



**FAIRMOUNT**  
MINERALS



Division of McWane, Inc.  
Tyler, TX  
Cast Iron Products

## Transforming Shell Sand Through Odor Abatement Technology and Ultra-Low Free Phenol Formulations

The North Plant of Tyler Pipe, a division of McWane, Incorporated, is a major producer of cast iron soil pipe, soil pipe fittings, drains and valve boxes used worldwide in multi-story commercial building drain systems. Since the company's founding in 1935, casting operations at Tyler Pipe's North Plant have grown steadily, producing in excess of 500 tons of cast iron products daily. Until recently, maintaining the demanding production schedule, improving environmental conditions for workers, and enhancing product quality seemed like unattainable goals. However, by switching to a different shell sand formulation developed by Technisand Inc., Tyler Pipe's managers gained not only improved quality and greater production efficiencies, their workers benefited from the elimination of ammonia odors inherent in conventional shell sands. Based on patent-pending Neozien® odor abatement technology, Technisand has eliminated the noxious odors that once shrouded the Tyler plant.

Shell cores represent an important component in the company's casting process. According to Core Room Manager, Jimmy Allen, "The shell cores that we make are used in forming the interior contours for many different sizes and shapes of low pressure gray-iron fittings,

including p-traps, tees, y's, valve boxes and extensions. Shell cores are also used on our hub core machines to make the gasket seat end on a straight piece of pipe." Allen points out that because the Tyler North Plant operates a total of 26 shell core machines to meet current production requirements, the large volume of shell core sand used in the process represents a considerable expense.

### New Performance and Cost Reduction Goals

When the resin coated sand supply contract at Tyler Pipe was up for renewal in October, plant managers decided that it was time to reconsider their source of supply. As part of the decision making process, management set specific objectives to reduce costs and improve performance. Chief among these requirements were reduced scrap at the core machines and less damage during transport and handling. Problems related to lamination, peel-back core defects and uncured sand inside the shell cores also needed to be significantly reduced or eliminated. Additional objectives included higher shell core strength, thinner wall thickness and better heat transfer capabilities to reduce overall sand usage, shorten invest cycles and reduce cure times.



North Plant Assistant General Manager Kent Brown is coordinating an array of recent upgrades and improvements at the Tyler Pipe facility.

During the evaluation process, Tyler Pipe obtained a detailed cost analysis from one of its longtime vendors, shell sand products distributor Porter Warner Industries, LLC, headquartered in Chattanooga, Tennessee. Porter Warner technical sales specialist, Don Markham, recommended conversion to



Tyler Pipe continues to successfully compete against stiff international competition from its operations in Tyler, Texas.



Technisand™ Signature Series shell sand, a low emission resin coated sand developed by TechniSand Inc., a Fairmount Minerals subsidiary. Markham comments, “Technisand Signature Series grade S833R is a finer, denser material that gives better heat transfer capability, eliminates breakage, and has much less odor than the other resin coated sand Tyler used previously. And this resin coated sand was actually lower in price than the material Tyler Pipe had been using in the past.”

### Improved Quality and Productivity

Since its introduction at Tyler Pipe, Technisand Signature Series shell sand has met and exceeded established performance requirements. Jimmy Allen observes that, “Technisand is a smaller grain sand without the fines we had in our previous mixture, so it’s a pure sand that coats much better. This results in greater tensile strength, better workability when the sand is made into a core, and a smoother surface inside the fitting.” Allen also states, “On the majority of jobs we are seeing faster cycle times. The ideal is a stronger core with reduced weight. When you reduce the weight of the core 20%, say from 10 pounds to eight pounds, you reduce the cycle time. And because the sand’s formula has a higher melt point, there are fewer peel-back core defects, lamination problems and uncured sand inside the shell cores.”

### Savings Plus An Improved Work Environment

North Plant Assistant General Manager, Kent Brown, also confirmed the success of Technisand Signature Series shell sand by stating, “We used to get quite a bit of shell core breakage in the unit, but now I can tell from a visual walking-through of the foundry that there is much less breakage — we no longer have piles and hoppers full of broken cores. We’ve also seen a reduction in the amount of core sand that we purchase. Our core department costs are down 30.3% over

### Technisand Signature Series Benefits

- Ultra-low free phenol, as low as .0015%
- Elimination of the strong ammonia shell sand odor.
- Cleaner work environment, fewer emissions and less smoke.
- Greater core strength reduces breakage and scrap. Increased strength also allows for thinner core walls that reduce invest and cure times.

the same period a year earlier.” Brown also cited the North Plant’s improved working environment by commenting, “One of the other major benefits we received with Technisand Signature Series shell sand is that it has a pleasant, slight aroma of warm cookies, rather than the strong, offensive ammonia odor found in other resin coated sands. The product’s Neozien odor abatement technology makes for a better working environment and our employees comment frequently that they really like this feature.”



Core Room Manager, Jimmy Allen, supervises production of shell cores at the Tyler Pipe North Plant.



## TECHNISAND INC.

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