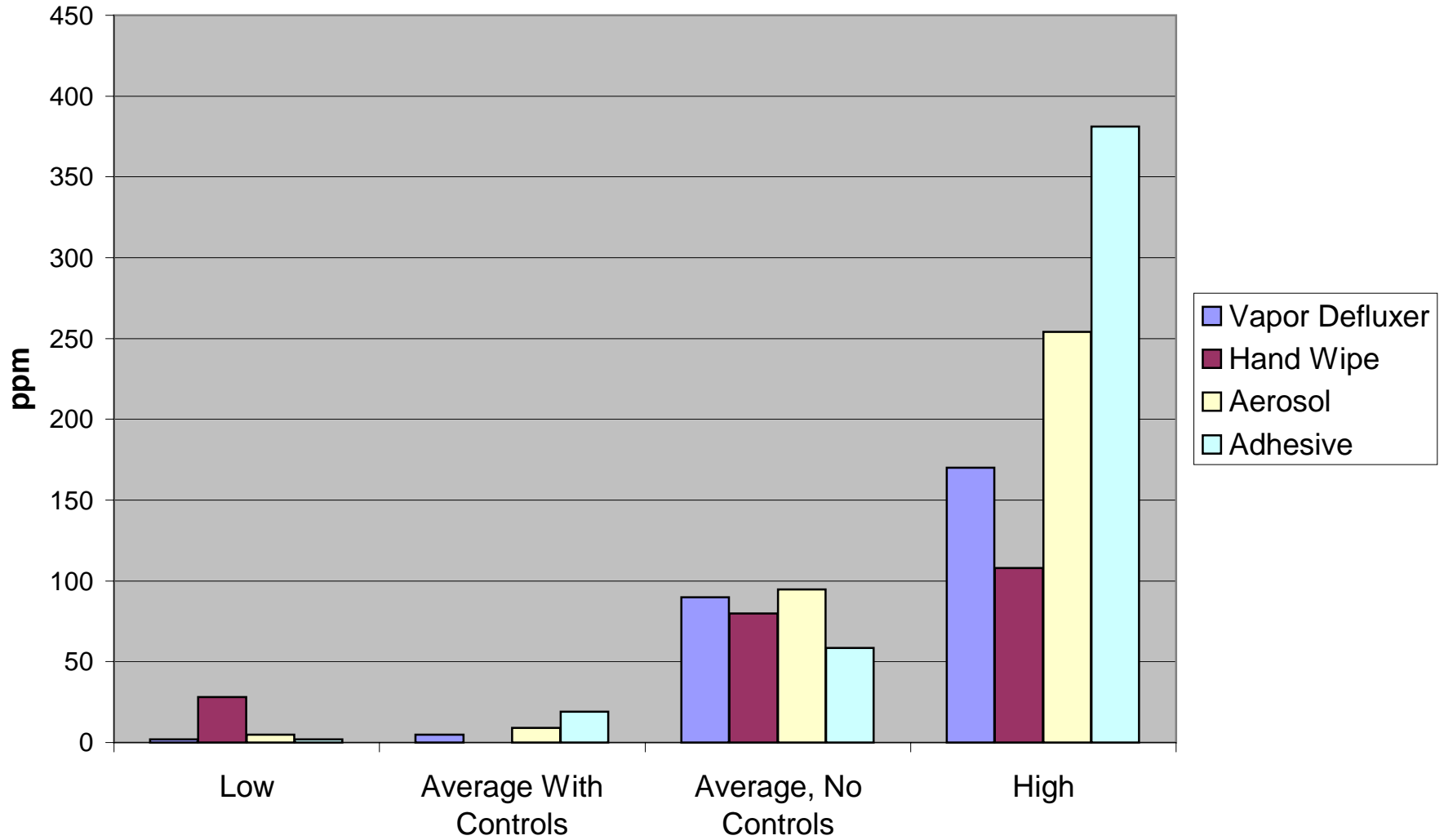
