

REFRACOL

HIGH PERFORMANCE REFRACTORIES FOR STEEL INDUSTRY





For over 70 years, the company REFRACOL Dupont et Cie has been giving industrialists the support they need and taking up all the challenges laid down. The **performances** of its unshaped refractory products and its sense of **service** have brought the Company REFRACOL Dupont et Cie **international renown**. REFRACOL is still today engaged in helping bring about technical **improvements** which will be **tomorrow's industrial successes**.



**Ramming Mixes**



Dry or wet ramming mixes, high magnesia or high alumina ramming mixes with ceramic or chemical setting.

**References:**  
**REFRACOL** 33A4, 37A4, 38A4 | **CALOREF** 94, TSF, 49G  
**PR** 288, PR 290 | **REFRAM** 487, 492, 545H | **MIXOMAG** 55, 192, 291...

**Our Products**

**Castable Mixes**



Dense or insulating castables mixes. Normal, low or ultra low cement castable mixes. Vibrating, gunning or self flowing castable mixes.

**References:**  
**BETON** 88, 96 A, 770, 9400 SLCF | **REFRACOL CAST** 550/3P, 552  
**THIXOMAG** 90, 494 EF, 472 AEF | **RETAG** 261, 391  
**REFRAVIBRE** 465 RTC, 483 RTC, 99 DF | **CASTALONE** S712, C496...

**Cements**



Air setting, hot setting, heat setting cements, mastics, glues, coating, mortars, patches and acid-resistant cements.

**References:**  
**REFRACOL** 3, REFRACOL 2, REFRACOL 6, REFRACOL 6A72,  
 REFRACOL 7, REFRACOL 14, REFRACOL 12A, REFRACOL 20,  
 REFRACOL 27, REFRACOL 26 ASG/DP, REFRACOL 29 DK,  
 REFRACOL 620 A...

**Precast Shapes**



Precast pieces dried up to 450 °C. Small or medium serial productions, 10 kg to 20 tonnes weight unit. Precast pieces designed from specifications and from drawing of the customers. Refractory pieces manufactured from our high performance castable mixes selected to withstand according to demand thermal shock, high temperatures, chemical attack and/or abrasion. Our **FibroCeram**® quality is requested in case of application with mechanical shocks and high temperature.

**Applications:**  
 Well block, heart of roof, monolithic cover, crucible, weir, burner block, sleeve, poring hole, poring spout, launder, runner, impact tile, tundish, basket, foundry ladle...

**Our Lab**

**Products formulated from following raw materials:**

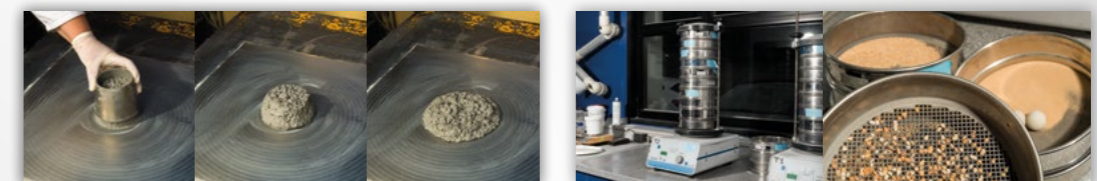
Silica, fireclay, kerphalit, andalusit, chrome sand, mullit, forsterit, magnesia, bauxit, fused alumina, tabular alumina, spinel, silicon carbide, zircon and graphite.

**And composed of the following chemical components:**

Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, MgO, ZrO<sub>2</sub>, SiC, C



REFRACOL is constantly listening to its customers and their most demanding requirements. Every day, our research laboratory develops new formulas to meet the specific refractory needs of each customer. Quality controls are carried out daily to ensure that the products we deliver meet your expectations.



