



MIRATEC™ TS INNOVATIVE SOLUTIONS

# Case Study



Convincing technologies  
Provide a competitive  
Edge!

Modern Coating Technology, "MIRATEC™ Top Surface Technology" in use at Eisenwerk Brühl

## >> Background

**In an interview with our editorial staff, Ralph Wegener, CEO of Eisenwerk Brühl GmbH, describes the demands of today's competitive environment, and which expectations are passed on to suppliers, and accordingly, which demands are specifically made of his coating suppliers.**

Eisenwerk Brühl GmbH specializes in the mass production of cylinder crankcases made of cast iron for the automobile market. With its 1,600 employees, the foundry produces five million cylinder crankcases annually at its Brühl location. With its highly automated foundry and its technologically refined manufacturing processes for lightweight construction and thin-wall casting, the company ranks among the leading suppliers of cylinder crankcases for the global automotive industry. However, the continual demand by automobile manufacturers for increasingly complex and thin-walled castings requires suppliers to constantly devise new, innovative and technologically more sophisticated concepts

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We advance your casting



## >> Question #1

**Mr. Wegener, as a forward-looking foundry, which market-related challenges do you anticipate for your company and its castings produced for the automotive market? And moreover, how will this affect your suppliers, especially those specializing in core coatings?**

**Wegener:**

For a foundry to operate successfully today, standing out from the competition has never been more important. One way you do this is by producing highly complex castings of excellent quality, as does Eisenwerk Brühl, which by the way requires a substantial amount of innovative capacity.

With increasing casting complexity and growing specific demands on casting quality, there has naturally been an increasing demand on coatings being used. However, often continuous improvement of existing products will not be sufficient; instead new solutions need to be developed. A certain level of innovative capacity and R&D is therefore also something we require of our coating suppliers in order to meet the demands being made.

Process capability and consistent quality of the developed product are minimum key factors, which are influenced by the product's raw and starting materials that are predominantly of natural origin.

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## >> Question #2

**In your opinion, what was the decisive argument for applying the "Top MIRATEC™ Surface Technology" in the manufacturing process?**

**Wegener:**

In order to image the filigree cast contours of our engine blocks, we need complex core packages. However, increasing complexity has resulted in an increase in core-related casting defects, and has furthermore complicated the cleaning of castings.

As for core-related defects, we are primarily concerned with the conventional veining defects and penetrations. However, for us as a manufacturer of engine blocks, near-surface inclusions and gas defects are a recurrent issue, and they occur with greater frequency, especially in core-intensive geometries. With a new, highly complex Euro-6-cylinder crankcase – shown with 27 different cores – there is currently a serious quality improvement using a coating layer, which is based on the "Top Surface Technology".

An important additional benefit of this product includes technical cleanliness and the ease with which the pre-cast oil and coolant channels can be cleaned. The new MIRATEC™ coating from ASK Chemicals has a substantially improved cleaning efficiency after casting or injection blasting of the engine blocks. A residual dirt portion of <= 300 mg per engine block is easily achieved.

## >> Question #3

**In your expert opinion, what are the major trends and challenges that stand out up until 2020 in the development of engine blocks?**

**Wegener:**

The current state of thin-wall technology will go on, i.e., our development will be toward a ten to 13-percent (process-reliable) reduction in wall thickness. The supply industry will therefore need to continue to improve the quality of core-binders and core-coatings, in order to avoid the aforesaid casting defects more efficiently.

Excellent cooperation with innovative and reliable partners will therefore be essential in order to meet the challenges of our industry today and tomorrow in an optimal fashion.



**Image (Left):**  
**Ralf Wegener - Eisenwerk Brühl**

# >> About ASK CHEMICALS

**ASK Chemicals is one of the largest suppliers of complete solutions and tailor-made consultation services for the foundry industry. The core of our company's activity involves manufacturing all foundry consumables required for the production chain as well as providing optimum technical services in order to perfectly adapt our products to the processes on the customer's premises.**

Our wide product range contains binders for all core manufacturing processes, coatings, additives, feeders, filters, release agents, metallurgical products including inoculants, Mg treatment wires, inoculation wires and pre-alloys for iron casting. Core production and prototype development as well as a wide range of simulation services round off what the company has to offer.



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