

THE NO-NONSENSE BUSINESS OF

# POLYMER PROCESSING

TO IMPROVE HMA PERFORMANCE

**T**HERE HAS BEEN a lot of talk in the HMA industry the last few years about “modified asphalts” and how they will help us achieve better performance and longer life for our nation’s highways. On a very basic level, of course, every HMA formula involves modification of some sort, although this is usually achieved just by mixing various aggregates or mineral additives with liquid AC.

Lately, however, the subject of “modified asphalt” tends to get pretty technical, pretty fast. You find yourself dealing with a wide variety of polymers, such as SBS (styrene-butadiene-styrene). You must also handle specs having to do with thermal degradation, gelation, milling, and shearing.

#### **Turn to a specialist for advice and assistance**

It is at times like this when you want to turn to a company like Terry Materials, Inc. of Hamilton,

## **FEATURED PROCESSOR: Terry Materials, Inc.**

Hamilton, Ohio — Phone: 513-874-6192  
(using blending tanks, heaters, and controls by Heatec)

OH. They are specialists in polymer processing and suppliers of modified asphalt to the industry. The purpose of polymer processing was recently discussed during an interview by *Hot-Mix Magazine* with Mark Terry, president of Terry Materials.

“The underlying purpose of polymer blending,” said Terry, “is to upgrade the properties of asphalt to improve the performance and life-expectancy of our highway system as outlined by SHRP. You will obviously be hearing a lot more about polymer processing in the future.”

Terry Materials is a family owned company that began operations in 1962 with road construction, highway resurfacing, and the

manufacturing of specialized paving materials and additives. About 12 years ago, the company started developing some highly sophisticated techniques and procedures for modifying asphalt for the HMA industry. They built their first plant themselves at their headquarters in Hamilton and began to market their new polymer-processing system to interested customers.

According to Mark Terry that first plant was a learning experience for his company.

“We built the very first plant ourselves,” Terry said, “because we needed to find out firsthand what was right and what was wrong. Later, as we became established and our market grew, we needed

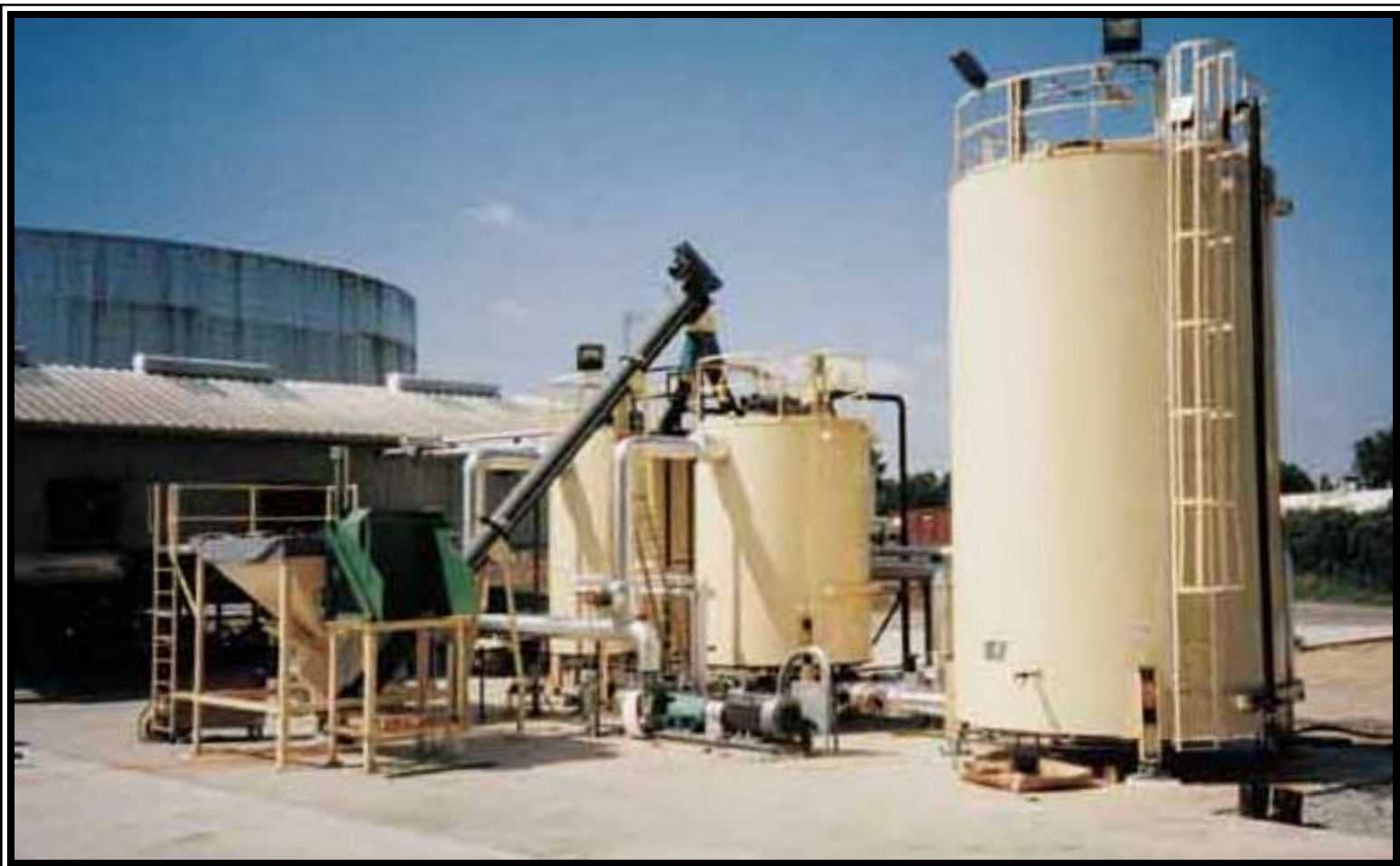
some help building new plants with more capacity and better performance. That’s when we turned to Heatec.”