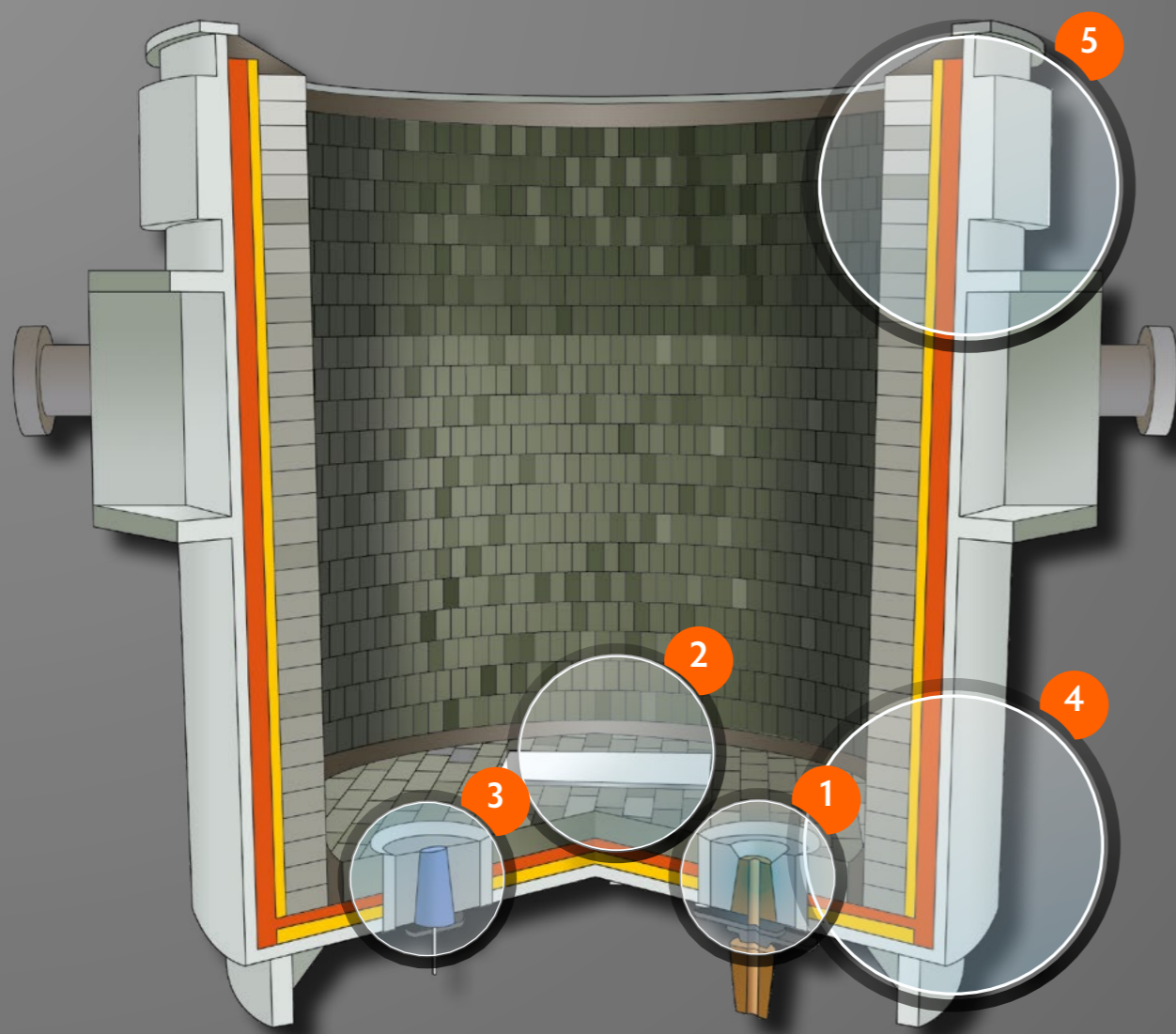


## Our Unshaped Product List

| Product Name  | Main components             | Max. Grain Size | %  | Tool / use   |
|---|-----------------------------|-----------------|--|--|
| <b>Pasty ready to use mixes for sealing porous plug and collector/inner nozzle</b>                |                             |                 |  |  |
| REFRACOL 26 ASG/DP  | Bauxite + graphite          | 0.5 mm          | 74 % Al <sub>2</sub> O <sub>3</sub> / 6 % C                                | Steel ladle / bauxite well block                             |
| REFRACOL 29 DK  | Tabular alumina + graphite  | 0.3 mm          | 82 % Al <sub>2</sub> O <sub>3</sub> / 5 % C                                | Steel ladle / high alumina well block                        |
| REFRACOL 29 B   | Tabular alumina             | 0.3 mm          | 93 % Al <sub>2</sub> O <sub>3</sub>  | Steel ladle / alumina spinel well block                      |
| REFRACOLS 478 G2  | Alumina + spinel + graphite | 1 mm            | 79 % Al <sub>2</sub> O <sub>3</sub> / 14 % MgO                             | Steel ladle / alumina spinel well block                      |
| <b>Pasty ready to use mixes for jointing slide gate system and for sealing calibrated nozzles</b> |                             |                 |  |  |
| REFRACOL 6 CC   | Bauxite                     | 0.5 mm          | 74 % Al <sub>2</sub> O <sub>3</sub>  | Tundish / submerged nozzle                                   |
| REFRACOL 620 P9   | Tabular alumina             | 0.3 mm          | 88 % Al <sub>2</sub> O <sub>3</sub>  | Tundish / nozzle   |
| REFRACOL 620 A P9   | Tabular alumina + chromoxyd | 0.3 mm          | 86 % Al <sub>2</sub> O <sub>3</sub> / 2 % Cr <sub>2</sub> O <sub>3</sub>   | Tundish / nozzle   |
| REFRACOL 620 P6   | Tabular alumina             | 0.3 mm          | 88 % Al <sub>2</sub> O <sub>3</sub>  | Steel ladle / slide gate joint                               |
| REFRACOL 620 A P6   | Tabular alumina + chromoxyd | 0.3 mm          | 86 % Al <sub>2</sub> O <sub>3</sub> / 2 % Cr <sub>2</sub> O <sub>3</sub>   | Steel ladle / slide gate joint                               |
| REFRACOL 286 AC PL14  | Tabular alumina + spinel    | 0.3 mm          | 84 % Al <sub>2</sub> O <sub>3</sub> / 3.4 % Cr <sub>2</sub> O <sub>3</sub> | Steel ladle / slide gate joint                               |
| <b>Pasty ready to use cements for jointing bricks</b>   |                             |                 |  |  |
| REFRACOL ATAC 30  | Silicate                    | 0.04 mm         | 64 % SiO <sub>2</sub>  | To stick insulation material                                 |
| REFRACOL 12 A   | Silico-aluminate            | 0.5 mm          | 77 % SiO <sub>2</sub>  | To stick insulation material and to joint light bricks       |
| REFRACOL 3  | Silica quartz               | 0.3 mm          | 86 % SiO <sub>2</sub>  | For safety lining / low alumina bricks                       |
| REFRACOL 8 A  | Andalusite                  | 0.2 mm          | 47 % Al <sub>2</sub> O <sub>3</sub>  | For safety lining / alumina bricks                           |
| REFRACOL BLACK 46   | Andalusite - bauxite        | 0.3 mm          | 46 % Al <sub>2</sub> O <sub>3</sub>  | For jointing light and dense bricks                          |
| REFRACOL 6  | Bauxite                     | 0.5 mm          | 62 % Al <sub>2</sub> O <sub>3</sub>  | For safety lining / alumina bricks                           |
| REFRACOL 6 A72  | Bauxite                     | 0.5 mm          | 72 % Al <sub>2</sub> O <sub>3</sub>  | Ladles / for working lining                                  |
| REFRACOL 7  | Chromite                    | 0.6 mm          | 28 % Cr <sub>2</sub> O <sub>3</sub> / 6 % MgO                              | Steel ladle - BOF / for jointing MgO bricks of safety lining |
| REFRACOL 27   | Chromite                    | 0.5 mm          | 37 % Cr <sub>2</sub> O <sub>3</sub> / 7 % MgO                              | RHOB / for jointing working lining - MgO-Cr bricks           |
| REFRACOL 977 WPT  | Alumina                     | 0.8 mm          | 77 % Al <sub>2</sub> O <sub>3</sub>  | Torpedo ladle / for working lining bricks                    |
| REFRACOL 6 T  | Tabular alumina             | 0.5 mm          | 81 % Al <sub>2</sub> O <sub>3</sub>  | Ladles / for working lining                                  |
| <b>Repair patches and protective coating</b>  |                             |                 |  |  |
| PR 110  | Silico- aluminate           | 4 mm            | 30 % Al <sub>2</sub> O <sub>3</sub>  | Cold repair of permanent lining                              |
| PR 116 CA   | Bauxite                     | 6 mm            | 59 % Al <sub>2</sub> O <sub>3</sub>  | Cold repair of permanent lining                              |
| REFRACOL MI4  | Tabular alumina             | 0.3 mm          | 90 % Al <sub>2</sub> O <sub>3</sub>  | Steel ladle / to hot repair inside of well block             |
| REFRACOL 306 T1   | Tabular alumina             | 1 mm            | 82 % Al <sub>2</sub> O <sub>3</sub>  | Ladles & tundish / to repair cracks in permanent lining      |
| REFRACOL 692-1 H  | Tabular alumina             | 1 mm            | 92 % Al <sub>2</sub> O <sub>3</sub>  | Ladle EAF / to repair spout and pouring chennal              |
| REFRACOL 727 SB   | Chromite                    | 0.5 mm          | 46 % Cr <sub>2</sub> O <sub>3</sub> / 9 % MgO                              | Steel ladle - RHOB vessel / compressive joint                |
| REFRACOL ATAC 3050  | Silco-aluminate             | 0.05 mm         | 50 % Al <sub>2</sub> O <sub>3</sub>  | Steel ladle / coating anti-decarburization of MgO-bricks     |
| REFRACOL PULV4  | Kaolinite                   | 0.05 mm         | 38 % Al <sub>2</sub> O <sub>3</sub>  | Induction furnace / coating anti scraps sticking             |
| REFRACOL 620 V  | Tabular alumina             | 0.3 mm          | 88 % Al <sub>2</sub> O <sub>3</sub>  | Isostatic parts / anti-sticking coating                      |

