



INITEK PROCESS

Advanced nodularising technology for production of ductile & compacted graphite iron

VESUVIUS





The INITEK Process

The initialising principle

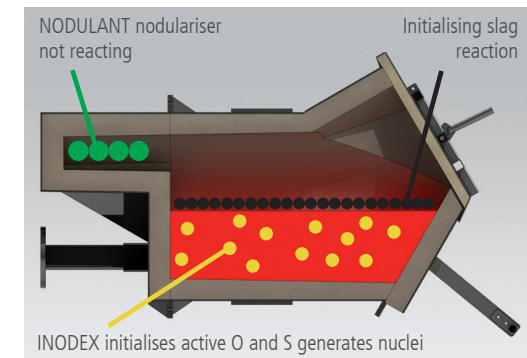
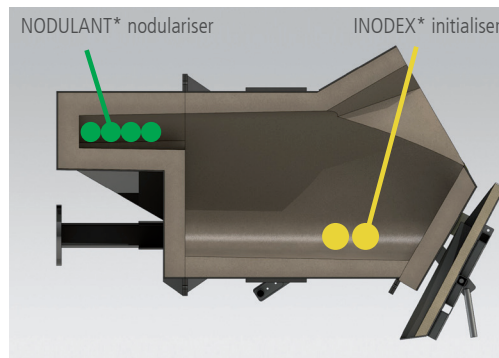
The production of magnesium treated iron castings is witnessing a radical change in the way liquid metal treatment practices are performed. The nodularising and inoculation practices are being fundamentally reviewed in the light of findings that are declared in a new Foseco patent named "Improved Method of Producing Ductile Iron" and designated in this brochure as the "initialising practice".

This new metal treatment process makes optimal use of the base liquid iron oxygen activity of your melt shop process. The active oxygen is utilised to facilitate an effective and long lasting inoculation event prior to the conventional spheroidisation treatment.

For the first time, the timing and sequencing of both nodularising and inoculation practices are implemented within your melt shop process.

Results are measurable, reproducible, and spectacular as the fundamental oxygen variable is deactivated and utilised efficiently to improve your ductile iron quality. To achieve this, Foseco has developed innovative know-how, advanced new products, and a unique metal treatment converter.

One of the many core benefits of the INITEK initialising process is the considerable reduction of the ductile iron pouring temperature. In addition to the obvious energy savings associated with lower pouring temperatures, additional significant benefits are realised in the form of increased productivity, increased casting quality and consistency, and a reduction in the amount of consumable materials used in the production process. The pouring temperature is a strong indicator of the overall foundry cost performance. The lower the temperature, the lower the casting production costs.

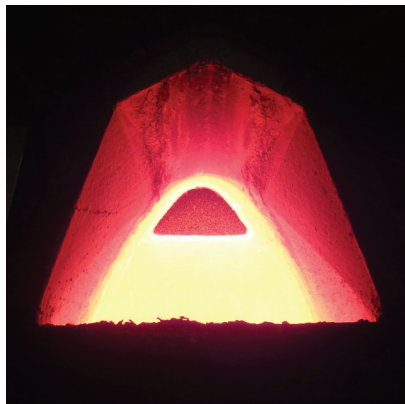


The INITEK Process is:

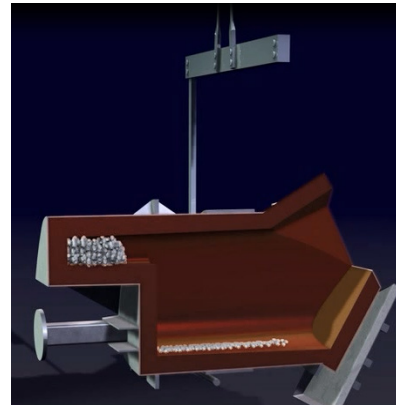
A patented process, developed by Foseco for the world class production of high quality ductile iron and compact graphite iron alloys that:

- + Uses an initialising pre-treatment with Foseco's INODEX alloy
- + Employs magnesium treatment after a controlled time delay
- + Uses a specially designed converter
- + With a proprietary, high efficiency, engineered refractory lining system

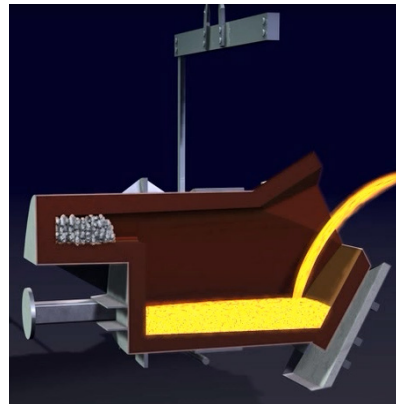
The INITEK process is best suited for foundries with ductile iron or compact graphite iron alloy production output of greater than 15,000 metric tonnes per year.



