MIRATEC™ LF TECHNOLOGY

Effective ways to reduce formaldehyde & costs

SUCCESS STORY

STARTING POINT & CHALLENGE

Many European foundries are now required, or will be in the near future, to reduce formaldehyde emissions from the drying furnaces. The new, extremely strict regulation defines a threshold of **5 mg/m³**.

SOLUTION

ASK Chemicals offers an alternative to the current mechanical solutions available on the market, such as formaldehyde scrubbers, regenerative exhaust air purifiers, etc., which involve high investments. With the developed product solution, the defined limit value of 5 mg/m³ can be achieved under certain conditions without investing in additional equipment. The use of a newly developed coating series MIRATEC™ LF - in combination with a VEINO™ additive - helps to comply with the limit value and, moreover, to reduce the costs for molding mixture with comparable casting results.

RESULTS

- Formaldehyde reduction from highest values of e.g. 17 mg/m³ to < 5 mg/m³.
- Cost reduction compared to the previous competitive additive > 20%.

PROFILE OF THE FOUNDRY	
Location	Europe
Capacity	>400,000 to/year
Material	GI, DI, CGI
Casting weight	up to 500 kg
Cast parts	Brake discs, motor blocks, cylinder heads, hydraulic parts
Markets	Automotive

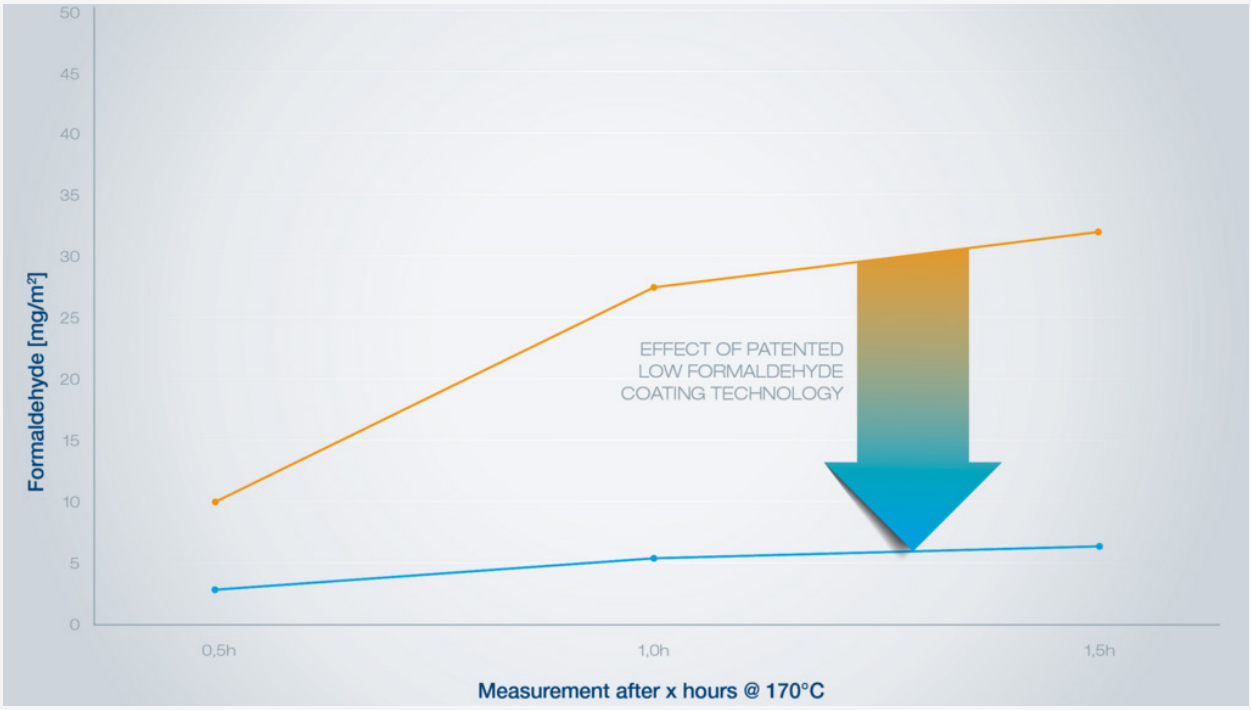

Figure 1: The LF technology reduces formaldehyde emissions by up to 70 %

TECHNICAL PROFILE OF THE SOLUTION

The use of a water-based coating is very common in serial production of cold box bonded cores. After the coating process, the cores usually have to be dried in a suitable drying oven. Depending on the combination of cold box binder, additive and coating, as well as the design of the drying oven and the drying temperature, some formaldehyde release can be expected. Part geometry is also a contributing factor (core weight/surface area).
In the present project, the measured baseline value for formaldehyde was 17 mg/m³.
Thanks to a unique patented ASK Chemicals technology formaldehyde values can be significantly reduced. The technology can be applied in a modular way to either the cold box binder, the additive, the coatings or all three components, depending on the formaldehyde emission reduction target. As ASK Chemicals Experts always proceed in case-based and calculated manner, the recommendation in this case was only to implement the LF (low formaldehyde)-technology to the coating in use. With MIRATEC™ LF the foundry meets the legal threshold.

MIRATEC™ LF is additionally fast drying and requires lower drying temperatures, thus realizing additional energy savings.

CONTACT YOUR EXPERT TODAY:
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BENEFITS AT A GLANCE

Technological
- Short handling times
- Avoidance of gas and pinhole errors, veining, and penetration
- Residue-free surface

Environment & Workplace
- Water-based formulation
- Reduction of formaldehyde emissions by up to 70 %
- Energy reduction
- Shorter drying time and lower drying temperature

Total Costs of Ownership
- No investment in secondary measures such as scrubber or exhaust after-treatment required
- High yield due to its material efficiency