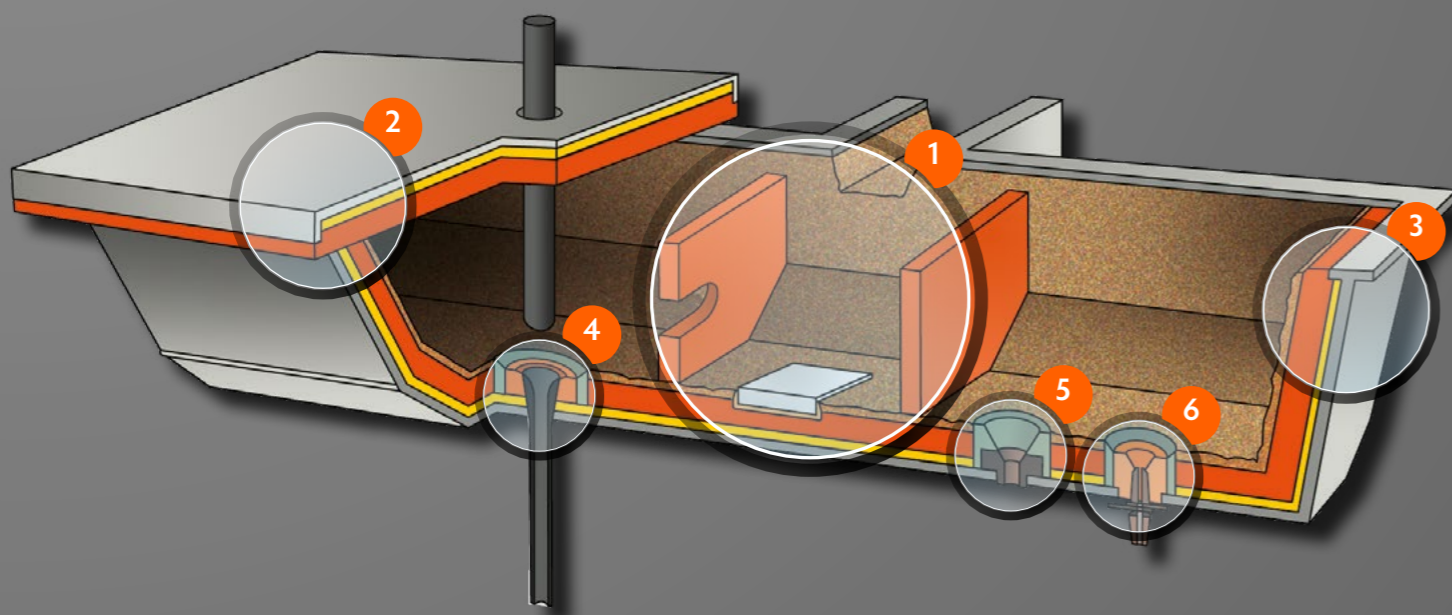
## Our Unshaped Product List

| Product Name  | Main components            | Max. Grain Size | %  | Tool / use   |
|---|----------------------------|-----------------|--|--|
| <b>Ramming mixes for blocking precasts and bricks lining</b>                        |                            |                 |  |  |
| REFRACOL 33 A4  | Silica quartz              | 0.3 mm          | 86 % SiO <sub>2</sub>                          | Tundish /for blocking well block   |
| REFRACOL 38 A4  | Kerphalite                 | 2 mm            | 48 % Al <sub>2</sub> O <sub>3</sub>            | Tundish /for blocking nozzle and well block                              |
| REFRACOL 37 A4  | Chromite                   | 1 mm            | 30 % Cr <sub>2</sub> O <sub>3</sub> / 26 % MgO | Tundish /for blocking nozzle and well block                              |
| PR 280  | Bauxite                    | 6 mm            | 82 % Al <sub>2</sub> O <sub>3</sub>            | Steel ladle / bottom and well block                                      |
| PR 288  | Tabular alumina - bauxite  | 6 mm            | 86 % Al <sub>2</sub> O <sub>3</sub>            | Steel ladle / bottom and well block                                      |
| PR 290  | Tabular alumina            | 7 mm            | 92 % Al <sub>2</sub> O <sub>3</sub>            | Steel ladle / bottom, well block and impact                              |
| REFRAM 545 H  | Kerphalite                 | 5 mm            | 45 % Al <sub>2</sub> O <sub>3</sub>            | Tundish / casting box and impact plate                                   |
| MIXOMAG 55  | Chromite                   | 6 mm            | 15 % Cr <sub>2</sub> O <sub>3</sub> / 61 % MgO | RHOB / bottom of lower vessel  |
| MIXOMAG 192   | Magnesia                   | 5 mm            | 92 % MgO                                       | Tundish / CNC - EAF / EBT hot repair                                     |
| MIXOMAG 785 H   | Magnesia                   | 6 mm            | 88 % MgO                                       | Tundish / dry mix for CNC taphole & for blocking SEN                     |
| <b>Backfilling mixes and blocking mixes</b>   |                            |                 |  |  |
| CALOREF 49 G  | Graphite - silica          | 1 mm            | 49 % C / 34 % SiO <sub>2</sub>                 | Steel ladle / backfill anti-decarburization of MgO-bricks in slag zone   |
| CALOREF 94  | Silica                     | 1 mm            | 94 % SiO <sub>2</sub>                          | Steel ladle / backfill in below side wall                                |
| CALOREF 88 G12  | Silica - graphite          | 0.3 mm          | 83 % SiO <sub>2</sub> / 12 % C                 | Steel ladle / backfill in slag zone                                      |
| REFRAM 545 H  | Kerphalite                 | 5 mm            | 45 % Al <sub>2</sub> O <sub>3</sub>            | Tundish / backfill for pouring precasts                                  |
| MIXOMAG 785 H   | Magnesia                   | 6 mm            | 88 % MgO                                       | EAF / backfilling EBT parts  |
| <b>Bi-component mixes for fast repair - without drying - without water addition</b> |                            |                 |  |  |
| REFRAVIBRE H 871  | Mullite                    | 5 mm            | 71 % Al <sub>2</sub> O <sub>3</sub>            | Repair permanent lining, cover lining or burner block                    |
| REFRAVIBRE H 882  | Bauxite                    | 6.3 mm          | 82 % Al <sub>2</sub> O <sub>3</sub>            | Repair of working lining by casting                                      |
| REFRAVIBRE H 882T   | Bauxite                    | 6.3 mm          | 82 % Al <sub>2</sub> O <sub>3</sub>            | Repair of working lining by trowelling                                   |
| REFRAVIBRE H 880K   | Tabular alumina + SiC      | 5 mm            | 81 % Al <sub>2</sub> O <sub>3</sub> / 10 % SiC | Repair of spout and runner by casting                                    |
| REFRAVIBRE H 800 KT   | Tabular alumina + SiC      | 5 mm            | 81 % Al <sub>2</sub> O <sub>3</sub> / 10 % SiC | Repair of spout and runner by trowelling                                 |
| REFRAVIBRE H 894  | Tabular alumina            | 6 mm            | 94 % Al <sub>2</sub> O <sub>3</sub>            | Repair of working lining by casting                                      |
| <b>Casting, self-flowing and gunning mixes</b>                                      |                            |                 |  |  |
| BETON 886 P   | Kerphalite - bauxite       | 5 mm            | 65 % Al <sub>2</sub> O <sub>3</sub>            | Torpedo ladle / gunning - trowelling permanent lining                    |
| BETON 86 B/P  | Bauxite                    | 6 mm            | 81 % Al <sub>2</sub> O <sub>3</sub>            | Working linings / to repair by gunning or by trowelling                  |
| BETON 770   | Chamotte                   | 10 mm           | 55 % Al <sub>2</sub> O <sub>3</sub>            | Cover / insulating covers - 1,500 °C in service                          |
| BETON 955 D   | Bauxite                    | 6 mm            | 81 % Al <sub>2</sub> O <sub>3</sub>            | Ladle / for blocking top ladle with fast restart in service              |
| BETON 9400 SLCCF  | Tabular alumina            | 6.7 mm          | 96 % Al <sub>2</sub> O <sub>3</sub>            | Steel ladle / for blocking well block - EAF / for blocking heart of roof |
| BETON 9405  | Tabular alumina            | 6.7 mm          | 95 % Al <sub>2</sub> O <sub>3</sub>            | RHOB / for blocking safety bottom in RHOB lower vessel                   |
| REFRAVIBRE 461 RTC  | Bauxite - chamotte         | 6 mm            | 61 % Al <sub>2</sub> O <sub>3</sub>            | Steel ladle and tundish / permanent lining                               |
| REFRAVIBRE 465 RGE  | Andalusite - bauxite       | 6 mm            | 65 % Al <sub>2</sub> O <sub>3</sub>            | Covers / working lining of incurved cover                                |
| REFRAVIBRE 465 RTC  | Andalusite - bauxite       | 6 mm            | 65 % Al <sub>2</sub> O <sub>3</sub>            | Steel ladle and tundish / permanent lining                               |
| REFRAVIBRE BX 388 F   | Bauxite                    | 10 mm           | 83 % Al <sub>2</sub> O <sub>3</sub>            | Ladles / for blocking top ladle  |
| CASTALONE S712 F  | Alumina- spinel            | 6 mm            | 93 % Al <sub>2</sub> O <sub>3</sub> / 2 % MgO  | EAF / hot repair EBT taphole   |
| CASTALONE C496  | Tabular alumina            | 3 mm            | 96 % Al <sub>2</sub> O <sub>3</sub>            | EAF / self-flowing mix for blocking heart of roof                        |
| THIXOMAG 472 AEF  | Fused magnesia - chromoxyd | 6 mm            | 72 % MgO / 11 % Cr <sub>2</sub> O <sub>3</sub> | RHOB / to repair working lining of lower vessel                          |

