



CATALYTIC COMBUSTION

Case Study – EP Graphics

Offset Printing in the Graphics Arts Industry

Background

In early 2001, EP Graphics, an Indiana-based web offset printer, was planning the installation of a second 4-color press to expand their printing capabilities. The new printing press dryer would require air pollution control equipment to treat the dryer's off-gas, in compliance with EPA requirements.

The air pollution control system for the plant's existing press dryer consisted of an independent recuperative catalytic oxidizer. Although the oxidation unit was operational it did not have the additional capacity to process the air stream from the new press dryer. In addition, the plant had received several complaints from the surrounding neighborhood regarding odors from the plant during operation. This was attributed to the inefficient odor-reducing capability of the existing air pollution control system.

Kirk Habbegger, EP Graphics' engineering and press manager, contacted several air pollution control companies to help solve these problems. Following a complete review of all available control technologies,



Eurocad RTO (regenerative thermal oxidizer) installed at EP Graphics in Berne, Indiana.

“The Eurocad RTO is truly the most innovative and performance-driven RTO available...today. We recommend this technology to those plants that demand the best uptime and performance for their own plant.”

EP Graphics selected regenerative thermal oxidation (RTO) as the best available control technology (BACT) to effectively destroy the printing press dryer fumes.

EP Graphics further decided to utilize a central RTO system to treat emissions from both presses, and one that had sufficient capacity for handling a future press installation.

Plant Priorities

#1 — Odor Control

The EP Graphics plant is located in downtown Berne, Indiana, with many nearby residential neighbors. Although the EPA air pollution control requirement is at 95% press dryer emission reduction, EP Graphics decided, early on, that this standard was not sufficient in meeting the local community's odor threshold requirements. After a complete evaluation, it was determined that a destruction efficiency of >99.5% of the dryer emissions would be required to eliminate all odor potentials.

#2 — Noise Consideration

EP Graphics was also concerned about noise generation from the RTO. They had observed, first hand, several poppet valve RTO systems and each time the valves changed a loud noise could be heard.

#3 — Reliability

Since the plant was considering a central air pollution control system, reliability was of major concern. The new system had to have a proven track record of being highly reliable with minimal maintenance requirements.

“Since we have installed the Eurocad RTO, our natural gas cost savings have been between \$4,000 and \$8,000 per month.”

Manufacturer of Choice

EP Graphics evaluated various RTO systems and supplier-manufacturers, and discussed the systems with existing users. Their research found Catalytic Combustion's "Eurocad RTO" to be the best overall system to meet their needs.

Turnkey Project Management

Catalytic Combustion provided full-service engineering to include not only the installation of the Eurocad RTO system but also all related engineering tasks.

The existing press dryer fan, dryer controls and ductwork required modification to allow integration with the new air pollution control system.

During the ductwork planning phase, Catalytic Combustion discovered the plant building roof would not accommodate the weight of the new ductwork. This required structural modifications to the building, which prevented the future possibility of the roof collapsing.

The RTO system — along with all ductwork, electrical interlocks and systems — was engineered to accommodate a future expansion project, making for efficient use of EP Graphics' investment.

Project Outcome

The Eurocad RTO was installed within 16 weeks from the time EP Graphics placed the order. Final commissioning took place in September of 2001.

Since commissioning, the plant has not received a single odor or noise complaint, and preliminary air sampling has indicated the RTO is operating at >99.5% continuous destruction. All inspections and routine maintenance of the Eurocad RTO are performed by Catalytic Combustion, allowing EP Graphics personnel to focus on their printing operation.

Press/Dryer Data

Press	Make	Units	Copies/Hr	SCFM
#1	Toshiba	8	30,000	3,100
#2	King	4	30,000	3,100

Installed System

Max Air Flow	10,000 SCFM
Minimum Air Flow	1,450 SCFM
Primary Heat Recovery	95%

System Performance

Exhaust Air Flow	6,200 SCFM
RTO Inlet Temperature	276 degree F.
RTO Outlet Temperature	371 degree F.
RTO Inlet Solvent Concentration	1280 ppmv
RTO Exhaust Emission Including peaks	3.4 ppmv
CO Concentration	3 ppmv
Total Destruction Efficiency	99.7%



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