APPLICATIONS

Decorated Paper Printing

The Customer
The company utilizes state of the art printing presses to apply solvent based inks in different patterns on a thin web. Their product resembles wallpaper with a wood grain finish.

The Process


The printing press consists of several stations. Each station has at least one dryer. Thin web is pulled off an unwind roll and passed through rollers that transfer the ink to the web surface. The ink contains mixtures of toluene, IPA, MEK, butyl acetate and /or ethyl acetate solvents. The web moves through each station where it receives a different ink coverage, color and pattern. After the ink has been applied to the web, it is run through a dryer to evaporate off the solvents. A final top coat may or may not be applied to give the paper a semi-gloss finish. The paper is then rewound and readied for shipment.

The Problem
The company was looking to reduce ventilation air and fuel costs without affecting production rates or violating the NFPA safety directives. They were using large amounts of heated air to ventilate the dryers to keep the solvent vapor concentration below 25% LFL as directed by the NPFA codes. However, the codes allow a substantial reduction in air in cases where a continuous solvent vapor analyzer is installed. When such instruments are installed to continuously sample the exhaust of a dryer zone, the vapor concentration in that zone is allowed to rise as high as 50% LFL.

The Solution
The company chose to install PrevEx Flammability Analyzers on their dryers so they could run above 25%LFL. This allowed them to reduce costs while maintaining safety and production levels as well. They chose the PrevEx for a couple of reasons. First, because they change their ink mix regularly they did not want to have to recalibrate each time they did. With the "Universal Calibration" capability of the PrevEx, they don't have to recalibrate when these changes occur. This allows them to continue production and avoid downtime associated with re-calibration. The PrevEx gives consistent and reliable readings with multiple or changing solvent concentrations. Secondly, with the possibility of silicones being present from the final top coat application, the analyzer needed to be resistant to these substances. The PrevEx is free from poisoning by plasticizers or silicones.

Sensor Placement


Each dryer on the printing press requires monitoring to detect the possibility of increased solvent vapor buildup in the dryer atmosphere due to reduction of ventilation air. The PrevEx analyzers are mounted directly on each dryer to get the best representative sample with the fastest response time. The sample probe is placed in the duct for complete "duct-mounting".

SIC Codes
- 2671: Packaging Paper and Plastics Film, Coated and Laminated
- 2672: Coated, laminated paper not elsewhere classified

NAICS
- 322221: Coated and Laminated Packaging Paper and Plastics Film Manufacturing
- 326112: Plastics Packaging Film and Sheet (including Laminated) Manufacturing
- 322222: Coated and Laminated Paper Manufacturing

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