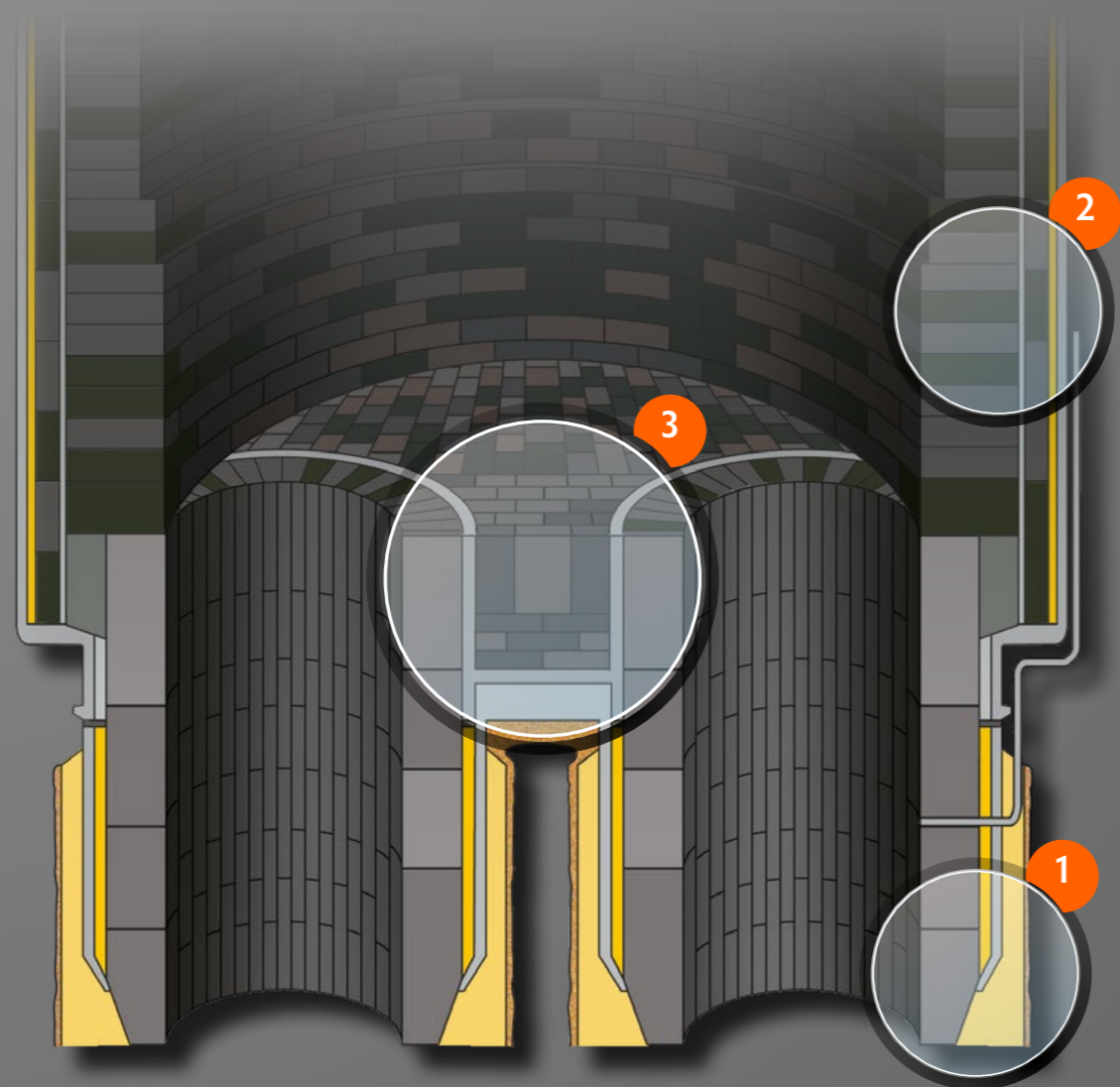


| Area  | Application  | Products                          |
|---|--|-----------------------------------|
| <b>1 Pouring area</b>                                   | Mortar for sealing Intern nozzle                       | Refracol 29 DK, 29 SDG1, S 478 G2 |
|   | Mastic cement for hot repair Intern nozzle             | Refracol MI 4                     |
|   | Mortars for slide gate assembly                        | Refracol 620, 620 A, 286 AC       |
|   | Well block in tabular alumina precast mix              | Refravibre 99 D                   |
|   | Well block in precast Spinel-alumina mix               | Refravibre S390                   |
|   | Tabular alumina castable mix around well block         | Beton 9400, 940 SLC FF            |
|   | Spinel - alumina self flowing mix around well block    | Castalone S 712 F                 |
| <b>2 Impact area</b>                                    | Spinel-alumina precast impact tile                     | In Refravibre SM 692              |
|   | Self flowing castable mix for blocking impact tile     | Castalone S712 F                  |
|   | Dry high MgO mix for hot repair                        | Mixomag 785 H                     |
|   | High alumina jointing mortars for HA and AMC bricks    | Refracol 6, 6 A72, 6T             |
| <b>3 Purging area</b>                                   | Well block in high alumina /spinel-alumina precast mix | In Refravibre 99 D / S390         |
|   | High alumina castable mixes for blocking well block    | Beton 9400, 96 A                  |
|   | HA hot setting ramming mix for blocking well block     | Refram 492                        |
|   | HA heat setting mortars for sealing porous plug        | Refracol 29 B, 26 ASG DP          |
|   | HA hot setting mortars for sealing porous plug         | Refracol 620, 620 A               |
| <b>4 Sidewall lining</b>                                | Dry high MgO mix for hot repair                        | Mixomag 785 H                     |
|   | HA castable mixes for blocking bottom of wall lining   | Beton 955 D, Refravibre 483 RTC   |
|   | LC 65 % Castable mix for permanent lining              | Refravibre 465 RTC                |
|   | Spinel - alumina castable mix for blocking bottom      | Castalone S 712 F                 |
|   | HA ramming mixes for blocking bottom of wall lining    | PR 287, PR 288, PR 290            |
|   | Backfilling mixes between working/safety lining        | Caloref 94, Caloref 88 G12        |
|   | 85% MgO Backfilling mix between working/safety         | Calomag 85                        |
|   | High alumina jointing mortars for working lining       | Refracol 6 A72, 6T                |
|   | Alumina air setting mortars for jointing safety bricks | Refracol 6, 8A, 6 A72             |
|   | Air setting cement for jointing insulating bricks      | Refracol 12 A                     |
|   | Plastic mortar for repairing safety lining             | PR 116 CA                         |
| Bi-component trowelling mix for repair permanent lining | Refravibre H 882 T                                     |                                   |
| Cements for filling cracks in permanent lining          | Refracol 6, 306 T1                                     |                                   |
| <b>5 Slag area</b>                                      | Castable mixes for blocking the top of working lining  | Beton 955 D, Refravibre 483 RTC   |
|   | Top ladle blocks in metal- ceramic hybrid material     | In FibroCeram                     |
|   | Powder mix for Filling back working lining             | Caloref 88 G12                    |
|   | Chromite air setting mortar for jointing safety bricks | Refracol 7                        |

