



PRECISION WATER SYSTEM

Delmon Readymix

Delmon Readymix was established in 1973 and is Bahrain's leading readymix concrete company having an excellent reputation in the market built upon product quality and friendly service.

The Challenge

Located in Salmabad, Bahrain, Delmon Readymix plants experience variations in the aggregate moisture that are unique to its location and climate. While the moisture of their marine sand usually delivers free water into the load, on many occasions the limestone aggregate is dry enough to absorb free water out of the mix just to achieve its saturated surface dry (SSD) condition. This wide variation in moisture had necessitated the creation of several compensatory processes at the batch plants. The batch operator would manually adjust the water in the mix design before the load if the aggregates were thought to be dry, and the truck would make a required trip to the slump stand for final adjustment.

The Solution

Command Alkon was approached by Delmon Readymix to help them with a specific production requirement. Delmon needed to reduce the slump variability of concrete when delivered to help speed up the pumping process. Delmon also wanted to reduce the number of wasted loads based on job site rejections, rework, etc.

The Result

Jon Mottram, General Manager of Delmon Readymix, found that Command Alkon's Precision Water System (PWS) for COMMANDbatch was the key needed to improve plant operations. As part of a Spectrum upgrade to COMMANDbatch, Delmon installed a Precision Water System and Plant Watcher to improve the quality and consistency of the concrete delivered to their customers. The upgrade to COMMANDbatch and



LOCATION
Bahrian



INDUSTRY
Ready Mix



RESULTS
More Efficient Mixes

installation of the PWS system was easy. "Command Alkon was able to convert our data in their office before coming to site and the new batching computer was delivered with this data pre-loaded, thus with the data correct and the moisture probes installed in the bins before their engineer arrived, only one day was required to convert the concrete plant," Mr. Mottram says.

Their Precision Water System is equipped with four Command Alkon moisture probes, providing moisture measurement for all aggregate up to 20mm (3/4"). As part of the commissioning process, the first benefit of the PWS to be realized was the ease of calibration of the moisture probes. Jon Mottram describes it this way by saying that, "The new system is very simple, all you have to do is hit the bake out button on the probe calibration screen, capture the material under the weigh bin, (have) the lab staff do a moisture test, then re-enter the figures into PWS at any time later and away you go! You need to repeat the bake outs to get the final calibration curve, but this builds up over time and gets better with the more calibrations done. It is very simple."

Once plant operations were restarted, the ability of the COMMANDbatch and the Precision Water System to deliver changes in real time became clear. This plant at Delmon requires two or more batches to make the full truck load. "With PWS you get changes in the aggregate moisture immediately adjusting the final water addition to the batch," Mottram notes. "This capability ensures every part of the load is produced correctly. We now have more accurate slumps at the plant with + 15mm (0.6") achieved repeatedly, requiring less use of the slump station. The batcher no longer adds water manually to correct the slump.

PWS allows the absorption of the aggregates to be taken into account when batching the concrete, thus, when using very dry material which will absorb moisture, the system automatically adds water to the mix which gives the correct slump of the concrete and the correct yield. We are achieving a tighter envelope on slumps at the job; the customer gets better consistency between loads, we get

happier customers with fewer complaints ensuring our company keeps an edge over the competition." Looking back on the COMMANDbatch/Precision Water System implementation at Delmon Readymix, Jon Mottram warns that to achieve success there are certain key factors to consider before purchase. First, the initial cost of Precision Water System may hinder purchase decisions for plants with low volume, but any high output plant should be a candidate; all five Delmon plants with Precision Water System run at very high production levels. Referring specifically to the Salmabad plant, Mottram says that the savings returned by the COMMANDbatch, Precision Water System, and Plant Watcher will pay for the upgrade in about five months. "Training and personnel are key factors, as is the enforcement of consistent and repeatable processes across the entire organization. Achievement of any quality control initiative will not work unless all departments buy into the concept (Production, Technical, and Sales). All areas of the business have to fully understand what the benefits of the system are and how to use it properly," Mottram adds.

"With the Precision Water System, you get changes in the aggregate moisture immediately by adjusting the final water addition to the batch"

The final proof is in the concrete. After COMMANDbatch was installed with the Precision Water System the company reported a drop in the strength standard deviation from 5.5 mpa (797 psi) to 4.5 mpa (652 psi) for their mixes in the past two months. In conjunction with the operational bottlenecks identified by Plant Watcher, the company has been able to reduce the amount of cement used while producing extremely consistent concrete.



Transforming your operations by replacing manual and complex tasks and processes with efficient, scalable, and reliable solutions. Learn more at commandalkon.com