COATINGS

For the elimination of surface defects

VESUVIUS

FOSECO

High performance mould and core coatings

for the elimination of surface defects providing superior casting finish

Committed to foundries

The foundry industry encompasses many metal types and production processes, producing an array of cast components in a multitude of different sizes. To acknowledge this diversity, Foseco have developed a variety of coating ranges to ensure that product and process are optimised. All Foseco products are supported by a team of technical experts who can advise and help you to develop optimised coating practices.

RHEOTEC*

A range of water-based coatings with superior dipping properties, designed specifically to meet the demanding requirements of the production iron foundry.

SEMCO* and TENO*

SEMCO water-based and TENO solvent based coatings are available in a full range of application rheologies and refractory combinations to offer superior performance to individual foundry requirements.

Specialist coatings

+ Lost foam and full mould processes
+ Spun pipe production
+ The enhancement of metallurgical properties
+ The protection of refractories and metal tools

Protection

A refractory coating provides a protective barrier between the molten metal and the mould or core substrate during the casting process, and ensures the integrity of the as cast surface.

Defect prevention

Through the use of carefully selected refractory fillers, Foseco coatings are designed to deposit the correct coating structure onto a given substrate, to ensure cast surface integrity and help in the reduction and elimination of a number of casting defects:

+ Metal penetration
+ Poor casting strip
+ Mould erosion
+ Gas defects
+ Metal / mould reactions
+ Sand expansion defects
+ Metallurgical defects
+ Scabbing defects

Application

To deposit a consistent layer of coating, which is free of runs, drips and other discontinuities, products have been developed with specific rheological properties to suit a wide range of application methods:

+ Dipping
+ Flow coating
+ Brushing
+ Spraying

Control

The thickness of the coating layer, when dry, should be sufficient to supply the required protection. Within a production environment it is recommended that dry layer thickness is related to:

+ Wet layer - film thickness comb
+ Viscosity - flow cup
+ Baumé - baumé stick
+ Density

Equipment

Foseco offer a wide range of equipment for the handling and application of refractory coatings, ranging from containers and mixer units to spray equipment, flow coating units as well as automated coating dilution (ICU).

Flow coating

Pioneers in the development of flow coating technology, Foseco's Flow Coating Unit is specifically designed to meet the needs of the foundry:

+ Consistent, operator-independent application of coating
+ Even coverage of all mould surfaces including vertical walls and deep pockets
+ Reduced mould abrasion and subsequent sand and refractory inclusions
+ Absence of unsightly brush or swab marks
+ Enhancement of finer detail such as numbering and lettering

Foseco flow coating unit

Viscosity measured using a flow cup

Baumé measurement

Wet layer thickness measurement

High performance mould and core coatings

for steel, iron and non ferrous foundries

Steel

The high casting temperatures associated with steel foundries requires careful selection of refractory materials, to ensure full protection against metal penetration and burn-on defects. The SEMCO and TENO range of coatings for steel applications utilise high purity zirconium silicate refractories to offer protection under the most extreme casting conditions.

A full range of specialist products is also available to cover specific applications, such as the high demands of manganese steel, highly alloyed stainless steels or metal penetration due to hot spots or high metallostatic pressures.

These products are formulated to ensure rheology is optimised for specific application methods.

Jobbing iron

This segment of the market is typified by the variety of size and shape of cast components, ranging from many tonnes to less than a kilo. The processing of such components in short runs requires flexible manufacturing techniques. This variety and flexibility is reflected within the coating product ranges on offer from Foseco.

Designed to reduce brush marks and improve surface finish

The SEMCO and TENO product ranges utilise precise blends of refractory fillers to ensure ultimate protection of both mould and core. In the case of heavy sectioned castings a combination of high purity zirconium silicate and graphitic fillers provide optimum refractoriness and prevention of metal penetration, whilst maintaining a good strip and reducing "white shining". As section thickness is reduced, alternative fillers such as alumino silicates can be introduced to improve insulation properties and help to eliminate sand expansion defects, whilst maintaining excellent strip and casting surface finish.

