

Cold-Box and Resole-CO₂

Innovative and individual solutions
for series casting





Cold-Box from HA: Innovation driver with a focus on sustainability

The absence of heated core boxes, high shape accuracy even with the thinnest geometries, and very short cycle times have propelled the PUR Cold-Box process to become the most widely used process for core production in recent decades.

In parallel, in the 1990s, the Resole-CO₂ process emerged as a common alternative. It was specifically developed for foundries that had previously used the water glass-CO₂ process.

Carbophen is an innovative, single-component binder for the production of core sand and is cured with CO₂. Due to its high proportion of inorganic components, the binder can be regarded as a hybrid between the classic organic and the new inorganic binder systems.

At the beginning of the development of the PUR Cold-Box process in the late 1960s, only aromatic solvents were considered for phenolic resins. Over 25 years ago, the HA Group patented the use of plant-based solvents, utilizing renewable raw materials. To further reduce emissions from foundries, solvents based on silicates were also researched and patented, along with additional developments in partially silicate resin bodies. Both methods are compatible with most moulding materials and most special sands.

There are hardly any limitations to the design of core geometries and sizes, allowing both methods to be used in almost all casting areas.

Therefore, a wide range of gas-hardening binders is available, providing the right solution for every application.



Sigmacure

The classic system. The use of aromatic solvents offers a high level of strength and is characterized by general robustness. The solvents used are widely available worldwide.

Biocure

Since 1996, the HA Group has been using solvents based on plant-based sources and therefore made from renewable raw materials. The high reactivity of the Biocure series enables a reduction in amine consumption, thus providing additional relief for the environment and employees.



Silcure

Reducing the organic content of the binder and replacing it with inorganic components is the declared goal within the HA Group. Since 1999, the Silcure binder systems have been introduced, utilizing silicate-based solvents such as TEOS and TPOS. The reduced organic content significantly lowers emissions. The exposure of employees to smoke and odour decreases. At the same time, the reduced gas volume during casting minimise the risk of gas blisters.

Sipurid

In the meantime, not only using silicate-based solvents has been achieved but also gradually modifying the resin body to be silicate-based. Sipurid™ offers the best of both worlds. It combines the advantages of the PUR Cold-Box process and the inorganic process: minimal emissions, a significant reduction in odours in and around the foundry, reduced gas volume during casting, and minimal condensate buildup.

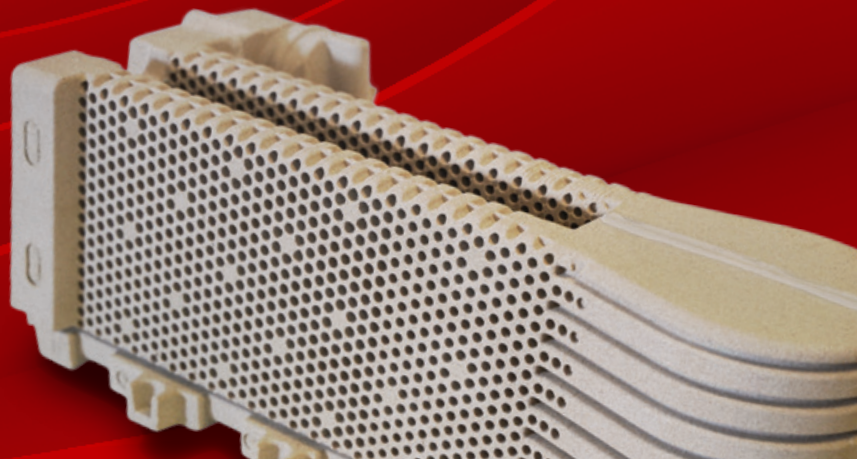
HA Pure

New and innovative, combined with the proven performance features of HA binder systems, HA Pure is the consistent development of our Cold-Box products with a focus on sustainability and emissions.

Building upon the Sipurid technology (partially silicate-based resin), we have succeeded in developing a product with a high inorganic content and the lowest free monomer content.

HA Performance

Process-oriented and performance-optimized. Our customer-specific combinations of well-known and proven products.



Resole-CO₂ process

The basis of the Resole-CO₂ process is a water-soluble, alkaline-condensed phenolic resin (phenol resole). This resin is added to the sand, resulting in only one component to be metered.

To achieve cross-linking in the shortest possible time, CO₂ (as a reactant) is introduced into the closed core box. Our Resole-CO₂ products, named Carbophen, are true alternatives in the field of gas-hardening processes. Through continuous development, Carbophen has earned and maintained a solid position in core production.

The following features have been improved:

- flowability
- shelf life
- disintegration properties

Both in core production and during casting, the emissions can be classified as low. The advantages of our Carbophen products are:

- uncoated application is possible
- only one component needs to be metered
- no amine or scrubber is required
- the resin does not contain nitrogen, sulphur or phosphorus
- no finning tendency exists
- good core disintegration after casting

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