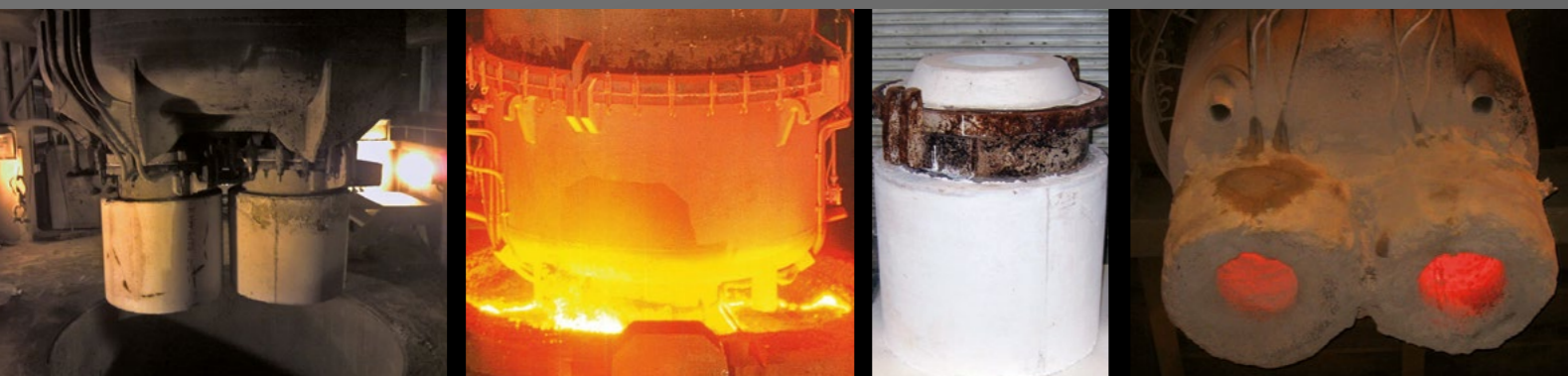




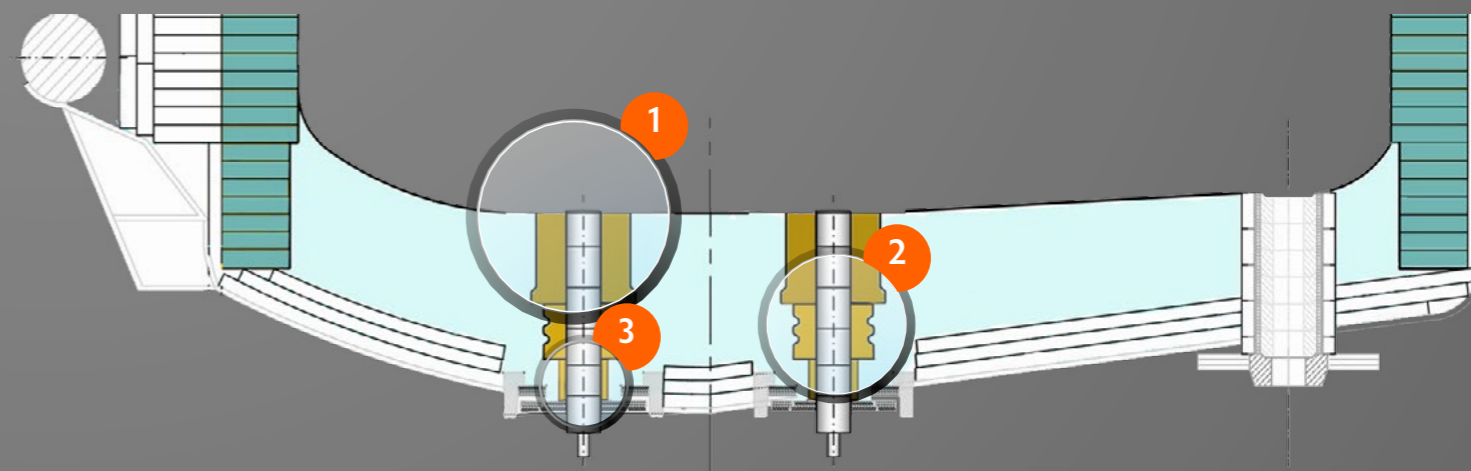
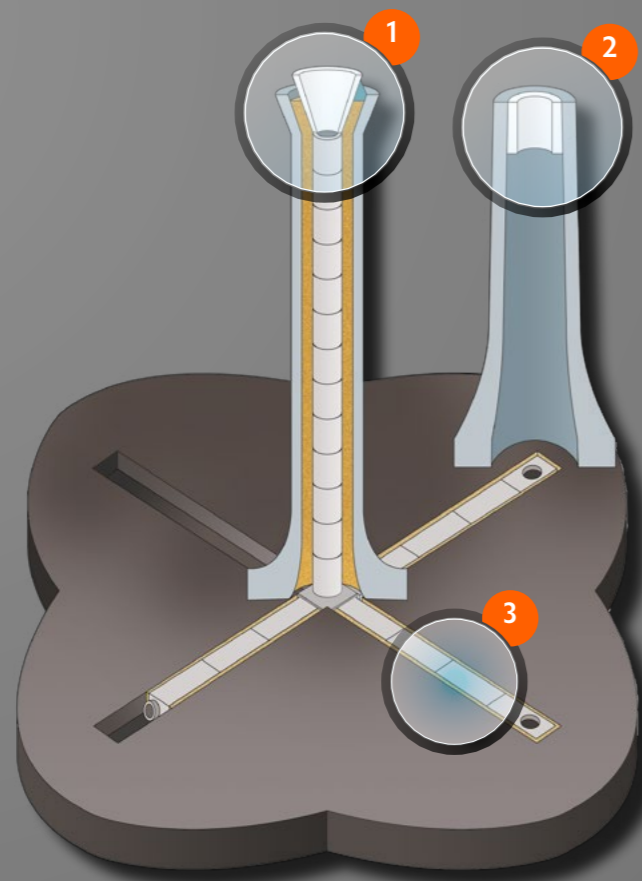
| Area                         | Application   | Products                 |
|------------------------------|---|--------------------------|
| <b>1 Impact area</b>         | One shot impact plate in precast mix                    | In Refravibre 445 RTC    |
|                              | Long life impact plate in high alumina precast mixes    | In Refravibre 870, S220  |
|                              | Precast skimmers in precast mix                         | In Refravibre 445 RTC    |
|                              | Castable mixes for sealing impact plate                 | Beton 86 B/P, 96 A       |
|                              | Plastic mortar for sealing impact plate                 | PR 110 CA, 116 CA        |
|                              | Cement for sticking impact plate and skimmer            | Refracol 6, 6 CC         |
|                              | Bi-component castable mix for impact repair             | Refravibre H882          |
| <b>2 Tundish cover</b>       | Castable mixes for working lining                       | Refravibre 465 RTC       |
|                              | Half insulating castable mix for wear lining            | Beton 770                |
|                              | Cement for sticking insulating lining                   | Refracol 12 A            |
|                              | Precast cover without metal shell                       | In FibroCeram RXO        |
| <b>3 Sidewall and bottom</b> | Castable mixes for permanent lining                     | Refravibre 465 RTC       |
|                              | Repairing plastic mortar                                | PR 110 CA, PR 116 CA     |
|                              | Cements for filling cracks in permanent lining          | Refracol 6, 6 CC         |
|                              | Cement for sticking insulating lining                   | Refracol 12 A            |
|                              | Bi-component repairing mix                              | Refravibre H882, H882T   |
|                              | Blocking mix for precast cuve                           | Caloref TSF, Refram 545H |
| <b>4 Submerged nozzle</b>    | Air setting mortar for sealing nozzle in the well block | Refracol 6 CC, 29B       |
|                              | Hot setting mortar for sealing nozzle                   | Refracol 620, 620 A      |
|                              | Mastic for protecting down part of nozzle               | Refracol 25 Bis          |
|                              | Ramming mix for sealing well block                      | Refracol 33 A4, 37 A4    |
|                              | Precast well block                                      | In Refravibre 445 RTC    |
|                              | Glue for stick insulation parts around nozzle           | Refracol 12 A            |
| <b>5 Calibred nozzle</b>     | Ramming mix around calibrated nozzle                    | Refracol 38 A4, 37 A4    |
|                              | Air setting cement under calibrated nozzle              | Refracol 3, 13           |
|                              | Ramming mix for form ther poring cone                   | Mixomag 785 H, 192       |
| <b>6 Slide gate system</b>   | Air setting mortar for sealing nozzle in the well block | Refracol 6 CC            |
|                              | Hot setting mortar for sealing nozzle                   | Refracol 620, 620 A      |
|                              | Precast well block                                      | In Refravibre 445 RTC    |
|                              | Ramming mix around well block                           | Refracol 33 A4, 37 A4    |
|                              | Ramming mix for sealing nozzle without well block       | Refracol 38 A4, 37 A4    |



