

# WEST CARROLLTON

## Polyblend® M-Series Liquid Polymer Wetting and Activation System

## OVERVIEW

**Challenge:** The 1.5 million gallons per day (MGD) West Carrollton Wastewater Treatment Plant in West Carrollton, Ohio came on-line in 1989 and today serves 12,000 area residents. The activated sludge facility produces an average of 200 wet tons/month of sludge that, following belt filter press dewatering, is spread on area farmland by a biosolids management company. Polymer is added to the sludge prior to belt press dewatering to aid in liquid-solid separation.

After 13 years, West Carrollton plant management found it was time to replace the facility's two-stage dry polymer feed system. "Our original system had served its useful life," says Utility Superintendent Tom Scherack. "As with any older system, components were becoming worn out and its operation had become maintenance intensive. We also needed more room in the polymer mixing area and hoped to replace our old system with something smaller." The old polymer feed system had served the West Carrollton plant well, but it was time for a change. "Basically, we were looking to maintain our same level of polymer performance but wanted a system that took up less space and, hopefully, required less capital outlay," says Scherack.

**Solution:** A Polyblend® M Series Polymer Feed System was installed in February 2002 at the West Carrollton facility. The Polyblend® system is a liquid polymer feed system with a tapered mixing chamber that provides high performance polymer mixing and feed.

**Results:** The Polyblend® feed system applies high mixing energy at the first contact of polymer and water for a short duration on initial shear. The system also applies mixing through a tapered regime, which minimizes polymer agglomeration and fracturing. After initial wetting or inversion in the high-shear impeller zone of the unit, polymer solution passes through a cylindrical processing zone where it is subjected to continuously decreasing shear rates over a period of time. The unit is equipped with "C" Controls functions, which along with a variable speed mixer offers a system with unmatched activation flexibility. The controller is capable of maintaining constant solution strength by sensing changes in incoming make-up water flow and automatically responding to these flow changes via a motor-driven control valve. Even primary and secondary dilution water is kept at the same ratio as output is adjusted.

- After installation of the Polyblend® system, the ideal stroke and speed parameters for West Carrollton's cationic polymer were established. "It's a real simple operation," says Scherack. "We found what stroke and speed the Polyblend® system needed to be set at and we just let it go."
- West Carrollton's new polymer feed system is in the same location as the old two-stage system but is mounted on the wall instead of taking up valuable floorspace.
- Since installation, the new feed system has required virtually no maintenance.
- In addition, the cost of the Polyblend® feed system was approximately 15 percent of the cost of a new, two-stage dry polymer feed system. "We got what we were looking for in a new polymer feed system," says Scherack. "Our new Polyblend® system has a much smaller footprint than our old system, while still providing a high level of polymer activation and with no maintenance headaches. And, we got all this for a lot less cost upfront."

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