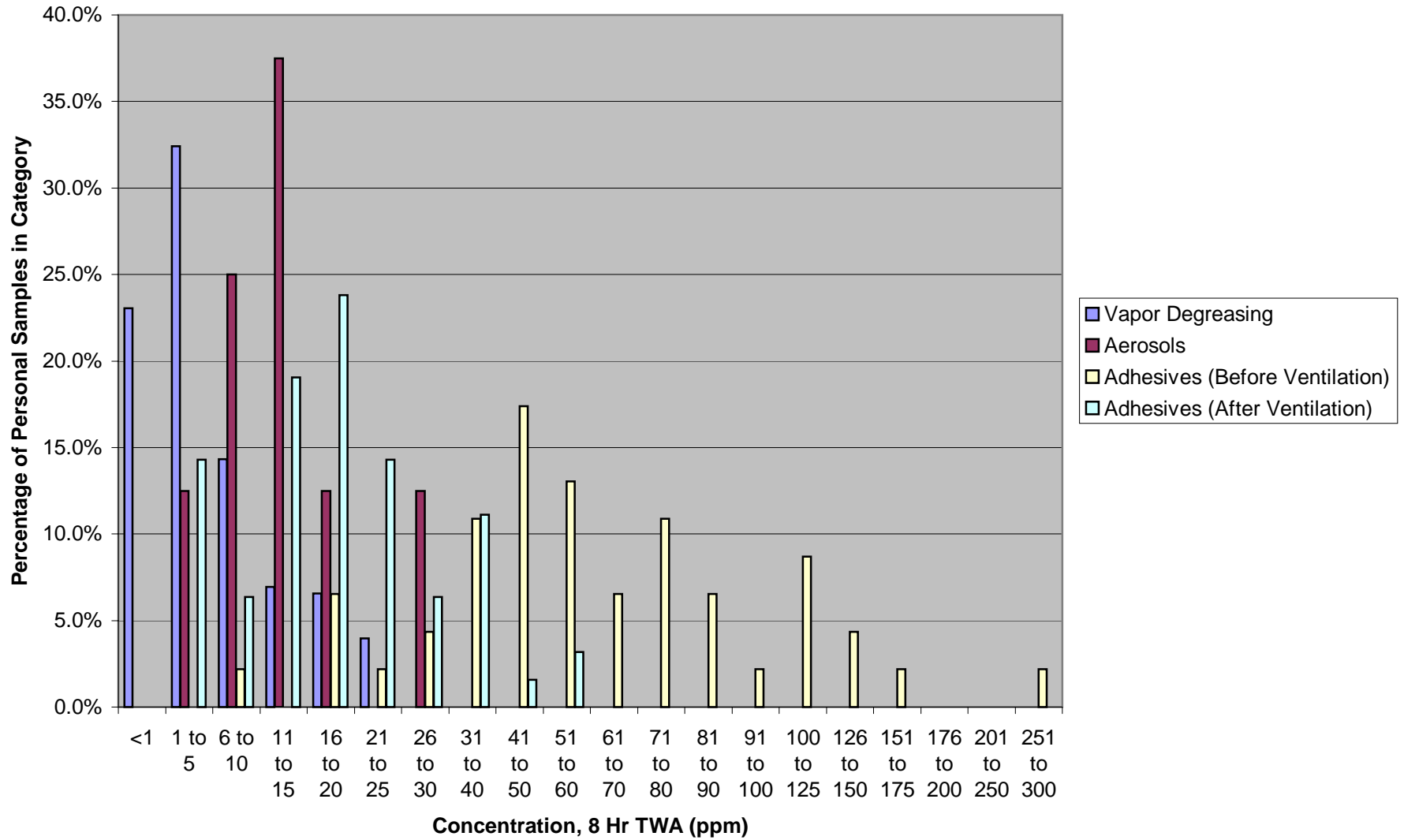


