

A NUMBER OF OLDER plants have been adapted to use premixed polymer-modified asphalt cement (PMAC). There are several ways it can be done, depending on the existing type of AC system in use. Some have tried to use PMACs with conventional, unmodified equipment used for unmodified AC. But the results are usually unsatisfactory.

Adding a spray bar inside a horizontal AC tank that incorporates coils heated by hot oil can enable it to satisfactorily maintain PMAC. Its pumping system must be modified to constantly recirculate the material. This can be done by adding a new pumping system or by modifying the existing unloading system. Also, its heating system must be adjusted to maintain its temperature at approximately 340° F (170° C) or as specified by the PMAC supplier. This adaptation is very economical to make. It performs fairly well with most premixed PMACs on high-volume jobs when the PMAC is stored for relatively short times. This is the type of work typically done using portable HMA plants.

This modification may take a couple of days to complete. It requires taking the tank out of service while the work is being done. The tank must be completely drained and allowed to cool before it can be modified.

Another method has also been used to adapt a horizontal AC tank that incorporates coils heated by hot oil for use of PMAC. The adaptation is made by mounting either one or two mixers in the manholes in the top of the tank. Again, the heating system must be adjusted to maintain its temperature at approximately 340° F (170° C) as specified by the PMAC supplier.

The major cost for this adaptation is for the mixers and depends on whether one or two mixers are used. Additional costs may also be involved if new manholes or openings are added to get better positions for mixing than provided by existing manholes. In all cases, this adaptation is some-

PMAC systems for HMA plants

*polymer-modified asphalt cement

what more expensive than adding a spray bar. It performs quite well with some premixed PMACs, depending on the number of mixers and their positions. The modification may take only a relatively short time if existing manholes are used. But if new openings have to be added, the modification may take as long as adding a spray bar. The tank would have to be taken out of service while it is being modified.

Another method of adapting a plant to use premixed PMACs is to add one or more heated vertical tanks designed specifically for PMACs. They work just as well

with older plants as with new plants. Adding vertical tanks costs somewhat more than adapting existing tanks, but they can be expected to perform more reliably and more efficiently with virtually all PMACs. Consequently, many contractors are choosing vertical tanks over other methods. Nearly all the work involved in installing a new vertical tank at a plant can be done without interrupting operations. It is usually necessary to shut down the plant only while making final connections to the existing system.

In some states, contractors have the option of using a PMAC

made with an SBR (styrene-butadiene-rubber) that is a water-based latex polymer. The latex polymer is usually blended with the virgin AC as both materials are pumped into the HMA mixer. The blending is accomplished by a static in-line blender installed in the asphalt line leading to the HMA mixer. Only minor modification is required to install the blender. Moreover, this method of blending works very well when blending this type of polymer.

When the same mixing tank is used for more than one type of binder, the contractor needs to avoid unintentionally mixing the different binders. This requires emptying the tank of the old material before filling it with the new material. In the past, tanks were not normally emptied. So they were not designed with that in mind. Drain lines and AC pump outlets were purposely not at the very bottom of the tank. Instead, they were at a level that would maintain enough material to keep the heating coils immersed. That protected the coils from coking. Those tanks can be emptied only by inserting a drain line into the tank through the manhole and pumping all of the material out. Heatec now puts a drain valve in the very bottom of their tanks to allow them to be completely drained. ▼▲▼

The above text is a brief extract from a very informative 20-page tech paper that was published last year by Heatec. The entire paper is available at no charge from Heatec. Just call the number shown below and ask for Tech Paper T-133 ("Heating, Mixing and Storing Modified Asphalt").

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FOR MORE INFORMATION

about Heatec's experience and expertise with vertical and horizontal storage tanks and heaters, call and ask to speak with Sharlene Burney:

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