A full range of specialist products is also available to cover specific applications, such as prevention of flake reversion in ductile iron and in Compacted Graphite Iron (CGI) to reduce the formation of flake graphite within the surface of the cast component, whilst also providing a highly refractory layer that prevents burn-on, metal penetration and other common casting surface defects.

All these products are formulated to ensure rheology is optimised for specific application methods.

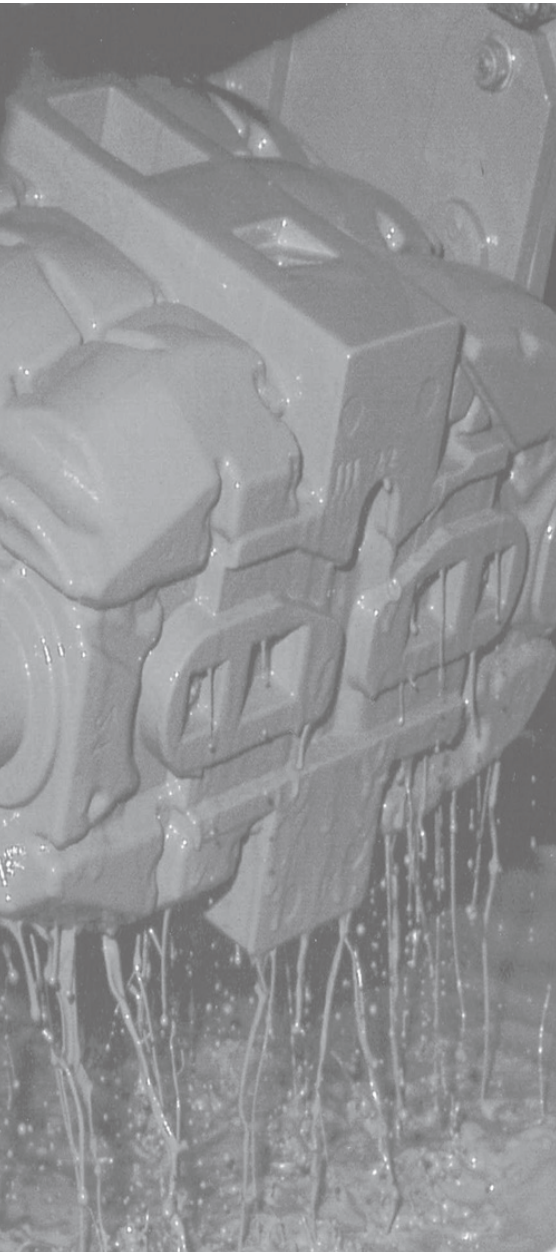
Flow coating ensures even coverage of all mould surfaces

Protection for even the largest castings

Optimal interaction of moulding material and coating

Operator independent application

Fast and consistent coverage of mould surfaces



High performance mould and core coatings

for production iron and specialist applications

Production iron

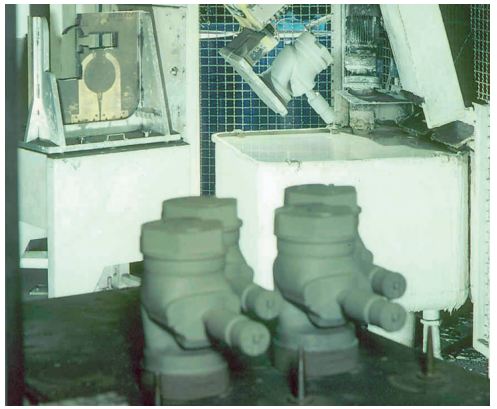
High production foundries with a large proportion of cored castings, typify this segment. The production unit is typically highly automated and the application of coating is normally via a dipping operation. The RHEOTEC, SEMCO and TENO range of coatings are focused on providing exceptional dipping characteristics, whilst ensuring internal surfaces are free from casting defects.

Refractory filler combinations are carefully selected and controlled and rheological properties are designed to apply a controlled coating layer. Specific coatings are available to offer superb protection against a number of common defects.

An example of this is RHEOTEC XL which offers unparalleled protection against the formation of veining defects.

