

REFRACOL, MANUFACTURER OF ADVANCED REFRACTORY PRODUCTS FOR MORE THAN 70 YEARS, HAS DEVELOPED A NEW PART-CERAMIC, PART-METAL HYBRID REFRACTORY MATERIAL.

This new material combines the mechanical strength of steel with the high-temperature resistance of the refractory:

**+ greater mechanical strength than refractory parts**

**+ better thermal shock resistance than refractory parts**

**+ better temperature stability than refractory parts**

## DESIGN



1 Fibres placed in position



2 Matrix poured over fibres



3 After total impregnation of the fibres

FibroCeram is a composite consisting of:

- Metal fibres of stainless steel (1/3 of weight)
- A ceramic matrix (2/3 of weight)

FibroCeram parts are designed:

- To customer's specifications
- By moulding and casting from customer's drawings
- With metal inserts for easy handling and mechanical fastening on site

## CHOICE OF FIBROCERAM

In order to best meet customer's needs, Refracol has developed different grades of FibroCeram by combining different kinds of fibres and ceramic matrices.

### CHOICE OF METAL FIBRES

REFRACOL offers FibroCeram with 2 grades of metal fibres:

#### FibroCeram grade

Consists of 25 or 35 mm metal fibres in ME 446 steel. This grade is ideally suited to applications where the temperature can be:

- **up to 1200°C** continuously
- **up to 1500°C** for short periods

Examples: furnace trough, tapping spout etc.

#### FibroCeram RXO grade

Consists of special 25 or 35 mm metal fibres exhibiting very high oxidation resistance and tensile strength at high temperatures. This RXO grade is particularly suitable for oxidizing or reducing atmospheres where the temperature can be:

- **up to 1400°C** continuously
- **up to 1650°C** for short periods

**In case of continuous intense heat radiation, to optimize performance, one side of the FibroCeram should always be in contact with a cold source to carry away the heat.**

### CHOICE OF CERAMIC MATRIX

To serve its customers' many applications, Refracol has developed a range of FibroCeram composed of several ceramic matrices:

#### FibroCeram

**High alumina content at 72%  $Al_2O_3$**

#### FibroCeram K4

**Doped with SiC greater abrasion resistance**

#### FibroCeram AL

**Specially designed for contact with liquid Aluminium greater impregnation resistance**

#### FibroCeram CR

**Doped with chrome oxide greater resistance to chemical attacks**

Other ceramic matrices are in development.

# USES



There are many applications where FibroCeram is highly suitable:

- In case of **metal splashes**: When the part undergoes **intense mechanical slagging-off**
- In case of **pouring of metal**: When the part is exposed to **severe erosion**
- In case of **impact**: When the part undergoes violent mechanical shocks and severe **abrasion**
- In case of **handling**: When the part is severely stressed in **compression** and **flexion**

FibroCeram is a valuable technical alternative to steel and refractory materials for producing mechanical components that have intermittent contact with molten metals.

# EXAMPLES OF APPLICATIONS BY OUR CUSTOMERS

Steel works, iron and steel foundries, aluminium et zinc smelteries and cement industries, etc.



1 Lip of 300T steel ladle



2 Scraper



3 Skimmer for ladle slag



4 Ladle spout



5 Tapping trough



6 Ladle cover



7 Burner block



8 Side panel of EA furnace



9 Furnace door

Other examples: skimmer, mixing arm, runner, blocks of coranation, protective panel, dam, lintel, side wall, andiron, charging hopper etc.



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