

# INOTEC™ PROMOTOR



## IMPROVING THE HUMIDITY RESISTANCE OF INORGANIC BINDERS WITH INOTEC™ PROMOTERS OF THE 6<sup>TH</sup> GENERATION

The INOTEC™ technology has established itself world-wide as an environmentally friendly and highly productive core manufacturing process for the production of cast light metal components and has become an indispensable part of today's production processes for various automotive powertrains.

Due to the increasing demands with regard to process stability and quality in the series production process, performance requirements on inorganic binders are constantly rising. A key performance indicator is the humidity resistance of the cores, which is characterized by the retention of flexural strength and the absorption of moisture during core storage, but also by the absorption of moisture from cast core packages up until raw part machining. The excellent break down properties of the cores after casting increase process stability, since reactivation of the binder system is slowed down by the reduced moisture absorption.

The new 6<sup>th</sup> generation INOTEC™ promoters enable an improved moisture stability and also offer further technological advantages.

### TECHNOLOGICAL ADVANTAGES

- Increased material efficiency due to lower addition rates
- Optimized humidity resistance (improved strength retention and reduced moisture absorption) during core storage
- Variable thermal stability depending on the sand core geometry
- Process-reliable break down properties for raw part machining



**INOTEC™**  
patented technology

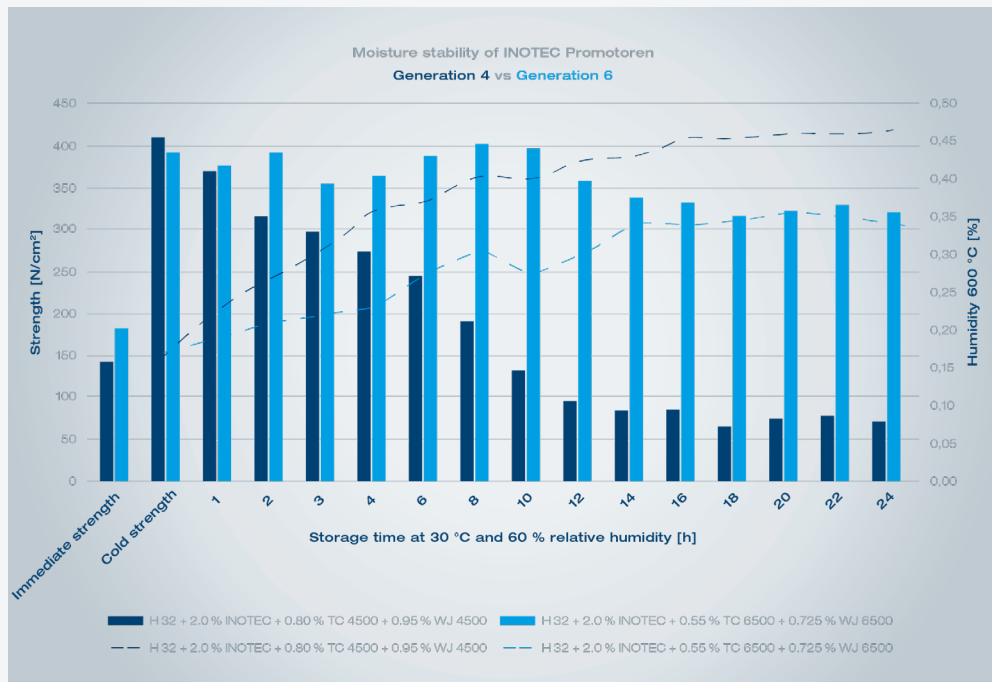


Figure 1: Absolutes Strength (bar) and moisture development (line) for inorganic-bonded sand cores based on INOTEC™ 4<sup>th</sup> (dark blue) and 6<sup>th</sup> generation (light blue) promoters.

### INOTEC™ promoters (6<sup>th</sup> generation)

The 6<sup>th</sup> generation INOTEC™ promoters improves the moisture stability of inorganic-bound sand cores as a key performance characteristic of the powdered binder component. The moisture stability of inorganically bonded sand cores can be monitored by determining the strength and moisture content during core storage at high absolute humidity. The moisture at 600 °C is determined in order to record all of the water bound in the sand core. Figure 1 shows the development of the two parameters „Strength“ (bars and left scale) as well as „Humidity 600 °C“ (dashed lines and right scale) of both the 4<sup>th</sup> and 6<sup>th</sup> promoter generations as a function of storage time at an absolute humidity of approx. 18 g water/m<sup>3</sup> air (30 °C, 60 % relative humidity).

The concept of thermal stability has been incorporated unchanged in the promoter components of the proven modular system. Thermal stability describes the resistance of the binder system to mechanical and thermal influences of the casting applications. In this context, the INOTEC™ Promoter WJ 6500 exhibits exceptionally high thermal stability, which counteracts deformation especially of filigree and thermally stressed core geometries, such as water jacket cores, during casting applications. In contrast, the INOTEC™ Promoter TC 6500 has low thermal stability and is suitable for the production of voluminous core geometries e.g. cover cores. The complementary promoter components can be mixed in any ratio, so that a specific thermal stability can be set in dependence on the sand core geometry (Figure 2).

In addition to these sand core-specific properties, a reduced usage rate for 6<sup>th</sup> generation promoters and thus increased material efficiency should also be highlighted. In addition, the use of the latest generation of promoters optimizes landfill costs for sand disposal.

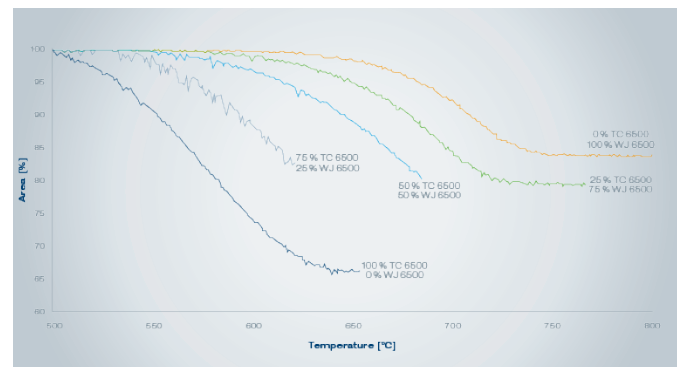


Figure 2: Comparison of thermal stability

### YOUR SUSTAINABILITYPLUS

#### Economic aspects

- Reduced landfill costs for sand disposal

#### Environment & Social

- Emission-free in core production, storage and casting application, thanks to being 100 % inorganic