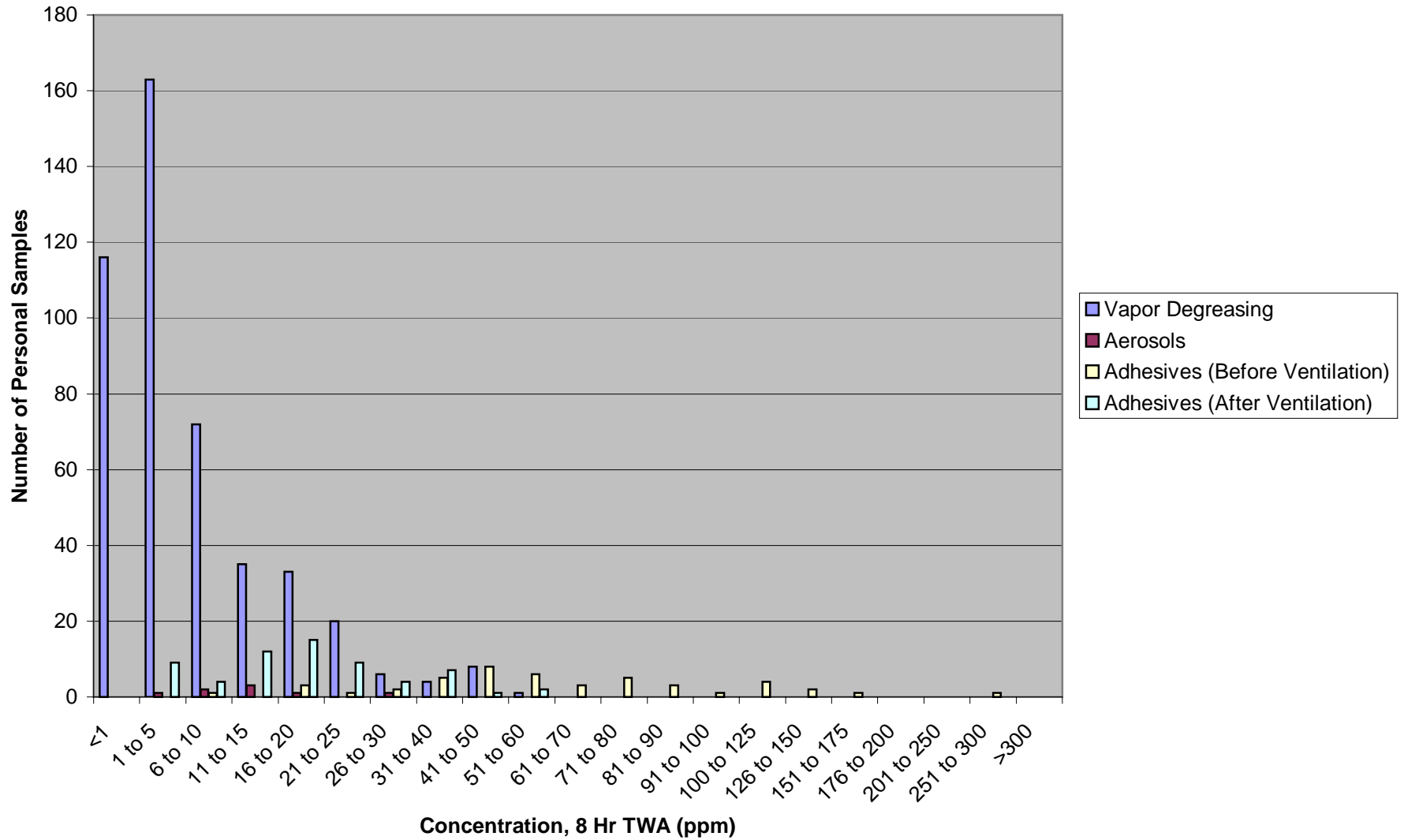
nPB Exposure Data



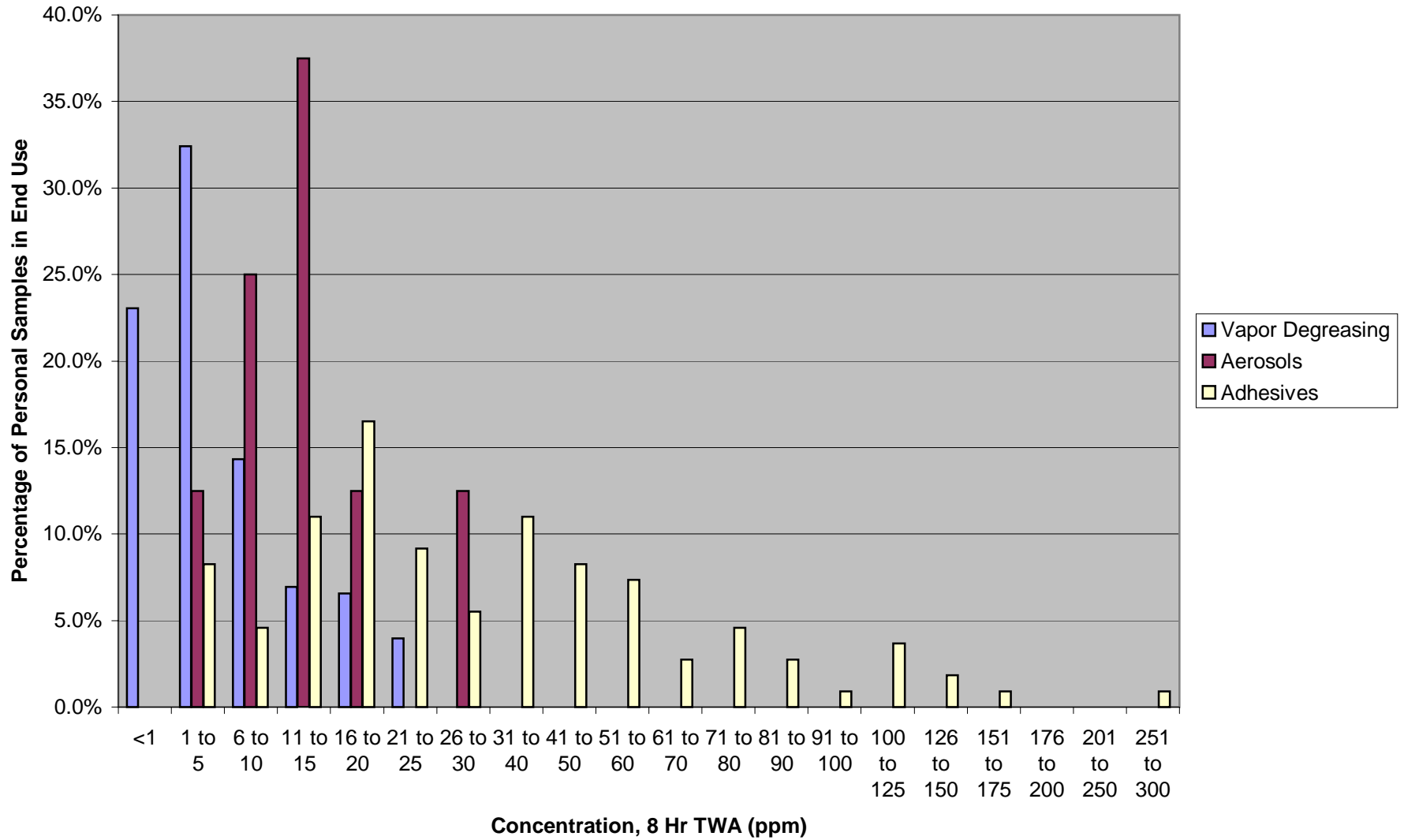
Distribution of nPB Exposure Data by End Use



Distribution of nPB Exposure Data



Distribution of nPB Exposure Data



Exposure Data for nPB

Values used in APEX Presentation

	Low	Average With Cor	Average, No Cor	High
Vapor Defluxer	2	5	90	170
Hand Wipe	28		80	108
Aerosol	5	9	94.6	254
Adhesive	2	19	58.5	381

Updated Values, 5/14/03

8 hr TWA Concentrations, Personal Monitors

	Lowest individual	Average, after ventilation	Average, All personal	Highest individual	Number of Samples Analyzed
Vapor Deg (xx samples)	0.03		16.47	170	
Hand Wipe (x samples)	1	1	68.19	107.9	
Aerosol (x samples)	5	9.2	13.8	30.2	
Adhesive (xxx samples)	1.20	18.30	172.48	381.2	

Summary of Personal Sample Data

Updated Values, 5/14/03

8 hr TWA Concentrations, Personal Monitors

	Lowest individual	Average, after ventilation	Average, all personal	Highest individual sample
Vapor Deg (8 charcoal)	3		25.67	74
Vapor Deg (81 organic)	0.03		14.2	170
Hand Wipe (8 charcoal)	1	1	68.19	107.9
Aerosol (8 charcoal samples)	5	9.2	13.8	30.2
Adhesive (164 charcoal)	1.20	18.30	172.48	381.2

Distribution of Exposure Data, % of Personal Samples in Use Category

Concentration, 8 Hr TV <1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	
Vapor Degreasing	23.1%	32.4%	14.3%	7.0%	6.6%	4.0%
Aerosols	0.0%	12.5%	25.0%	37.5%	12.5%	0.0%
Adhesives (Before Ventilation)	0.0%	0.0%	2.2%	0.0%	6.5%	2.2%
Adhesives (After Ventilation)	0.0%	14.3%	6.3%	19.0%	23.8%	14.3%

