

## Annualized Operating Costs for VOC Abatement System

**Catalytic Recuperative Thermal Oxidizer Costs At 100% VOC Capture Efficiency****4,000 SCFM Oxidizer Capital Costs<sup>(1)</sup>**

Cost Item	Cost
Oxidizer Cost	\$209,000.00
Shipping	\$7,800.00
Installation	\$125,000.00
PTE Requirements	\$20,000.00
Coating Line Modifications	\$10,000.00
<b>Totals</b>	<b>\$371,800.00</b>

<sup>(1)</sup> All capital costs estimated by MEGTEC.

**Annualized Capital Cost (@ a 10-year life, 10% interest) = \$60,510.45**

**4,000 SCFM Oxidizer Annual Operating Costs<sup>(2)</sup>**

Cost Item	Cost	Calculation Method
<b>Direct Costs</b>		
Operating Labor, Operator	\$574.75	Assumes 0.5hr/8hr shift, 50 shifts/yr, \$22.99/hr
Operating Labor, Supervisor	\$86.21	Assumes 15% of the operator labor costs
Maintenance Labor	\$632.50	Assumes 0.5hr/8hr shift, 650 shifts/yr, \$25.30/hr
Maintenance Materials	\$632.50	Assumes 100% of the maintenance labor cost
Utilities	\$9,534.00	Estimated based upon MEGTEC data
<b>Indirect Costs</b>		
Overhead	\$1,155.58	Assumes 60% of operating labor and maintenance costs
Administrative Charges	\$3,718.00	Assumes 2% of the capital costs
Property Taxes	\$3,718.00	Assumes 1% of the capital costs
Insurance	\$3,718.00	Assumes 1% of the capital costs
<b>Totals</b>	<b>\$23,769.54</b>	

<sup>(2)</sup> Costs estimated based upon the OAQPS control cost manual, Chapter 3 - Thermal and Catalytic Incinerators. The labor costs have been escalated from 1988 dollars to 2006 dollars.

**Total Annual Operating Costs of the Proposed Oxidizer = \$84,279.99**

**Uncontrolled VOC Emission Rate (tpy) = 25.00**

**Controlled VOC Emission Rate (tpy) = 1.25**

**Annual Oxidizer VOC Reduction (tpy) = 23.75**

**Oxidizer Cost Effectiveness (\$/ton VOC) = \$3,548.63**

**Flexible Packaging Association: PFF Comments Attachment 2**

**CTG Worksheet on Operating Costs**

Quantum 4,000

70% Uptime            \$ 1.10/therm for gas

100% Capture        \$ 0.075/Kwh electric

2,000 hrs/year operation

**Data based on computer simulation**

25 TPY

	<u>Hours</u>	<u>\$/hr</u>	<u>\$/yr</u>
Idle	600	\$2.66	\$1,596
Running	<u>1,400</u>	<b>\$5.67</b>	<b>\$7,938</b>
Total	2,000		\$9,534