| Area                               | Application  | Products            |
|------------------------------------|--|---------------------|
| <b>1 Snorkel</b>                   | ULC tabular alumina castable mix for snorkel lining      | Refravibre 99 D     |
|                                    | Self flowing version of ULC tabular alumina castable mix | Castalone 99        |
|                                    | 10 mm grading tabular alumina castable mix               | Beton 9400/10       |
|                                    | 3 mm grading self flowing mix in backside of bricks      | Beton 9904/3        |
|                                    | Heat setting mortar for MgO-Cr bricks                    | Refracol 27         |
|                                    | Backside ramming mix for blocking sleeves of bricks      | Mixomag 55          |
| <b>2 Wall Side of Lower Vessel</b> | Heat setting mortar for MgO-Cr bricks                    | Refracol 27         |
|                                    | High magnesia castable mix for repairing working lining  | Thixomag 472 AEF    |
|                                    | Ramming mix between working/safety linings               | Refracol 727 SB     |
|                                    | Anti sticking mix for bricks between upper/lower vessels | Refracol 727 SB     |
| <b>3 Bottom of lower vessel</b>    | High alumina castable mix for working lining             | Refravibre 99 DF    |
|                                    | ULC high magnesia mix for repairing working lining       | Thixomag 472 AEF    |
|                                    | High alumina castable mix for safety lining              | Beton 9405          |
|                                    | Heat setting mortar for MgO-Cr bricks                    | Refracol 27         |
|                                    | Hot setting ramming mix for blocking MgO-Cr bricks       | Mixomag 55          |
|                                    | Electrofused MgO mix for protective lining               | Thixomag 472 AEF /3 |

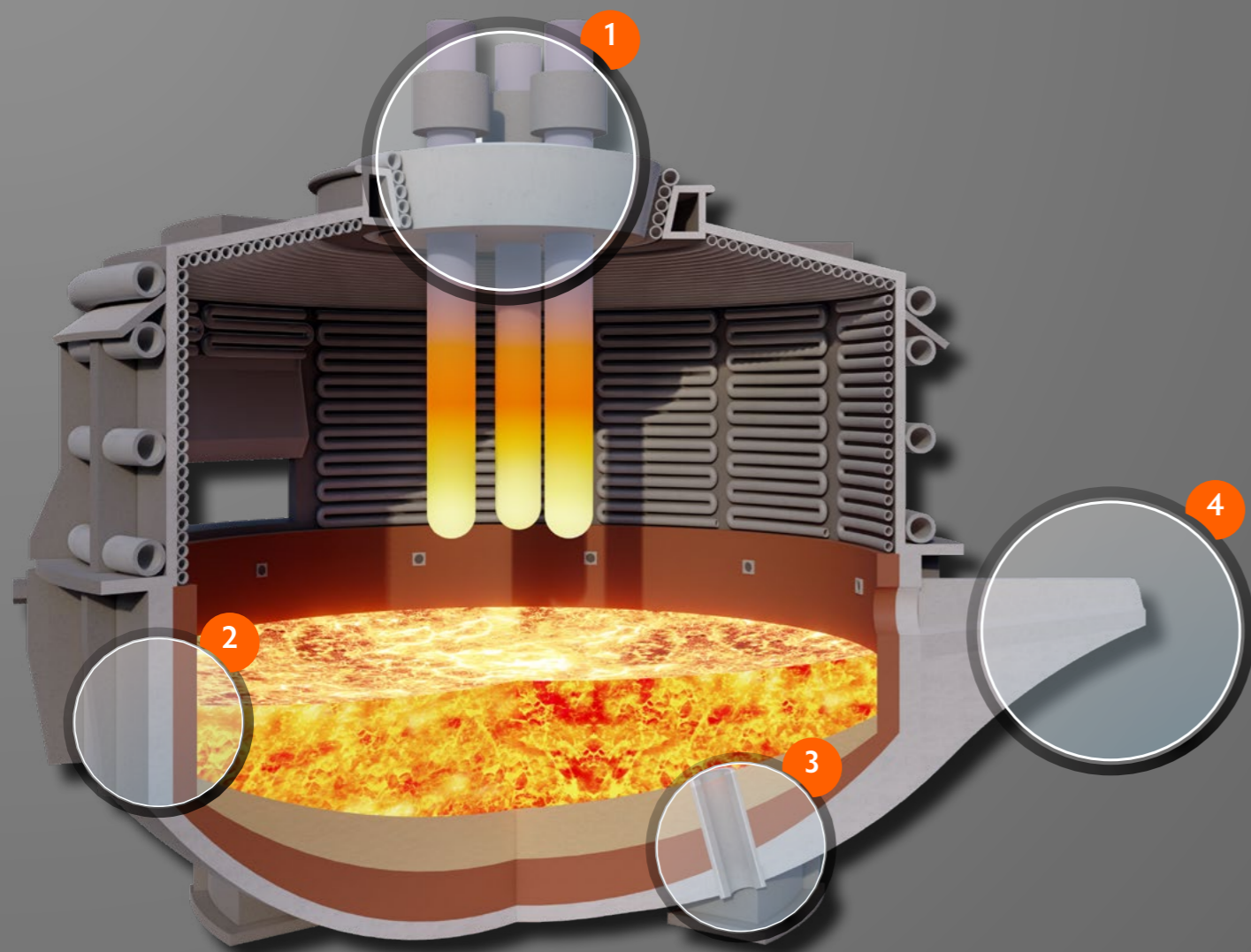






| Area                                    | Application                                      | Products                |
|---|--|-------------------------|
| 1 Vertical pipe of bottom pouring       | Jointing cements for bricks of pipe              | Refracol 13, 3          |
|   | Jointing cements for bricks of pipe              | Refracol 25, 25 GA1     |
|   | Ramming mix for blocking the top of pipe         | Refracol 33 A4, 713     |
|   | Mastic for blocking the top of pipe              | Refracol 25 Bis         |
| 2 Ingot mould                           | Cement for sticking thermal insulating material  | Refracol 236            |
| 3 Horizontal channels of bottom pouring | Mortar for jointing bricks of channels           | Refracol 25             |
|   | Graphite Mortars for jointing bricks of channels | Refracol 25 GA1, 25 GA2 |
|   | Cement for jointing bricks of channels           | Refracol 13             |
|   | Cold coating for the horizontal channel          | Refracol LGS 5          |
|   | Hot coating for the horizontal channel           | Refracol MI 3 + LXH     |

