



## Midwest Windshield Manufacturer

**The System:** 1800 ton open recirculating cooling water loop featuring an induced draft cooling tower. The tower water provides direct cooling to jacketed steam autoclaves that are used to cure finished windshields.

**The Problem:** Following the curing cycle, during which steam passes through the autoclave jacket, the steam supply is shut off, and tower water is passed through the jacket to cool the autoclave. High skin temperatures, along with high cooling water hardness and alkalinity levels, were causing scale to form on the surfaces of the autoclave jackets. As the scale built up, it became necessary to increase the curing cycle time, resulting in production slowdowns and increased steam and cooling costs for windshield curing. When cycle times became intolerably long, the autoclaves were taken off line and descaled using a concentrated mineral acid cleaning chemical. It was necessary to remove the autoclaves from service for off-line acid cleaning every 2 – 3 months. Plant management and engineering personnel were unhappy with the excessive production, utility and cleaning costs, and were frustrated at the inability of the water treatment chemical supplier to prevent these scale-related problems. The standard phosphonate/polymer scale inhibitor in use was just not getting the job done.

**The Solution:** Plant management turned to International Chemtex Corporation to solve the problem. Chemtex HS-4230 was selected as the scale and corrosion inhibitor based on its ability to perform under highly stressed cooling water conditions. The results provided by the switch to HS-4230 were immediately obvious. Curing cycle times remained constant, indicating that no scale was forming in the autoclave jackets. Periodic autoclave inspections reveal that the jacket surfaces are being maintained scale-free. Over a year after the installation of the Chemtex program, no autoclave acid-cleanings have been necessary, and cycle times remain unchanged. The Plant Engineer remarked, “Cooling water problems and autoclave cleaning schedules used to be a topic of discussion at every Monday morning management meeting. We haven’t talked about those things for over a year.”

**The Benefits:** Decreased over-all curing cycle times resulted in reduced production, steam and cooling costs. The cost in time and materials for acid-cleaning the autoclaves has been eliminated altogether. The energy cost savings provided by the Chemtex program are estimated to be over \$21,000 per year.