

The Customer

The Company is an international manufacturer of metallic coated, pre-painted steel, tinplate, blackplate and roll-formed building and industrial steel products. Their markets include the automotive, construction, and general manufacturing industries.

The Process

The process consists of two paint lines. Each paint line has a gas heated prime and finish oven exhausting to an RTO. The paints contain mixtures of Aromatic Solvent 250 and other materials including resins. The dew points of many of these substances are above 250°C. The paint is applied in a continuous process to one or both sides of the steel and then run through the ovens. They measure the %LFL (LEL) of the paint vapors inside the ovens with PreVEx SNR675 Flammability Analyzers in order to stay safe. They are typically running at 6% LFL with 16% maximum. These analyzers give consistent and reliable readings when faced with multiple or changing solvent concentrations. They are not susceptible to coating or poisoning by resins or any other plasticizers or silicones. In addition the analyzers are heated up to 270°C enabling them to handle the high dew points of the paint mixtures, eliminating clogging and sample condensation. They feature fast response, failsafe operation, low maintenance and easy servicing.

The Problem

The Company wanted to become more competitive without compromising safety. To accomplish this, they decided to maximize the solvent levels in their process to reduce their operating costs. They knew if they increased the solvent exhaust to their RTO to 25% LFL, they would reduce the amount of heated ventilation air moving through their system. This would optimize their RTO efficiency and lower their energy costs.

The Solution

The Company has implemented a “Zero-Harm” safety program and has been recognized for having the best safety practices in the industry. Safety is always at the forefront of their decisions. The Company chose to automate their damper controls to maximize their energy savings. Since they already had PreVEx LFL analyzers in place for safety, “best safety practices” 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 and RTO, thus saving money on heated air costs.



The implementation of this automated system gave them an additional fuel savings by fine-tuning their controls in real time mode and increased their average solvent load from 12% to an average of 23% LFL with a \$300,000 savings in their first year, running at only 50% capacity. This exceeded all expectations!

SIC Code

- 3312: Steel Works, Blast Furnaces (including Coke Ovens), and Rolling Mills

NAICS Code

- 3312: Steel Product Manufacturing from Purchased Steel