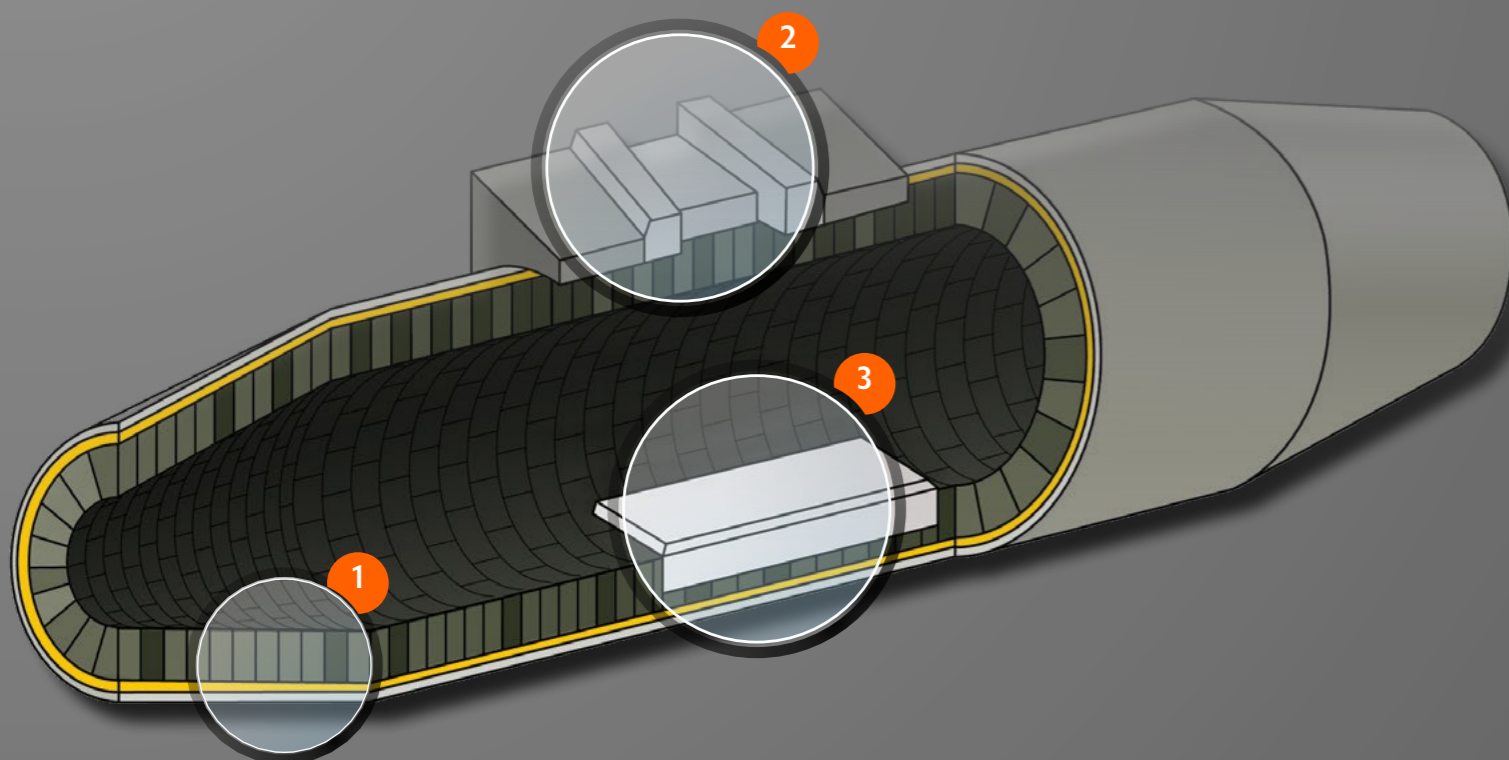
| Area                 | Application           | Products            |
|----------------------|-----------------------|---------------------|
| 1 Upper Sleeve       | DC EAF Hearth Sleeves | Thixomag 494 EF, 90 |
| 2 Lower Sleeve       | DC EAF Hearth Sleeves | Thixomag 494 EF, 90 |
| 3 Small Lower Sleeve | DC EAF Hearth Sleeves | Thixomag 494 EF, 90 |



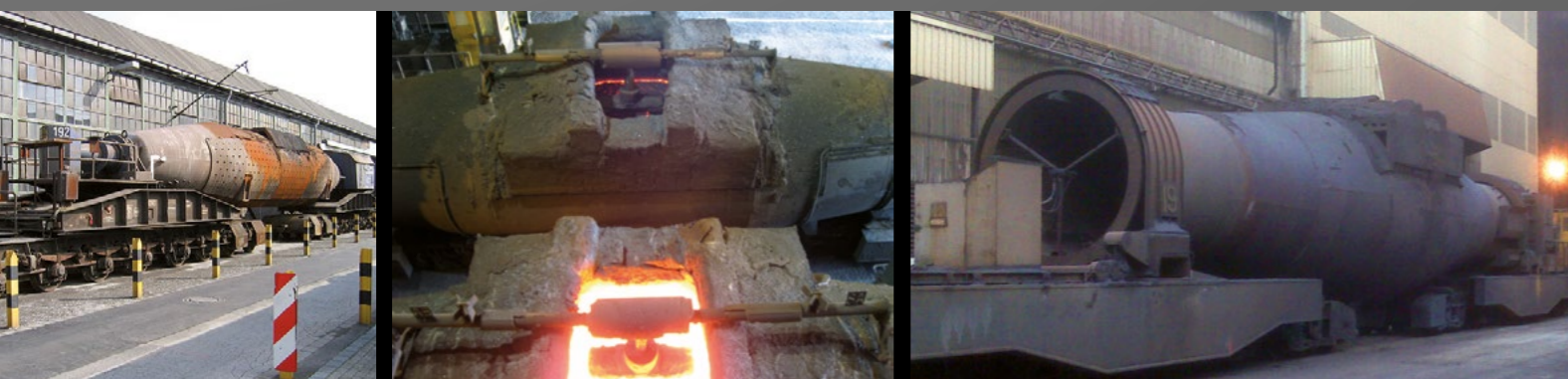
| Area   | Application  | Products                |
|--|--|-------------------------|
| <b>1 Heart of Roof</b>                         | Bauxite monolithic precast roof                          | In Refravibre 870, 890  |
|  | Tabular alumina monolithic precast                       | In Refravibre 910S, 930 |
|  | High alumina castable mixes for blocking heart of roof   | Beton 9400 SLCC FF      |
|  | High alumina castable mix for blocking electrode sleeves | Beton 9400 ISB          |
|  | Self flowing castable mix for sealing heart of roof      | Castalone C496          |
|  | Ramming mix for blocking electrode sleeves               | PR 290, Refram 492      |
|  | Precast electrode sleeves                                | in Refravibre 870, 890  |
|  | Jointing cement for bricks of roof                       | Refracol 6 A72, 6 T     |
| <b>2 Sidewall</b>                              | Magnesia ramming mixes for working lining                | Mixomag 55, 192         |
|  | Backfilling mix between safety and working linings       | Calomag 85              |
|  | Jointing cements for safety bricks                       | Refracol 7, 6 A72, 8    |
|  | Sticking glues for insulating material                   | Refracol 12 A, ATAC 30  |
|  | Hot repair MgO gunning mix for upper side wall           | Remag 391               |
| <b>3 EBT</b>                                   | Ramming mixes for blocking EBT bricks                    | Mixomag 192, 55         |
|  | Hot repair mix for end of EBT                            | Mixomag 192             |
|  | Self flowing mix to hot repair end of EBT                | Castalone S 712 F       |
| <b>4 Spout runner</b>                          | Backfilling mix for blocking the spout runner            | Caloref 94              |
|  | MgO dry mix for hot repairing spout runner               | Mixomag 785 H           |
|  | High alumina - SiC precast taphole                       | In Refravibre K780      |
|  | High alumina - chromoxyd Precast taphole                 | In Refravibre 382 A12   |
|  | Bi-component mix for repair spout runner                 | Refravibre H894         |
|  | High alumina - SiC precast spout runner                  | In Refravibre K780      |
|  | High alumina - chromoxyd precast spour runner            | In Refravibre 382 A12   |
| Hot repair MgO gunning mix for upper side wall | Remag 391  |                         |



