

## **ACCU-SHEAR™ IMPROVES CLIENT'S OPERATIONS,** **ACHIEVES INCREDIBLE RESULTS**

When Rick James, P.E., Executive Vice President of Adams Construction, Roanoke, Va., ran his first paving job with warm mix, he used a small experiment. After sending regular mix on-site at 320 degrees, he began replacing it with loads of warm mix. The crew had put the temperature guns away and were not checking the numbers.

“So I got out on the job about 2:00 in the morning and the superintendent told me, ‘I’m glad you didn’t run that warm mix.’ And I said, ‘Why is that? Were you concerned about it?’ and he said ‘Yeah, I don’t think it’ll work.’ So I pulled my temperature gun out of the pocket, shot it behind the screed, it was about 270°.” The superintendent didn’t know – but he had been running warm mix. James continues, “He didn’t know it. It’s a good story. Because this superintendent - He’s the old school. The guy does outstanding work, he just wants his mix hot. So we had this stuff as cool as 236° coming off the back of the screed.”

The job went extremely well according to James, who explained that his experiment was intended as a way to help others who might have pre-determined opinions about warm mix see the results that can be achieved using new technology. And after much research, James credits this success to the new warm-mix technology inside the skid purchased from Stansteel® – the Accu-Shear™.

The Accu-Shear™ is a comprehensive assembly custom engineered by Stansteel® to offer the advantages of accurately injecting water, other liquid additives or a combination of these materials. “Liquid Asphalt and water do not mix naturally, in fact they will separate if possible. The principle that the Accu-Shear™ operates under is the shearing process of forcing the two (or more) liquids to mix together,” explained Chet Reinle, Stansteel® technical director. “The colloidal pump and the mixing action that takes place with the application of horsepower is similar to an emulsion process. By mechanically blending in lieu of simply injecting, the producer avoids the inherent nature of laminar fluid flow. By positively blending the additives with the liquid asphalt the foaming action is dramatically increased. More importantly, the fusion is maintained for a longer period.”

Here are some Accu-Shear™ facts:

## **LOW MAINTENANCE**

- **Proven components for repeatability and long term performance.**
- **No valves, nozzles or screens to plug.**
- **No downtime for component clean out.**
- **Operates over a full range of production without manual adjustment.**

## **ULTIMATE LIQUID BLENDING**

- **Eliminates laminar flow and separation of liquids.**
- **Utilizes horsepower and a shearing process to force the two (or more) liquids to mix together.**  
**Facilitates much lower mix temperatures.**
- **The variable speed drive permits adjusting the speed of the shear to DYNAMICALLY FOAM the materials. Mix with regular AC or polymers.**

## **CUSTOM ENGINEERED**

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James admits that this technology caught his attention during his research. "I shopped extensively and have been observing the technology for the last couple of years," he said when asked about his decision to buy his first Accu-Shear™ in July of 2009. "After considering all the different systems, I just didn't feel comfortable going with a static mixing system. The mechanical blending system that Stansteel® offered is tried and true, as previously used in emulsion manufacturing. I really felt it was a more viable option for this project. After having tried it with both the polymer asphalt and the regular asphalt, I became a believer in the technology and felt like for asphalt plants, you all offer the best method for water-injected warm mix asphalt."

Adams Construction has now purchased a total of five units and James plans to use them to better the company's warm mix production. The Accu-Shear™ ability to work on any brand plant was demonstrated at Adams construction, where the skids have or will be installed on one Stansteel counterflow drum conversion, two CMI plants as well as an Astec and a Gencor plant.

Reinle has observed an increase in demand for the Accu-Shear™ and a clear consensus among Stansteel® customers that the mixing results are far superior than the competition. “The results that we’re hearing back are that once you do fuse the oil and water together and you get good blending, it basically operates just like 320° asphalt,” Reinle explained. “We’ve heard that some people are saying that it actually rolls better, you can do it in a single pass or instead of having multiple rollers, you can just basically take a roller off the job.”

James agreed. “The first several jobs I did were all polymer asphalt. And the lead roller operator did indicate to me that the mix was rolling better.” Polymer asphalt is a hot button issue for Adams Construction and for other contractors in the state of Virginia. “You’re looking for 93% average density on polymerized asphalt in Virginia,” according to James. “If you’re 92.9%, you suffer a 15% penalty. So you have got to take it pretty serious.” Polymerized asphalt that is too brittle also gets penalized – at 98% density or over. With the help of the technology of the Accu-Shear™, James said the company achieved 95% density and at cooler temperatures than ever before.

All test results such as voids, density or compaction were identical to that of hot mix asphalt using the same mix design, Reinle added. But in Virginia there is concern about the TSR results when running warm mix technology. The tensile strength ratio (TSR), which is the ratio of the preconditioned strength to the dry strength, is used to predict stripping. A TSR of 1.0 indicates that a mix does not have a stripping potential, while a TSR less than 1.0 indicates that it does. On the basis of experience a TSR less than 0.8 is considered unsatisfactory for a reference. The Accu-Shear™ results were .9 and well within acceptable range.

There is also the concern for laying asphalt in cold weather. “In Virginia, Superpave mix cannot be laid on a base that’s less than 50°. By going with the warm mix system, we’ve dropped that to 40° base temperature.” James concluded that the Accu-Shear™ not only helps prevent any density issues but has successfully extended the paving season in a state that is known for harsh winters.

Using the Accu-Shear™ has also proven helpful for environmentally conscious projects, such as LEED certified building jobs. According to the U.S. Green Building Council (USGBC) web site, LEED stands for Leadership in Energy and Environmental Design and it was developed in 1998 as a Green Building Rating System by the council. Like with other jobs in which he used warm-mix, James ran into skeptics. They didn’t think the mix would lay at such low temperatures and were concerned about density as well. The project was another success for Adams Construction, James explained. “We ran the whole job and I ended up having to have a post-paving meeting to explain what technology I used to be able to pave at temperatures far lower than any of these guys have ever seen.” Those involved in the job also noticed less emissions with the use of this innovative technology. “There are clearly less visible emissions going up the drag; less emissions at the top of the silo; less emissions at load-out; and even when the truck is pulling away from the plant,” said James.

The benefits of choosing the technology behind the Accu Shear™ system were also enhanced by the positive overall experience dealing with professionals at Stansteel®. The installation of the unit went smoothly and only took one day. James complimented the staff, “Certainly, they were more than willing

to accommodate any request or need that I had and I'm speaking from field service to engineering to sales support. I'm going to call it 'unparalleled service.'"

***Please contact Stansteel® Asphalt Plant Products, Louisville, KY, 1-800-826-0223 for questions or evaluations of existing plant processes, or visit the company's web site at [www.stansteel.com](http://www.stansteel.com)***



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