

INJECTION MOLDING CASE STUDIES



TSE Industries



Leading Plastic Mold Operator Increases Production With Liquid Desiccant HVAC

SITUATION

TSE Industries, Inc., based in Clearwater, FL, is a contract manufacturer of custom polyurethane systems, rubber and plastic products and the world's largest manufacturer of millable polyurethane rubber.

Plant manufactures underground pipe made from a fiberglass blend. The blend is wrapped around a cylinder and dried into pipes that are approximately 10" in diameter.

Required conditions for facility:

- Temperature: 70° - 75°F
- Humidity: 20% RH

CHALLENGE

Maintaining such low humidity levels is not achievable using conventional vapor compression systems. Plant previously used vapor compression which consumed more energy, and demanded intensive maintenance or performance would degrade over time.

TSE searched for a solution that would deliver deep dehumidification with less energy consumption and less costly installation/maintenance.

SOLUTION

TSE installed one DT 3400/9 to dehumidify and cool the drying area. The dry environment allows the fiberglass resin to harden at a much faster rate which has increased the production yield. The Advantix unit also scrubs the air clean of toxic resin odors, creating a healthier, more comfortable environment for the fabrication staff.

Conditions (70°F, 20% RH) are maintained without the excessive heat/post-cooling process or intensive maintenance of a desiccant wheel system. As a result, energy saved compared to the desiccant wheel option: 40%.



"Advantix technology delivers the powerful humidity control that we need and saves us energy. We could not be more pleased with this technology to meet our needs."

Mike Raday, Composite Business Development Director

Panduit - Singapore

CHALLENGE

Facility manufactures various network components such as cable ties, wiring accessories and fiber optic cabling. The plastic molding process requires deep dehumidification to achieve high productivity levels. The facility previously used a desiccant wheel dehumidifier which consumed considerable amounts of electricity and gas, resulting in high energy costs.

SOLUTION

Facility installed five Advantix DT 3400/9 units to treat production hall and storage room. By replacing the desiccant wheel system with Advantix units, Panduit has achieved energy savings of over \$150,000 per year. Panduit has since installed 6 additional units in Costa Rican facility.



"During a period of 4 months, we witnessed energy savings of USD 180,000 annually with an expected Return of Investment of 1.6 years. In addition, we immediately felt a significant improvement in the indoor air quality in the plant. The air feels much cleaner and there are no unwanted odors in the production hall where the DuCool units are installed, as opposed to the hall with the desiccant wheels. It is very important for us that our employees work in a high quality indoor environment."

Benjamin Kwek, ETHA Engineering

Amgat Plastics - Israel

CHALLENGE

Facility manufactures plastics and packaging products including bottles for Coca Cola and other global brands. To avoid mold sweating during summer months, plant was forced to raise chilled water temperature and lower production rates.

SOLUTION

Facility installed four DT 2400/9 units and one DT 800/4 to reach higher drying levels and decrease cycle times by 35%. As a result, the chilled water system is now only used for comfort cooling, substantially reducing the energy load of the system.



"Ever since we installed the DuCool units in the Blow Molding department, we have experienced total elimination of condensation on the treated machines. This significant improvement has brought dramatic reduction in rejects rate due to the condensation, improved total quality of plastic products and the ability to perform IML, which couldn't have been carried out properly in the period before installing DuCool."

Amgat Maintenance Manager

Dairy Container Manufacturer - Thailand

CHALLENGE

Facility manufactures plastic containers for milk products. The injection room which produces over 1 million bottles per day, requires conditions of 73°F and less than 20% R.H. It is critical that the plant prevent condensation on injection mold, mold/mildew growth and wet floors.

SOLUTION

Facility installed one DT 3400/9 unit near the injection machine to eliminate condensation issues and to protect the facility from any mold/mildew growth or wet floors.

