

MAGNASET™ 2.0



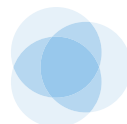
THE NEW GENERATION OF ENVIRONMENTALLY FRIENDLY FURAN RESINS WITH IMPROVED CLASSIFICATION

The modern foundry industry is characterized by high quality requirements and strict environmental regulations defining emission thresholds. At the same time, the importance of sustainability aspects and health awareness are becoming more and more important.

In this context, ASK Chemicals has developed MAGNASET™ as new generation of furan resins without the skull and crossbones labeling, with reduced free furfuryl alcohol content, yet with performance comparable to conventional furan resins. This second generation of MAGNASET™ resins have improved storage stability and excellent reactivity characteristics.

TECHNOLOGICAL ADVANTAGES

- Low hazard label
- Performance comparable to conventional furan resins
- Consistently low viscosity
- Improved storage stability
- Problem-free mechanical reclamation of the used sand



MAGNASET™
2.0

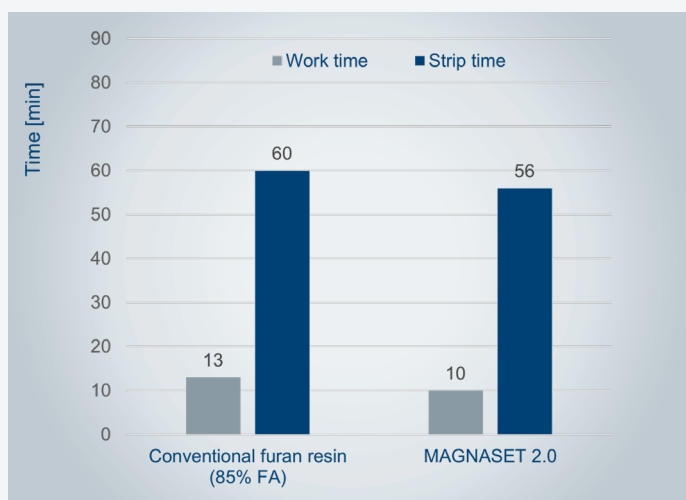


Figure 1: Comparison of reactivity times of conventional furan resin and MAGNASET 2.0

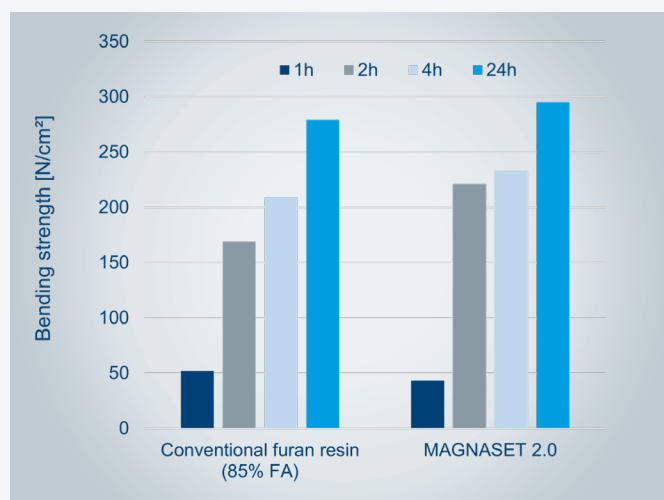


Figure 2: Comparison of flexural strengths after 1, 2, 4 and 24 hours of conventional furan resin and MAGNASET 2.0

Sand mixture: mechanical reclaimed silica sand (AFS 43; pH approx. 3, loss on ignition approx. 2 %); 0.9% resin / 0.3 % hardener (65 % PTSA); sand temp. 20°C/ room temp. 20°C / rel. humidity 40 %

MAGNASET™-technology has been developed as a new generation of low-formaldehyde furan no-bake binders (FNB) with a milder classification requiring no skull and crossbones labeling. The casting performance of the new MAGNASET™ resins is comparable to „state-of-the-art“ furan resins (free FA: 50-95 %), although they have a significantly lower free FA content (<40 %). This leads to a significant reduction in furfuryl alcohol emissions during mixing and molding.

MAGNASET™-resins can be cured with acidic hardener GS II, for example, and the reactivity can be easily adjusted by selecting the appropriate type and quantity of hardener. The intrinsic high reactivity of those resins makes it possible to use less reactive catalysts with reduced sulfur content, which ASK Chemicals offer as the “RS” hardener series. In combination with the low free FA content, the “RS” series has the potential to further decrease overall emissions. The reduced sulfur content has a positive effect on the quality of the castings as well.

The portfolio encompasses a series of resins with tailored properties suitable for all types of casting and customer needs, providing good molding properties and excellent casting surfaces. MAGNASET™ 5912 LFA is a phenol-free resin with a very low free formaldehyde content (<0.1 %) and a medium to high reactivity, which makes it an “allrounder” for all types of castings. As a mixed resin, MAGNASET™ 204 ES LFA offers both low free phenol (< 1.0 %) and free formaldehyde contents (<0.1 %) with performance comparable to phenol-free MAGNASET™ systems.

The reduced FA content as well as the high reactivity of the resin cause a slightly lower storage stability as compared to standard FNB resins, but the stability is still superior to that

of phenolic resins.

The newly developed resins show the desired improved storage stability as well as comparable reactivity to the first MAGNASET™ generation. The viscosity values for MAGNASET™ 2.0 remain at a constantly low level. High reactivity as well as excellent strength development was also achieved, comparable to conventional furan resins and MAGNASET™ Gen 1 resins.

YOUR SUSTAINABILITYPLUS

Profitability

- Good sand processing properties for the usual simple recycling process
- Easy changeover from conventional furan resins to MAGNASET™ possible

Environment & Social

- Improved hazard classification for employee health
 - Improved occupational safety
- Low emission of pollutants during mixing and molding
 - Reduction of FA emissions