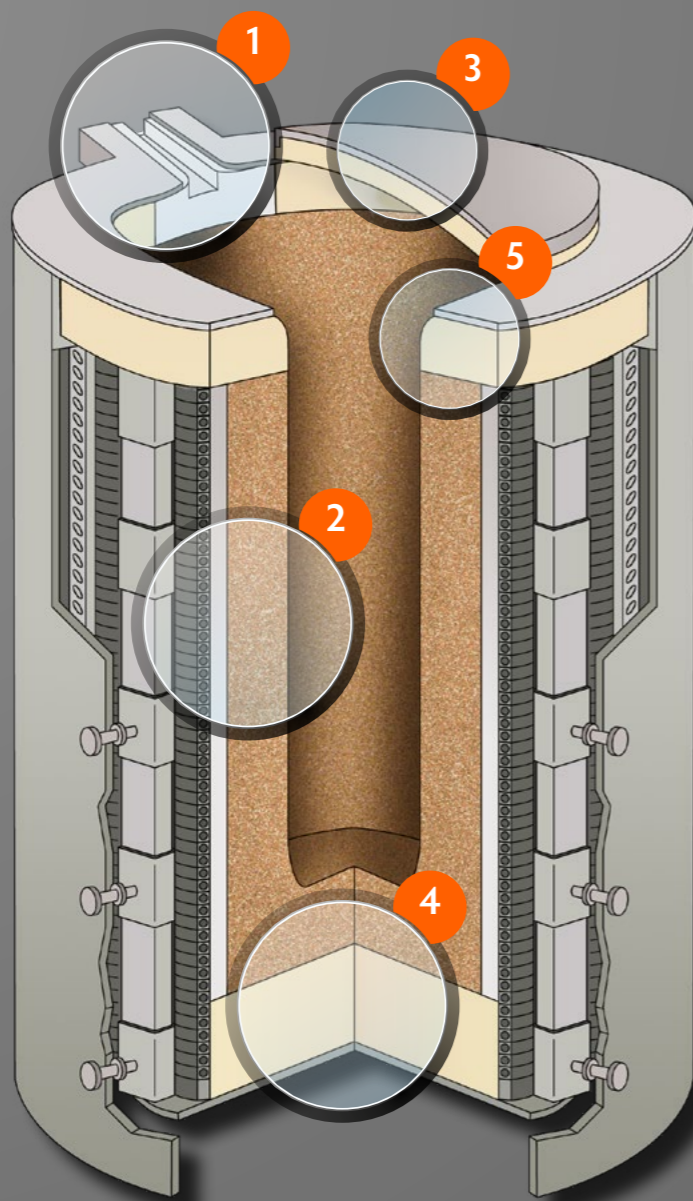




| Area                           | Application                                 | Products                 |
|--------------------------------|---|--------------------------|
| <b>1 Cylinder</b>              | Jointing cement for working lining          | Refracol 6T P10, 977 WPT |
|                                | Jointing cement for permanent lining        | Refracol 6 A72           |
|                                | Jointing cement for safety lining           | Refracol 8, 8 A          |
|                                | Glue for sticking insulating material       | Refracol 12 A            |
| <b>2 Outlet</b>                | Gunning mix for outside parts around outlet | Beton 886 P, 88 P        |
|                                | Gunning mix for cover                       | Beton 886 P, 770 P       |
|                                | Castable mix for outlet                     | Refravibre 461 RTC       |
|                                | Alumina-SiC castable mix for outlet         | Refravibre K 780         |
|                                | Reinforcing plates around outlet            | In FibroCeram            |
| <b>3 Conic part and Mirror</b> | Castable mix for mirror area                | Beton 886 P, 88 P        |
|                                | Jointing cement for working lining          | Refracol 6T P10, 977 WPT |
|                                | Jointing cement for permanent lining        | Refracol 6 A72           |
|                                | Jointing cement for safety lining           | Refracol 8, 8 A, 6A72    |
|                                | Glue for sticking insulating material       | Refracol 12 A            |







| Area                        | Application  | Products                       |
|-----------------------------|--|--------------------------------|
| <b>1 Spout or Launder</b>   | High alumina ramming mix                                 | PR 290                         |
|                             | Precast monolithic spout                                 | Refravibre 870, K 780          |
|                             | Castable mix for spout repair                            | Beton 86 B/P                   |
|                             | Dry mix for spout hot repair                             | Mixomag 785 H                  |
|                             | Patching material for spout cold repair                  | Refracol 692-1 H               |
|                             | Plastic mortars for spout cold repair                    | PR 110/2, 110, 116 CA          |
|                             | Anti-sticking mortar and coating                         | Refracol 25 BIS, 301           |
|                             | Anti-sticking protective coating for scrap               | Refracol PUL V4                |
| <b>2 Side wall</b>          | Spinel-alumina dry mixes for stainless steel melting     | Induram S82                    |
|                             | Special induction castable mixes grading 3 or 1 mm       | Beton 9410/3, 9410/1           |
|                             | Special induction castable mixes grading 2 mm            | Electrolut 90                  |
|                             | Self flowing mixes for inductor lining grading 3 or 1 mm | Castalone C496, C496/1         |
|                             | Glues for mica paper                                     | Refracol 2, ATAC 30            |
|                             | Jointing cements for crucible bricks                     | Refracol 6 T, 620 P9           |
|                             | Patching material for repair                             | Refracol 692-1 H, MI4          |
|                             | Bi-component repairing mix                               | Refravibre H882 T              |
| <b>3 Cover</b>              | Thermal insulating castable mixes                        | Refrisol 1400, Beton 770       |
|                             | Castable mix for working lining                          | Beton 88, 86B, 770             |
|                             | Cement for sticking insulating material                  | Refracol 12 A                  |
| <b>4 Lower support ring</b> | Castable mixes for the bottom under crucible             | Beton 88, 96                   |
|                             | Precast monolithic lower ring                            | In Refravibre 465 RTC, 483 RTC |
| <b>5 Upper ring</b>         | High alumina ramming mix for blocking crucible           | PR 290, Refram 492             |
|                             | Plastic mixes for blocking crucible                      | Beton 86 B/P, 98 P, 940        |
|                             | Castable mixes for blocking crucible                     | Refravibre 461 RTC             |



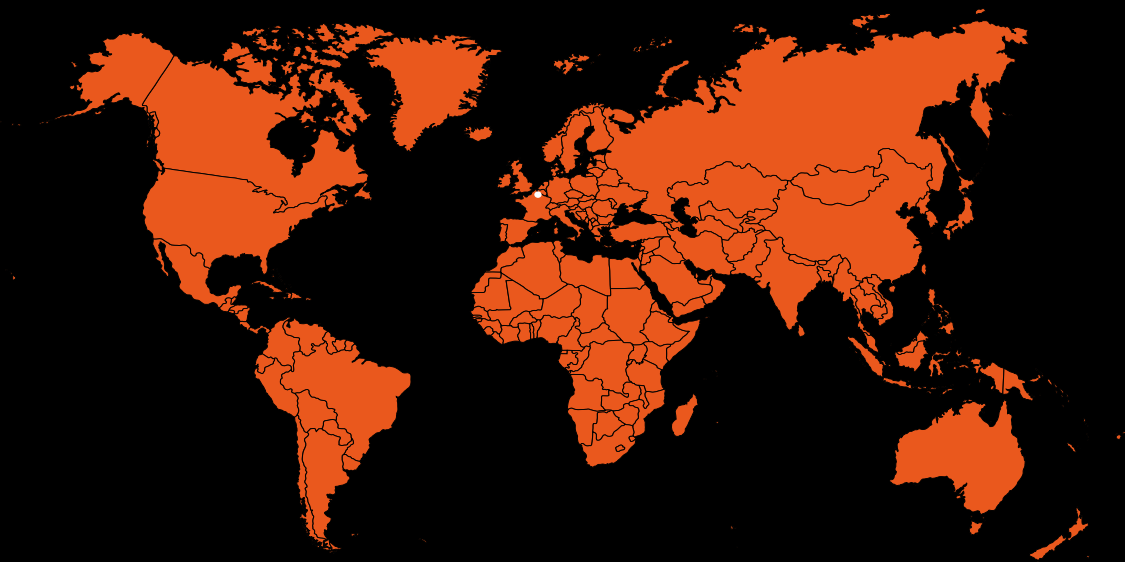




## Our other markets

|                                  |  |
|----------------------------------|--|
| <b>Glass industry</b>            | Float glass and container glass furnaces. cold and hot sealing cements for walls, jointing cements and patches for crown, casting and ramming mixes for safety layer. Precast burner block, blind block... |
| <b>Cement industry</b>           | Cooler tube, kiln hood, elbow section, nose ring...  |
| <b>Lime kilns</b>                | PFR Shaft Kiln, Annular Shaft Kiln...  |
| <b>Heat treatment</b>            | Annealing, firing, forge, hardening furnaces. Hearth, roof, arch, burner quarl...  |
| <b>Incineration</b>              | Solid, industrial and hospital waste. SiC plate, perforated tile, heater pipe wall lining, suspended roof...   |
| <b>Iron and steel foundries</b>  | Crucible ladling, induction and arc furnaces. Casting ladle and casting spout. Nozzle mortar...  |
| <b>Non ferrous industry</b>      | Melting, holding and refining furnaces. Runner, filtering box...   |
| <b>Metals recycling industry</b> | Lead recycling furnace, Battery recycling furnace...   |

## A Worldwide Market



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