Distribution of Exposure Data, # of Personal Samples in Use Category

Concentration, 8 Hr TV <1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	
Vapor Degreasing	116	163	72	35	33	20
Aerosols	0	1	2	3	1	0
Adhesives (Before Ventilation)	0	0	1	0	3	1
Adhesives (After Ventilation)	0	9	4	12	15	9
All Adhesives	0	9	5	12	18	10

Distribution of Exposure Data, % of Personal Samples in Use Category

Concentration, 8 Hr TV <1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	
Vapor Degreasing	23.1%	32.4%	14.3%	7.0%	6.6%	4.0%
Aerosols	0.0%	12.5%	25.0%	37.5%	12.5%	0.0%
Adhesives	0.0%	8.3%	4.6%	11.0%	16.5%	9.2%

veraged

26 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100	100 to 125
12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4.3%	10.9%	17.4%	13.0%	6.5%	10.9%	6.5%	2.2%	8.7%
6.3%	11.1%	1.6%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%

26 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100	100 to 125
6	4	8	1					
1	0	0	0			0		
2	5	8	6	3	5	3	1	4
4	7	1	2	0	0	0	0	0
6	12	9	8	3	5	3	1	4

26 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100	100 to 125
12.5%	0.0%	0.0%	0.0%	0.0%	0.0%			
5.5%	11.0%	8.3%	7.3%	2.8%	4.6%	2.8%	0.9%	3.7%

126 to 150	151 to 175	176 to 200	201 to 250	251 to 300	>300	TOTAL
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
4.3%	2.2%	0.0%	0.0%	2.2%	0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

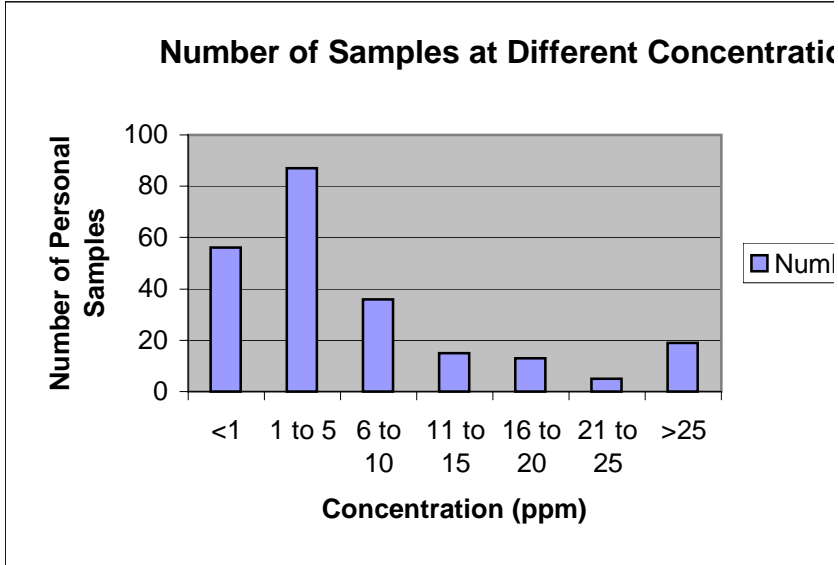
126 to 150	151 to 175	176 to 200	201 to 250	251 to 300	>300	TOTAL
						458
2	1	0	0	1	0	8
0	0	0	0	0	0	46
0	0	0	0	0	0	63
2	1	0	0	1	0	109

126 to 150	151 to 175	176 to 200	201 to 250	251 to 300	>300
1.8%	0.9%	0.0%	0.0%	0.9%	0.0%

Albemarle Data on Personal Monitoring (Vapor Degreasing)

