

Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at [www.epa.gov/ttn/chief/ap42/](http://www.epa.gov/ttn/chief/ap42/)

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## **Background Report Reference**

**AP-42 Section Number: 10.8**

**Background Report Section: 4**

**Reference Number: 17**

**Title: Written Communication from  
Steve Smith, Koppers Industries,  
Pittsburgh, Pennsylvania  
To Rick Marinshaw, MRI**

**July 10, 1997**

July 10, 1997

Telephone: (412) 227-2001  
Fax: (412) 227-2423Rick Marinshaw  
MRI  
Suite 350  
350 Harrison Oaks Blvd.  
Cary, N.C. 27513AP-42 Section \_\_\_\_\_  
Reference \_\_\_\_\_  
Report Sect. 4  
Reference 17

RE: Treated Wood Emissions Evaluation, AquAeTer &amp; Koppers Studies

Dear Mr. Marinshaw:

After we discussed by phone on July 8 the difficulty in following data coming from the Koppers Industries, Inc. (KII) 1990 emissions study as used in the AquAeTer study, I looked and found some of the same problems. Enclosed is one table from the AquAeTer study on which I marked the actual test times for each emission data point. What I found is that the time assigned in the AquAeTer study did not correspond to the actual times, although they were all generally about right. These are also summarized below:

Test Number	Actual Time (days)	Assigned Time (days)
0-1	0.04	0.083
0-2	0.13	0.208
0-3	0.21	0.521
1-1	1.04	1
1-2	1.13	1.33
1-3	1.21	2
4-1	4.04	3
4-2	4.13	4
4-3	4.21	5
7	7.21	7.5
12	12.08	15
30	30	30

I also looked at the naphthalene emission plot from the AquAeTer study and marked the corrected times for the raw data points on the plot (attached). I expect that if the correct times had been entered for each point, slightly different curves would have resulted from the regression analysis. However, based on inspection of the plot, it appears that such change would have been insignificant relative to the resulting emissions model. As you can see, the corrected data points at least seem to fit the curve about as well as the plotted points.

Concerning the emission rate values, I believe reason that values in the AquAeTer study vary from the Koppers study is that the background level of 19.3 mg/hr was subtracted from the raw data values. This is consistent with the method KII used to estimate emissions for the California AB 2588 report.

I have also enclosed an extra copy of photos, which I took during the Koppers emission field work. These will explain better than I can in words the test structure and methods involved. As I explained on the phone, testing was conducted in reverse order of age from treatment to minimize any potential for contamination of the test structure.

While I agree that there are some inconsistencies in the way the data was used, I hope you will agree that the impact is not significant to the accuracy of the resulting emissions model. Please call me if you have any questions at (412)227-2677.

Sincerely,

A handwritten signature in cursive script that reads "Stephen T. Smith".

Stephen T. Smith  
Environmental Program Manager

cc without photos:

Mike Corn, AquAeTer  
George Parris, AWPI  
Nick Bock, Kerr McGee

# KOPPERS DATA - EMISSIONS FROM CREOSOTE-TREATED POLES

Day of Test  
 Test Hours (from 0)  
 Test Midpoint-Hrs  
 Day + hrs mid  
 0 0-2 1  
 2-4 3  
 4-6 5  
 1 + 0-2 1  
 1 2-4 3  
 1 4-6 5  
 4 0-2 1  
 4 2-4 3  
 4 4-6 5  
 7 + 4-6 5  
 12 + 0-3 2  
 30 2-5 4

Naphthalene Emissions: Regression on First Two Data Points					
Time (days)	Emissions (mg/hr)	Calculated Emissions	Percent Difference		
0.04	0.083	18,822	18,822	0.0	
0.13	0.208	19,953	19,953	0.0	
0.21	0.521	15,273	-	-	
1.04	1	1,238	-	-	
1.13	1.333	2,507	-	-	
1.21	2	2,784	-	-	
4.04	3	2,960	-	-	
4.13	4	3,021	-	-	
4.21	5	3,287	-	-	
7.21	7.5	2,114	-	-	
12.08	15	1,591	-	-	
30	30	944	-	-	

Regression Output:

Constant 9.803863

Std Err of Y Est 1.7E-18

R Squared 1

No. of Observations 4

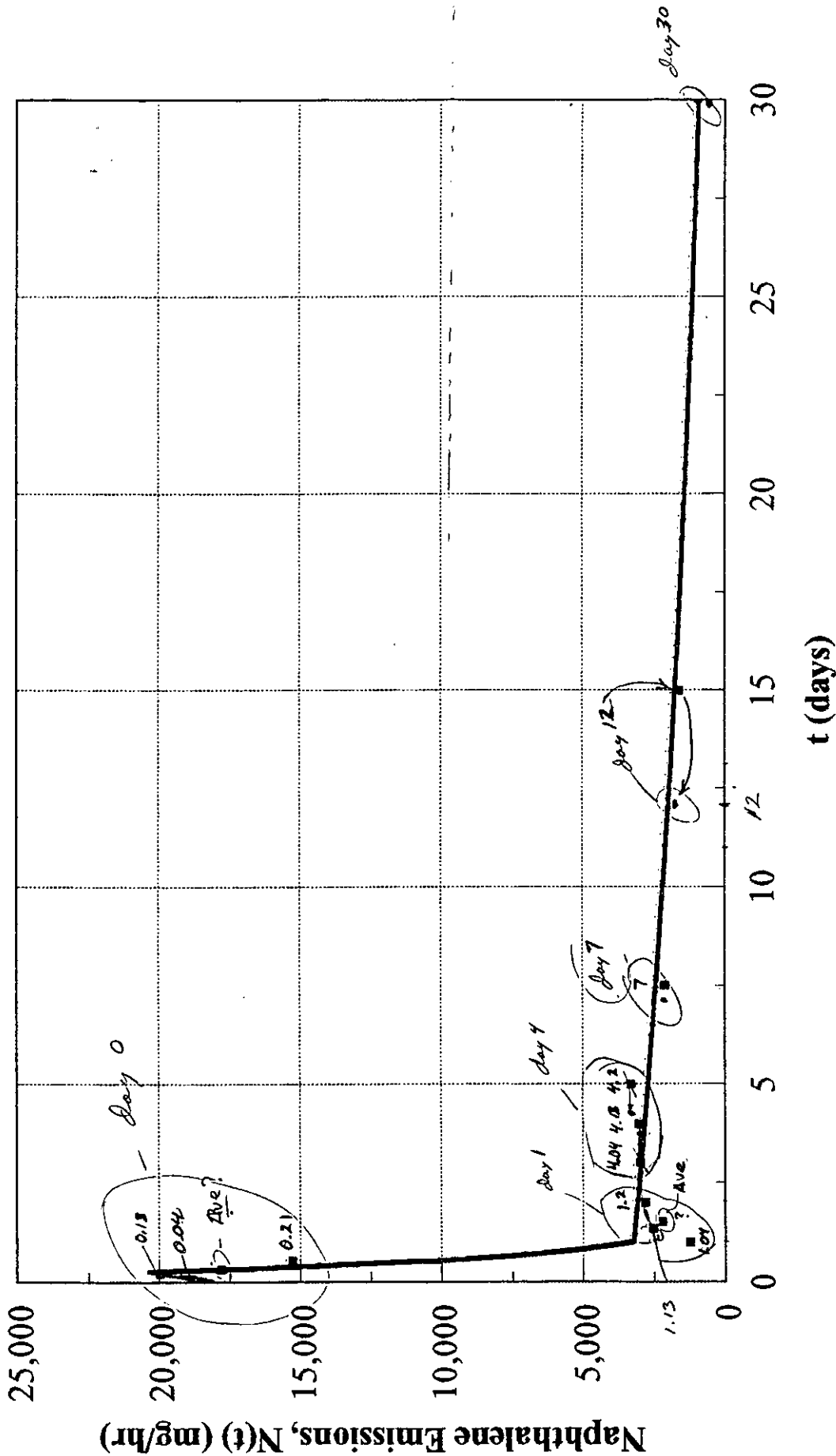
Degrees of Freedom 2

X Coefficient(s) 0.466832

Std Err of Coef. 1.4E-17

NI(t) = 18,104 \* exp ( 0.466832 \* t, days)

# EMISSION RATES FROM SIX CREOSOTE-TREATED POLES



Raw Data  $18,104 \cdot \exp(0.4668 \cdot t), t \leq 0.25 \text{ days}$   $36,697 \cdot \exp(-2.4349 \cdot t), 0.25 < t \leq 1$   $3,347 \cdot \exp(-0.04358 \cdot t), t > 1 \text{ day}$

$N1(t) =$   $N2(t) =$   $N3(t) =$