

Cast media costs reduced by 55% per cubic foot and cleaning time lowered by 75%



Switch to ACCUCAST ceramic casting media from zircon sand improves the quality of specialty parts while reducing media and finishing costs for industrial foundry.

The challenge

A producer of large cast steel parts (3,500-50,000 lb) for the mining, construction, marine, rail, turbine valves and industrial markets needed to reduce escalating media cost without affecting production quality

For specialty applications requiring high-quality metal finishing, zircon sand was initially used due to its high refractory value and low thermal expansion that enhanced both dimensional reproducibility and shakeout.

High-quality zircon sand had become prohibitively expensive and trials with lower-grade zircon sand proved ineffective due to cast quality issues.

Using zircon sand, the clean-up time on specialty parts could take 30-40 hours to complete, lowering output and adding costs to production.

The solution

CARBO ACCUCAST ceramic casting media was selected to replace zircon sand, as its uniform shape and low thermal expansion characteristics make it ideal for high precision castings in a variety of metals and processes.

ACCUCAST ID intermediate-density media has a 34% lower density than zircon sand, which reduces the mass of media required to produce each mold and results in a 55% reduction in the mold cost/ft³.

The durability of ACCUCAST ceramic media allows for near-perpetual reuse which further reduces media consumption, and lowers waste and associated costs.

ACCUCAST media is chemically inert so it minimizes exposure hazards, and eliminates HSE-related issues compared to silica and specialty sands.

Project Details

Client: Large steel, no-bake foundry

Location: Louisiana

Type: Mold casting

Deliverables/size: Heavy industrial machine parts; 3,500-50,000 lb range

Casting media: ACCUCAST ceramic casting media



ACCUCAST can reduce mold media cost by 55-69% per ft³ compared with zircon sand



The results

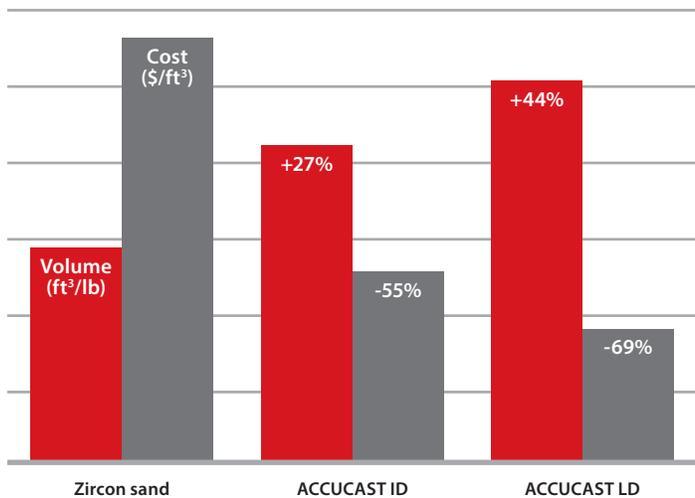
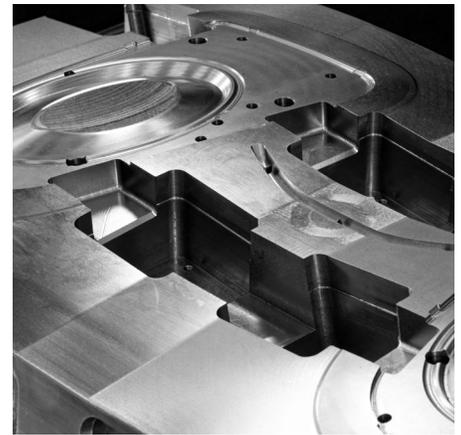
The switch to ACCUCAST media for specialty applications reduced the foundry's media costs by 55%. The consistent casting of high-quality metal finished parts lowered defect corrections and scrap costs.

The improved shakeout efficiency of ACCUCAST media provided clean and quick core separation, even in up to 91,000 lb pours. As a result, jobs that previously required 30-40 hours clean-up were being completed in 10 hours, reducing production time and cost.

Transportation costs were also reduced due to the close proximity of the foundry to the CARBO manufacturing plant in New Iberia, LA.

The ACCUCAST media provided clean core breakout, further adding to the economic advantages experienced by the foundry while the switch required only a minimal addition to the resin binder system and no major equipment investments.

The cost/ft³ of intermediate (ID) and low-density (LD) ACCUCAST ceramic casting media compared with zircon and chromite sand.



Zircon sand used as baseline for all calculations

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