

TOPEX[®]
MgO – CSC



... grey gold

INTOCAST presents: TOPEX MgO - CSC

TOPEX MgO - CSC is a briquetted, partly-calcined magnesia product, which disintegrates at temperatures above 900° C, releasing CO₂ and H₂O, thereby generating highly reactive MgO. The process advantages derived from the chemical composition and the physical characteristics of TOPEX MgO-CSC are registered in a patent. Operational results confirm its remarkable superior behaviour compared to traditionally used dolomitic lime.



R & D: progress that creates value

Grey gold?

The worldwide competition in the production of steel and alloys creates the demand for the continual evaluation and optimisation of all processes involved.

It is still the factors of time and raw material consumption that particularly offer the potential for making savings in production costs and thus securing a competitive edge.

INTOCAST understands its customers' processes well. Due to many years of experience in the field of metallurgy and in the development of casting auxiliaries, INTOCAST, as the holder of a substantial number of international patents, has been able to develop materials that do not only minimise consumption but also raise productivity.

The economic advantages that TOPEX MgO - CSC offers – depending on its precise application – are in fact so significant that TOPEX MgO - CSC is entitled to be called “grey gold”.

TOPEX MgO - CSC is the result of many years' involvement in the customers' production processes and continual research and development in the INTOCAST laboratories. By permanently focusing on optimising the metallurgical processes, a product has been created that is unique in the combination of its merits.

Inner values that count

Only hard facts count when evaluating the precise importance for customers of TOPEX MgO - CSC in the smelting and alloying processes. Metallurgists will find the most important indications in the analysis of TOPEX MgO - CSC.

delivered form:	briquette-shaped (30 x 20 x 20 mm)
colour:	light grey
chem. analysis:	MgO 50,0-63,0 %
	Fe ₂ O ₃ 4,0-5,5 %
	SiO ₂ 1,5-4 %
	CaO 2,0-3,5 %
	Al ₂ O ₃ 0,5-1,5 %
	P ₂ O ₅ <0,05 %
	S <0,2 %
	LOI 30-35 %

TOPEX MgO – CSC – Advantages for Every User

TOPEX MgO – CSC boasts a whole range of merits above and beyond the specific properties relevant to the production method. The sum of all its advantages makes TOPEX MgO – CSC a product that can improve the profitability of every steel producer.

Quality that lasts

Customers need to be able to rely on the quality of their aggregates if they are to produce high-grade products efficiently. INTOCAST is able to guarantee a consistently high quality standard, as the raw material for TOPEX MgO – CSC comes from in-house deposits and is refined in its own manufacturing plant under controlled conditions. This ensures minimal deviations in its analysis, which in turn guarantees quick, precise and reproducible results.

TOPEX MgO – CSC creates space

TOPEX MgO – CSC can be stored in the open-air without any risk of loss to its mechanical or physical properties. The material is not susceptible to dampness or weather conditions in any way. For this reason no roofed storage area is necessary and available capacity can be used more effectively.

Clean stuff

The mineral compounds that are usually applied in secondary steel production are subject to disintegration during storage and transport. This creates dust that has to be constantly checked and disposed of during the ongoing process.

This is where TOPEX MgO – CSC can offer the user definite advantages: by being partly calcined and briquette-shaped, it keeps its form and consistency. This drastically reduces the formation of dust.

Individualisation possible

By virtue of its chemical properties, TOPEX MgO – CSC's effect is definable and calculable.

As the demands on slag formation vary during the relative process sequences, it may be necessary to apply additional aggregates.

On the basis of exact analyses and laboratory tests, INTOCAST can incorporate the required amount of reducing agents (e.g. carbon) in the briquettes. In line with the original patent the composition of TOPEX MgO – CSC can be modified according to customer requirements. Besides simpler storage and accelerated furnace loading, customers benefit from the constant metallurgical properties meeting their individual demands.



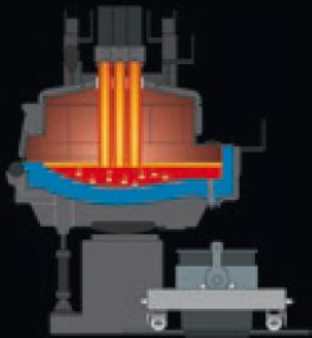
TOPEX MgO – CSC for electric arc furnace processes

Just as there is a great difference between producing steel with electric arc furnaces and converters, there is a great divergence in the advantages that can result for the respective user. In order to demonstrate the advantages for both methods, the relevant factors have been listed separately.



Electric arc furnaces

– numerous advantages with just one product



- *high reactivity*
- *spontaneous formation of foaming slag*
- *coating of electrodes and furnace walls*
- *shortening of tap-to-tap times*
- *longer operating life of refractory material*
- *less consumption of the electrodes*
- *lower energy consumption*

TOPEX MgO – CSC raises efficiency

The high degree of reactivity accelerates processes, which means that the tap-to-tap time can be shortened by up to 5% compared to the standard process. This time saving increases the productivity of the system and the personnel by exactly this factor.

