

The Customer

The Company is a worldwide supplier of thousands of innovative and reliable products to dozens of diverse markets—from automotive to healthcare to renewable energy to electronics. Products include tapes, adhesives, abrasives, films, reflective materials, filtration systems and an array of other products that keep homes clean, offices organized and buildings well-maintained.

The Process

Solvent-borne inks such as Methanol, Toluene, Xylene and IPA amongst others are applied to a substrate or raw material. The material is then run through multi-zone ovens where the solvents are vaporized, leaving behind the finished product. The solvents and the solvent levels change depending upon the product that is being produced. PreVEx Flammability Analyzers are used to monitor the flammability levels of the varying solvent levels in their ovens in order to stay safe. These analyzers give consistent and reliable readings when faced with multiple or changing solvent concentrations. The “Universal Calibration” feature allows solvent changes without recalibration, avoiding unnecessary downtime and production delay. In addition, the analyzer is heated and mounts directly on the process reducing sample delivery time, while accelerating response time.

The Problem

The Company was looking to save some money and reduce their energy usage without compromising safety. They had an energy savings assessment done to identify energy saving opportunities. The assessment was focused on the process heating systems which included their ovens and oxidizers. By adjusting their fan speeds for independent control of the ventilation, in each oven zone, they could better utilize their solvent levels in their process to reduce their operating costs. As the solvent vapor concentrations varied from one production run to another the ventilation rate was controlled accordingly.



The Solution

The Company chose to automate their damper controls to maximize their energy savings. Since they already had PreVEx LFL analyzers in place for safety, the NFPA 86 Standard for Ovens and Furnaces allowed for additional solvent vapor analyzers to be installed onto the process to specifically control damper positions. By adding the additional analyzers they were able to minimize the amount of ventilation air needed to maintain a safe LFL level in the ovens thus saving money on heated air costs.

The implementation of this fully automated system gave them an additional fuel savings by fine-tuning their controls in real-time mode and increased their average solvent load, hence reducing the amount of heated ventilation air that needed to be used.

The Company has been successfully adding these redundant analyzers in their plants worldwide. They have standardized on the PreVEx product line due to the flexibility it offers under the Company’s various operating conditions. To date they have improved their energy efficiency by 22%.

The cost of adding additional analyzers was minimal with respect to the flexibility that this addition allowed them to achieve in their production.

