

SEMCO FF water-based coatings enable foundries to meet the latest EU emission regulations



SUSTAINABILITY

THE CHALLENGE

To protect against microbial growth, water-based coatings often include biocides, which commonly contain formaldehyde for its antibacterial and antifungal properties. During the drying processes, this formaldehyde is released, usually in the drying facilities, and contributes to the foundry's overall formaldehyde emissions. Formaldehyde is also emitted during pouring in the melt shop and during shake-out, due to decomposed binder components. The release of formaldehyde is a problem because the chemical is carcinogenic and mutagenic, and thus harmful to human health; it is regulated as such under EU law, which limits formaldehyde emissions levels to just 5mg/m³.

FOUNDRY:

Major European manufacturer of passenger car brake discs. The company produces brake discs in small to large series at several locations and supplies well-known car manufacturers with raw and finished castings.

PARAMETER

Alloy: GJL 150

Casting weight: 10.1 kg

Pouring temp.: 1,400°C

Poured weight: 14.4 kg

Yield: 70.1%

Pour time: 9.8 s

Moulding Process: Vertical moulding line, green sand

FOSECO PRODUCTS

SEMCO* Sil 3454 FF coating



OUR SOLUTION

Water-based coatings are a more environmentally-friendly alternative to solvent-based coatings, but to protect against microorganisms, biocides are built into the formulation of water-based coatings. Typically, these biocides provide a slow release of formaldehyde, which is an effective antibacterial and antifungal agent. Our new SEMCO FF coatings do not use biocides that release formaldehyde, especially within the coating drying process, when emissions are most concentrated.

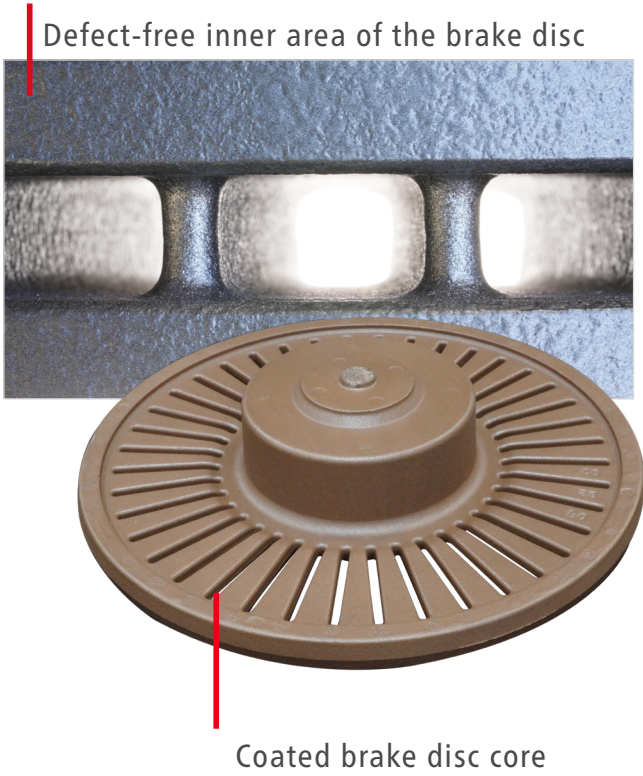
THE OUTCOME

SEMCO FF coatings supported the foundry in lowering the FH emissions in the coreshop and complying with tightening FH emissions regulations, without the need for costlier and more complicated investments, such as new or upgrades to gas treatment systems. There is also potential for the future development of coatings that actually absorb FH emissions from other components of the mould or core, such as binders and additives; the coating could thus become a net-negative contributor to overall FH levels in the foundry.

KEY BENEFITS

- Reduced formaldehyde emissions
- High stability of the coating for series application
- Effective in veining and scabbing suppression
- Optimised flow behavior for demanding production with immersion manipulators

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