TOPEX MgO – CSC protects the refractory material

The foaming slag spontaneously formed by the use of TOPEX MgO – CSC coats the furnace wall and protects it, in particular at the threshold of the slagline. This extends the life of the furnace lining by up to 25%. Downtime to renew the lining is drastically reduced.

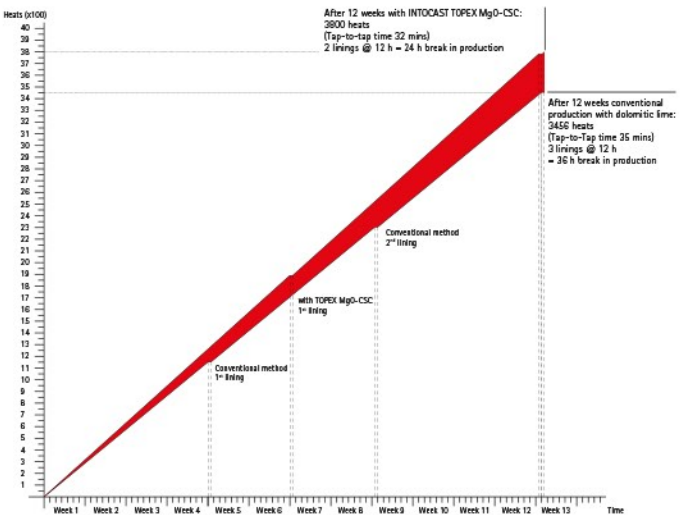
Furthermore, the operators of electric arc furnaces profit from the spontaneous formation of foaming slag as this reduces the consumption of the graphite electrodes by up to 10%.

TOPEX MgO-CSC reduces costs

The specific costs of steel production can be significantly lowered by the usage of TOPEX MgO-CSC. In particular, the consumption of gunning materials can be reduced. However, the potential for savings is even higher concerning the energy consumption in the steel melting process. It is possible to maintain the same production levels whilst reducing energy consumption by up to 7%, due to the shortening of the tap-to-tap interval and a better thermal shielding of the arc by the voluminous foaming slag.

Less carbon has to be injected to create an equal volume of foaming slag. A higher steel yield is achieved as deslagging can be performed more effectively.

Increase in efficiency shown as output per quarter



TOPEX MgO – CSC for converter processes

The advantages for operators of converters depend to a great extent on the methods chosen and the accompanying processes. They define to which degree efficiency and quality can be improved.



Traditional coating of the refractory lining without the addition of TOPEX MgO – CSC



Coating of the refractory lining with the addition of TOPEX MgO – CSC

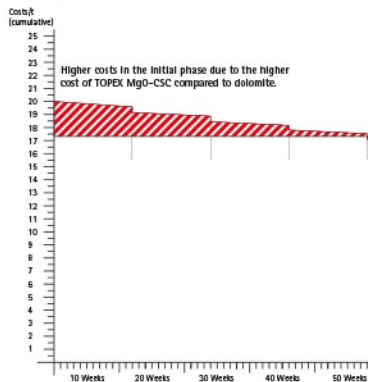
- benefits slag splashing
- shortens tap-to-tap times by up to 2 minutes
- extends the life of the lining by up to 50%
- reduces consumption of gunning materials

TOPEX MgO – CSC protects values

Other than with electric arc furnaces, the potential benefits of using TOPEX MgO – CSC in converters are greatly determined by the exact methods used. Depending on the frequency of slag splashing, the savings potential in the refractory lining alone can be up to 50%. The guaranteed and spontaneous expansion of the slag up to 400% (foaming slag) produces, by tilting the converter, a coating of the refractory lining that clearly reaches beyond the area normally covered.

Renewal of the lining does not only stand for refractory material costs but also for lost operating time, therefore the achieved savings increase the efficiency of the whole system.

Reduction of the specific production costs





Converters

- high performance with TOPEX MgO - CSC

TOPEX MgO - CSC reduces gunning material consumption

The consumption of gunning materials in converters can be reduced by up to 50% by the implementation of TOPEX MgO - CSC, irrespective of the production method.

This results in a shortening of the tap-to-tap intervals, which simultaneously cuts time and costs.

TOPEX MgO - CSC saves time

Not only does the extended vessel life improve efficiency in production, but by implementing TOPEX MgO - CSC in combination with slag splashing it is possible to reduce the tap-to-tap time.

This means that the users of TOPEX MgO - CSC benefit in any case: either by the extended vessel life or by the shortening of the tap-to-tap time.

The use of TOPEX MgO-CSC guarantees a significant reduction of the specific costs due to lower downtimes and refractory consumption.



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