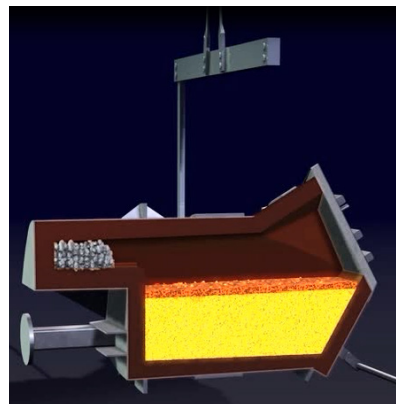
1. Loading of Foseco INODEX initialising and NODULANT nodularising products into converter



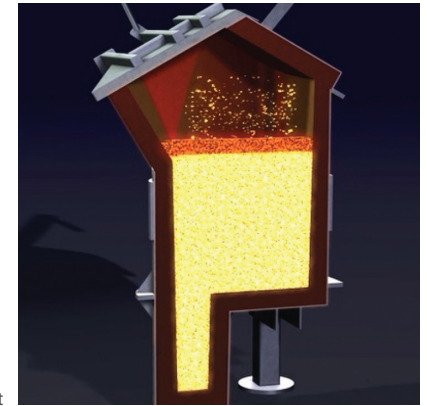
2. Tapping of base iron from furnace & filling of converter



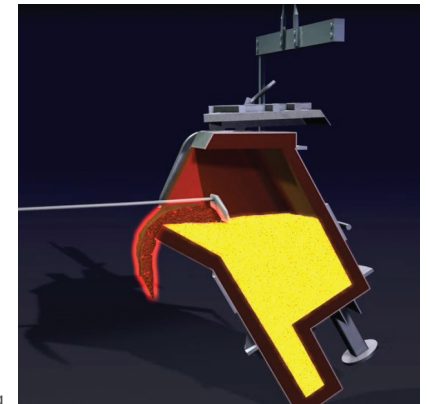
3. INODEX initialising pre-treatment



4. NODULANT treatment



5. Deslagging



6. Pouring into a pouring ladle, tundish, or directly into moulds



The INITEK converter



The INITEK converter is a patented prism shaped treatment ladle that can also be used for direct pouring. It is delivered as ready to assemble components that are simply bolted together after installation of the refractory lining system is complete.

The INITEK converter is lined with a proprietary Foseco engineered advanced refractory lining system for maximum durability and optimal thermal efficiency. Lining systems are also designed for speed and ease of installation for rapid turnaround.

The rotation of the converter can be performed manually or via automation to fit the needs of your operation.

The converter can be transported through the foundry via crane, forklift, monorail, or fitted on a fixed transport station below a coreless induction or holding furnace.



INITEK ISO granular refractory lining installation and exothermic set



INITEK PCS precast shape refractory lining system



What can the INITEK Process do for your foundry?

INITEK Process benefits

The benefits to implementation of the INITEK Process are numerous. INITEK repositions the "molten metal" at the centre of the foundry process. On average, 40-50% of the total casting cost in a foundry can be attributed to the melt shop management.

The quality, fluidity and temperature of the liquid iron have a fundamental impact on mould and coremaking, feeding and filtration, as well as after cast operations such as fettling and machining. Stabilising and improving iron quality offers opportunities to increase casting capacity, reduce costs and/or further improve quality and productivity downstream. Consequently, major cost and quality improvements are inherent in the INITEK Process.

INITEK improves and increases:

- + Casting Yield
- + Mg Recovery
- + Treatment Capacity
- + Process Control
- + Process Reliability
- + Foundry Productivity
- + Metallurgical Stability

INITEK reduces and minimises:

- Metallic Charge Cost
- Mg Alloy Consumption
- Emissions
- Mg Fade Rate
- Refractory Consumption
- Scrap
- Fettling Costs
- Molten Metal Temperature
- Energy Consumption
- Process Variability
- Total Operating Costs