Even coverage without runs or drips

Fast and consistent application



Metallurgical coatings

A full range of specialist products is also available to cover specific applications, such as localised chill and grain refinement. TELLURIT chill-promoting coatings for grey cast iron are ideal for producing a wear resistant surface.

MOLCO 50 dressings are designed for the localised densening of grey cast iron. They can eliminate the use of metal chills and are useful for treating heat centres affected by open grain structure that are difficult to feed.

Full mould and lost foam processes

SEMCO perm is a range of water based coatings designed to promote excellent surface finish and dimensional stability whilst avoiding common problems such as lustrous carbon formation, metal penetration and premature mould collapse.

Permeability and composition have been specifically designed to meet the requirements of lost foam. The coatings can be applied by spray, dipping or brush.

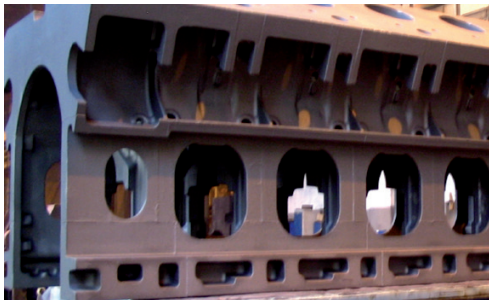
Spun pipe

SPUNCOTE are specialist products formulated to provide a permeable coating with very low gas evolution for the centrifugal casting process. They can also assist metal flow and promote easier stripping of the finished casting.

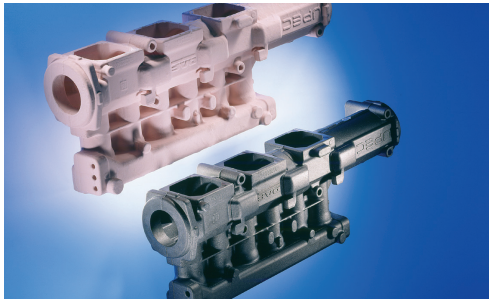
Tools and refractories

FRACTON coatings are used for the protection of refractory surfaces, metal dies and launders, pig moulds and other metal tools.

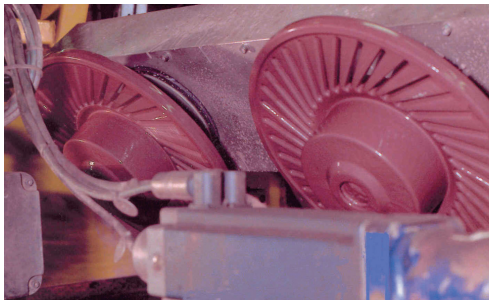
Protection from flake reversion in ductile iron



Coatings for highest thermal demands



Net shape castings using the lost foam process



Optimised process control

For highest casting quality

Research and development
As the quality demands from end-users of castings increases, it is essential that coating technology keeps pace. Foseco continually invest resources in the research and development of innovative solutions to the problems of today and tomorrow. Coating development laboratories work closely with in-house casting facilities to ensure new product developments fully meet the customer's needs.

For highest quality demands

Consistency
Controlled and automated manufacturing processes ensure that products are supplied to a highly consistent specification, eliminating batch to batch product variations.

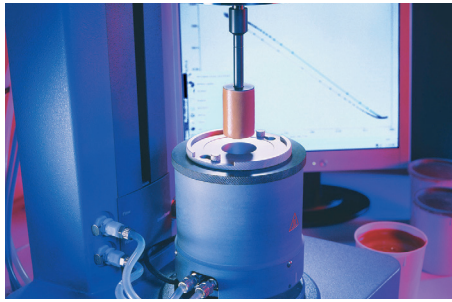
Quality assurance
Accredited quality assurance systems ensure optimal testing of finished product, and provides a framework for continual improvement and further process optimisation.

Flexibility
A broad range of delivery options are available to suit the needs of the individual customer.

Service
For further information and specific recommendations on the full range of Foseco coatings for ferrous and non ferrous foundries, please refer to the local Foseco representative.

Reduction in finishing costs through improved surface finish

Customer focused research & development



Quality assured processes

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