Zones	Material type	Attention to
1	Shell		
2	Working lining	low, ultra low, no cement castable, self flowing	resistance to molten metal, strength
3	Insulation	insulating board	thermal conductivity, strength

Products iron	Application areas
Seven Cast 60 UD	working lining
Seven Cast 50 ND 15 Y	working lining
Seven Cast 55 RH 03 V -3	working lining
Seven Flow 50 ND 51 Z	working lining
Seven Trow 92 RR 08 Z -1	repair
Micro porous board	insulation
Ceramic fibre board	insulation

No cement products for fast dry out	
Seven Cast 50 CD 15 Y LCS	working lining
Seven Cast 90 CR 03 V -10 LCS	working lining

SERVICES PROVIDED

- Preliminary study and investigation for the entire project
- Design and architecture including bill of materials and thermal calculation
- Full range of products for lining and maintenance
  - Regular, low, ultra-low and no-cement castable
  - Regular and dense low-cement gunning mix
  - Ramming
  - Shotcreting
  - Self flowing
- Supply of mixers, gunning machines, pumps, etc.
- Training on mixing, gunning and maintenance techniques
- Training on equipment usage
- Supervision and monitoring by experienced technicians
- Global research & development
- Technical advice by experts
- Monitoring and targeting of results

Seven® REFRACTORIES

ISO 9001 ISO 14001

05-2019

SLOVENIA
Seven Refractories d.o.o.
Poslovna cona Risnik 40
6215 Divača
Tel. +386 5 739 57 60

AUSTRIA
Seven Refractories GesmbH
Am Heumarkt 10
1030 Vienna
Tel. +43 1 343 01 64

RUSSIA
Seven Refractories LLC
Liteyny prospekt, 26, liter A,
premise 475, office 522
191028 Saint-Petersburg
Tel. 0078 12 616 13 73(4)
Fax 0078 12 616 13 73(4) 105

UKRAINE
Seven Refractories Ukraine LLC
Glinki str., 7, office 1102
49000 Dnipro
Tel. +38 067 612 6346

ITALY
Seven Refractories Srl
Via Carlo Mussa 832
15073 Castellazzo Bormida
Tel. +39 013 127 8868
Fax +39 013 129 3911

KAZAKHSTAN
Seven Refractories Asia
Karaganda region
Doskey village, Block 028
Building 1655
Tel. +7 721 240 4777

INDIA
CORPORATE OFFICE
Dalmia Seven Refractories Limited.
4, Scindia House, Connaught Place
New Delhi - 110001
Tel +91 11 23457100

PLANT DALMIASEVEN KATNI
Dalmia Seven Refractories Limited.
Plot No 8 & 13
Phase-III, Lamtara Industrial Area
Katni - 483501, Madhya Pradesh
Tel : +91 7622 266259/266306

GERMANY
Seven Refractories Deutschland GmbH
Düsseldorf:
Becherstraße 20
40476 Düsseldorf
Tel. +49 211 544 770 25
Fax +49 211 544 793 50

Neuwied:
Dierdorfer Straße 411
56566 Neuwied
Tel. +49 2631 511 98 98

info@sevenrefractories.com • www.sevenrefractories.com

Follow us on