

## CASE HISTORY 29 — MLM® MULTI-LAYER MEDIA

# RTO Capacity Increased 50% with Improved Thermal Efficiency

Label printing plant replaces 8'6" saddle bed with 3'8" of MLM-200; thermal efficiency improves to 94.6% at full expanded capacity.

### APPLICATION

Regenerative thermal oxidizer (RTO)

### PREVIOUS MEDIA

1" ceramic saddles

### OPERATING CAPACITY

17,000 → 24,000 scfm

### ◆ THE PROBLEM

An East Coast label printing plant needed to upgrade its regenerative thermal oxidizer (RTO). The three-canister RTO, packed with ceramic saddles, was achieving approximately 93% thermal efficiency at 17,000 scfm — but the plant now needed to treat 24,000 scfm of VOC-laden exhaust air. Purchasing a new RTO would require significant capital expenditure.

*MLM-200 replaced an 8'6" saddle bed with 3'8" of structured media — and delivered higher thermal efficiency at 41% greater throughput than the original RTO was designed for.*

### ◆ WHY MLM-200 WAS SELECTED

The alternatives were a new RTO or a retrofit of the existing equipment with multi-layer media (MLM) from Lantec Products. To avoid a major capital outlay, the decision was made to retrofit the system with MLM-200.

MLM-200's structured geometry delivers dramatically lower pressure drop than random saddles while maintaining superior heat transfer per unit of bed depth — which is why the same canister volume can be served by a significantly shorter bed.

### ◆ MEETING THE REQUIREMENTS

In early June 1998, the 8'6" bed of 1" saddles in each heat-recovery canister was replaced with 3'8" of MLM-200. The results met all expectations.

During continuous operation at superficial gas velocities exceeding 375 scfm/ft<sup>2</sup>, **thermal efficiency improved to 94.6%** — higher than the pre-retrofit figure of 93% with saddles — while overall pressure drop was reduced. All applicable emission standards were met throughout.

### PRODUCT

MLM

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### CAPACITY INCREASE

**+41%**

Treatment capacity expanded from 17,000 to 24,000 scfm; system now expandable to 28,000 scfm

### BED DEPTH COMPARISON

Same canister, same thermal performance

**8'6"**

saddle  
bed depth

**3'8"**

MLM-200  
bed depth

### APPLICATION CONTEXT

RTO

VOC control

Label printing

Heat recovery

The RTO now operates at 24,000 scfm. The MLM-200 bed is designed to accommodate future expansion up to **28,000 scfm** without further media changes.

**NOTE**

All applicable emission standards met throughout operation.

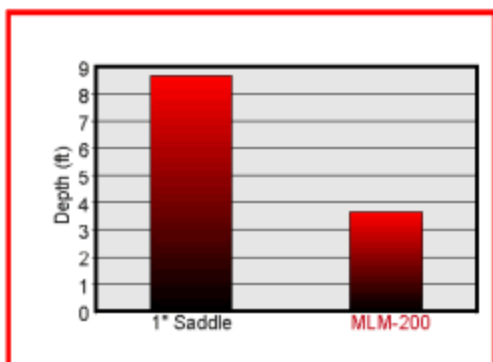
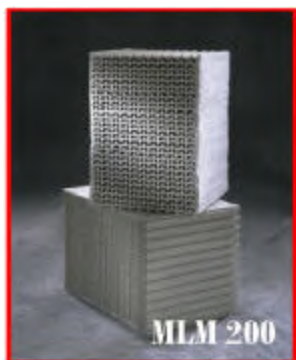


figure 1- depth of MLM vs. 1\" saddle

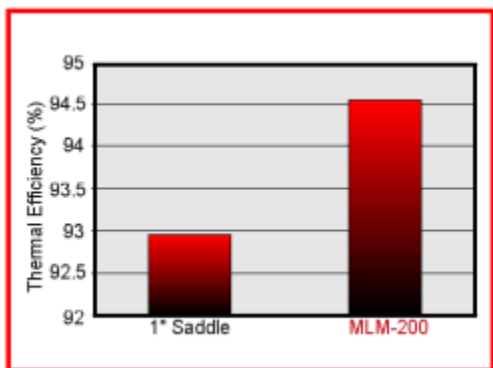
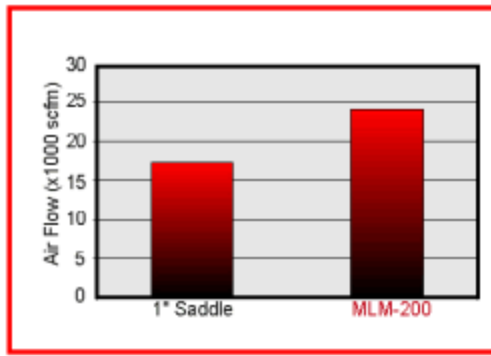


figure 2- thermal efficiency of MLM vs. 1\" saddle



*figure 3 – air flow with MLM vs. 1" saddle*