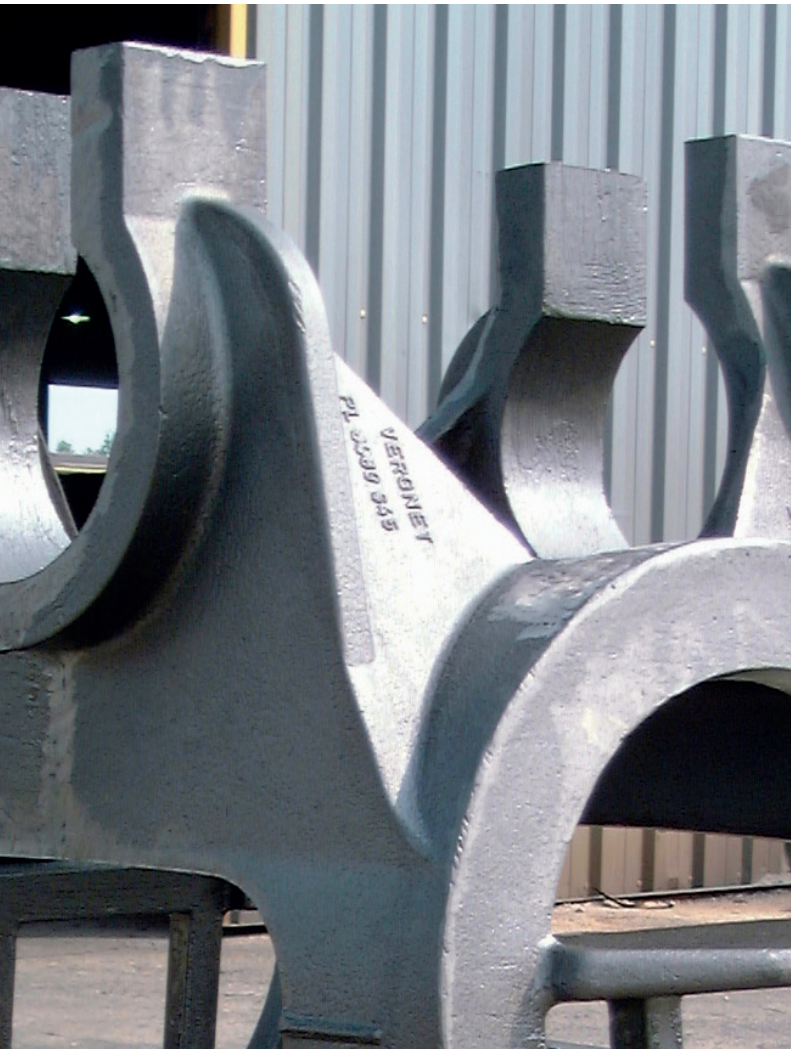


INITEK converter

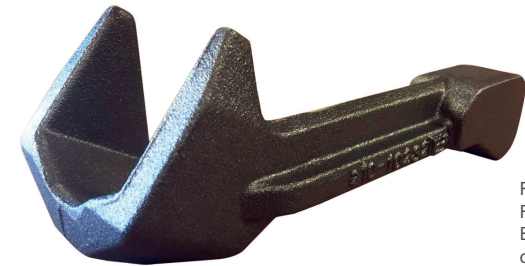
The INITEK Process

The INITEK Process is used by foundries around the world for production of the highest quality ductile iron and compact graphite alloy castings in the following applications:

- + Automotive
- + Railroad
- + Agriculture
- + Water distribution
- + Construction
- + Defence
- + Bar stock
- + Power generation / Wind turbines
- + Marine



Mathieu Foundry France:
Structural Casting for Wind
Power Generation

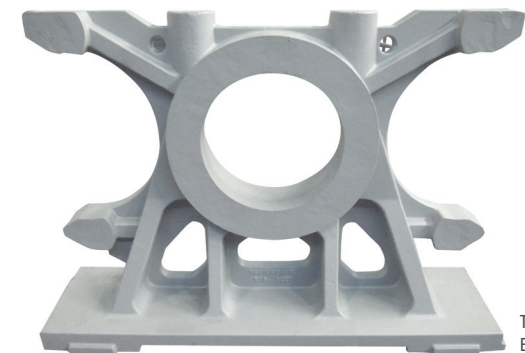
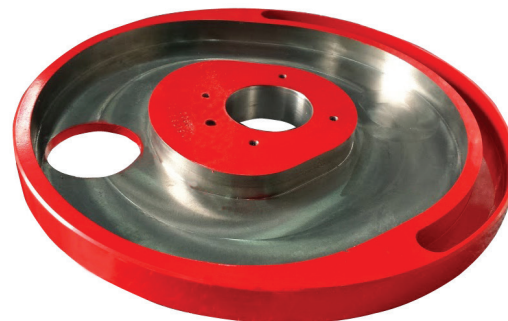


Roslagsgjuteriet
Foundry Sweden:
Bucher fork
casting for glass
machinery



Ajax Foundry
Australia: Toyota
towball socket

Mathieu Foundry France: Cam machinery casting



Tomita Foundry Japan:
Elevator bearing housing

The bottom line

While a reduction in the overall cost is a key benefit to the INITEK Process, it is certainly only one of many. The INITEK Process can enable your foundry to produce the metallurgical properties and quality castings demanded by your customers at a lower cost while increasing productivity. This is accomplished through the consistency, reliability, and reproducibility that the entire INITEK Process can deliver.

Does your foundry have a need to reduce cost, improve quality and process consistency, and increase casting capacity without significant capital expenditure? If you have a need to improve any of these criteria, take a close look at the INITEK Process for production of ductile and compact graphite iron castings. Contact your local Foseco representative for more information.



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