Terry Materials now operates four polymer-processing plants: the original one in Hamilton, OH; another that went up in 1991 in Lexington, KY; and two more that were brought on line within the last year in Atlanta, GA and Alma, MI. Heatec supplied the vertical tanks, heaters, and controls for the last three plants. Terry said the company has plans to build plants at several other locations in the near future.

#### **Polymer processing requires a certain expertise**

The modification of asphalt by adding certain polymers is a highly technical process that requires a certain mastery of the technology, as well as the right kind of processing equipment.

“There are a lot of different ways to modify asphalt,” said Terry.



“Generally speaking, we add certain modifiers to the asphalt cement while utilizing elevated temperatures and high-shear mixers to change the molecular structure of both the asphalt and the modifiers. In this way, the modifiers—which are usually a polymer of some sort—and the asphalt cement are brought together so that they become one entity, instead of two.

“It’s a mechanical process,” he explained. “There’s a shearing action, a milling action that takes place in the vessel we call the ‘concentrate tank’. This is usually a heated and insulated 4,000-gal. (15,000-L) vertical tank equipped with impellers that provide the necessary shearing and milling action.

“After the two materials have been brought together and have been stored at an elevated temperature, there is a chemical reaction that allows stabilization

to take place. This gives us a concentrate that contains from 8% to 15% of the modifier.

“Once the concentrate has been processed and is uniform, it is transferred to a larger storage tank—the ‘blend’ tank—that has a 20,000-gal. (76,000-L) capacity. Here, we add more virgin AC to dilute the mixture down to whatever the desired percentage might be: 2% or 3% or whatever. This, then, is the finished bitumen, ready for application.”

#### **The need for special heating and agitation**

Terry said the final storage tanks need to be continuously heated and agitated to maintain the integrity of the product. His firm uses both side-mount and top-mount turbine agitators on their tanks. And they use both hot-oil and steam to heat the tanks, depending on whichever heat source is the most readily available at the plant site.

“We originally contacted Heatec,” Terry said, “because we had heard of their reputation in the HMA market for building storage tanks and heaters for liquid AC. Heatec has done a good job for us. The quality of their product is very good. The appearance of their equipment is excellent.

“Perhaps most important, they were able to expedite the building of our last two plants in a very short period of time with only a little bit of advance notice.

“And that’s important to us,” Terry said, “because ours is a very seasonal business and we don’t always have a lot of time to play with. I asked for the impossible and Heatec responded. They built two complete plants for me in just three months.

“Heatec has a very positive philosophy. They don’t wear blinders. They’re willing to try new things, to experiment. Their engineers worked closely with

me to get the job done. In short, they’re a good, service-oriented company. What else can I say?”

#### **If you’d like to know more about polymer modifiers . . .**

The National Asphalt Pavement Association (NAPA) has several publications which focus on the use of polymer modifiers. One of those publications is entitled “Using Additives and Modifiers in Hot Mix Asphalt” (QIP-114A). You can get more information about this publication by calling NAPA at 301-731-4748. ▼▲▼

#### **FOR MORE INFORMATION**

*about Heatec vertical or horizontal storage tanks and heaters, call and ask to speak with Gail McKeegan:*

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