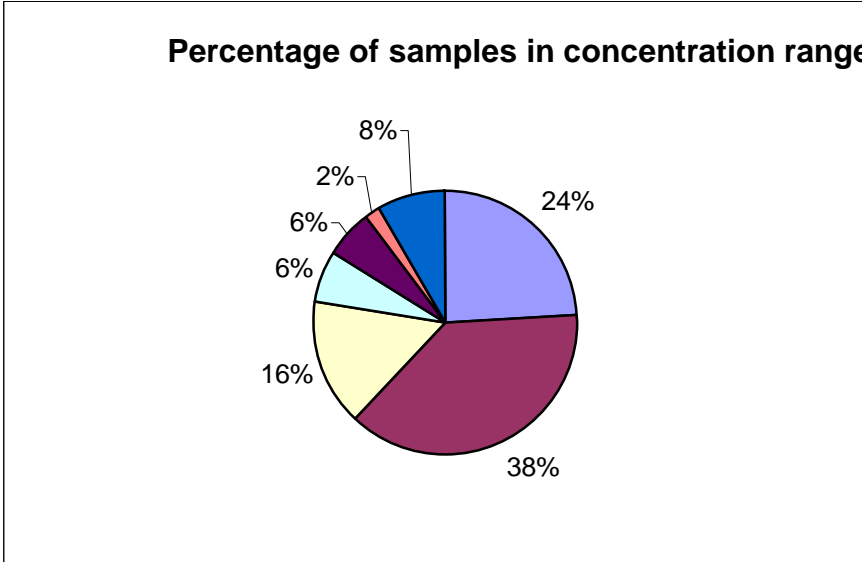
Source: Docket ID II-D-78

High end of Concentration Range (ppm)	1	5	10	15	20	25
Low end of Concentration Range (ppm)	0	1	6	11	16	21
Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25
Number of samples	56	87	36	15	13	5
Percentage of samples in range	24.2%	37.7%	15.6%	6.5%	5.6%	2.2%



Distribution for Personal Sample Data from Albemarle

Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25
Percentage of samples in range	24.2%	37.7%	15.6%	6.5%	5.6%	2.2%
Number of samples	56	87	36	15	13	5



Distribution for Personal Sample Data from Vendor A

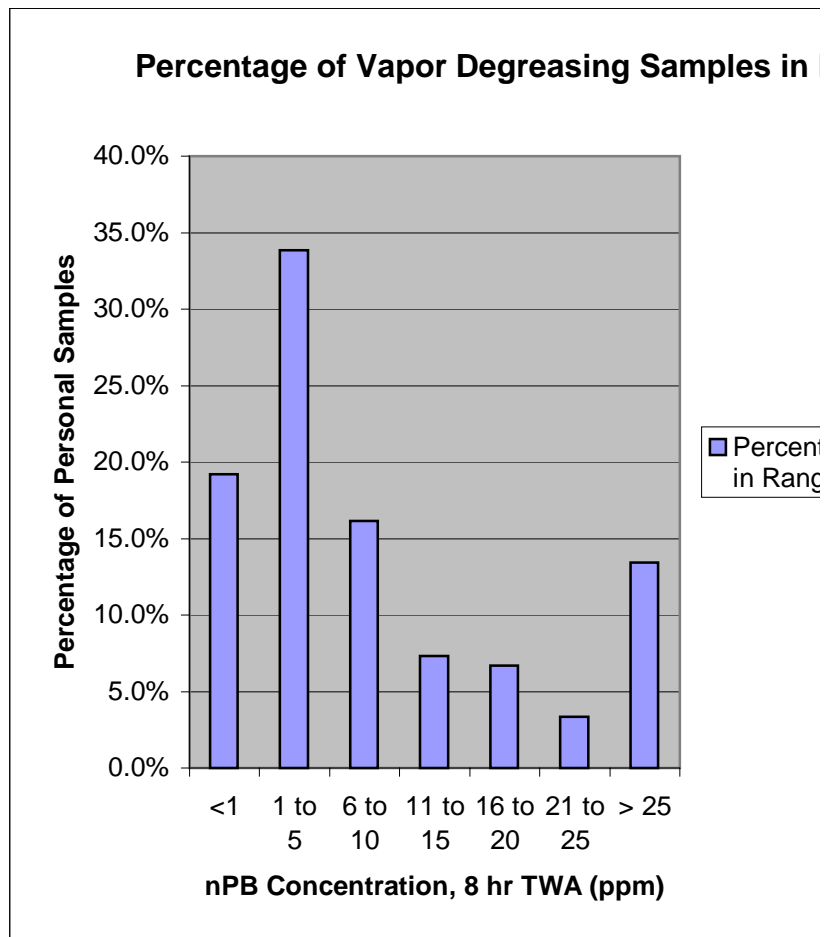
Distribution of nPB Exposure by Concentration Range (ppm)

Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25
Percentage of Vendor A Samples in Range	7.7%	26.4%	18.7%	9.9%	9.9%	6.6%
Number of samples	7	24	17	9	9	6

Distribution for Personal Sample Data from Vendor A and Albemarle

Distribution of nPB Exposure by Concentration Range (ppm)

Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25
Percentage of Samples in Range	19.2%	33.8%	16.2%	7.3%	6.7%	3.4%
Number of Samples	63	111	53	24	22	11



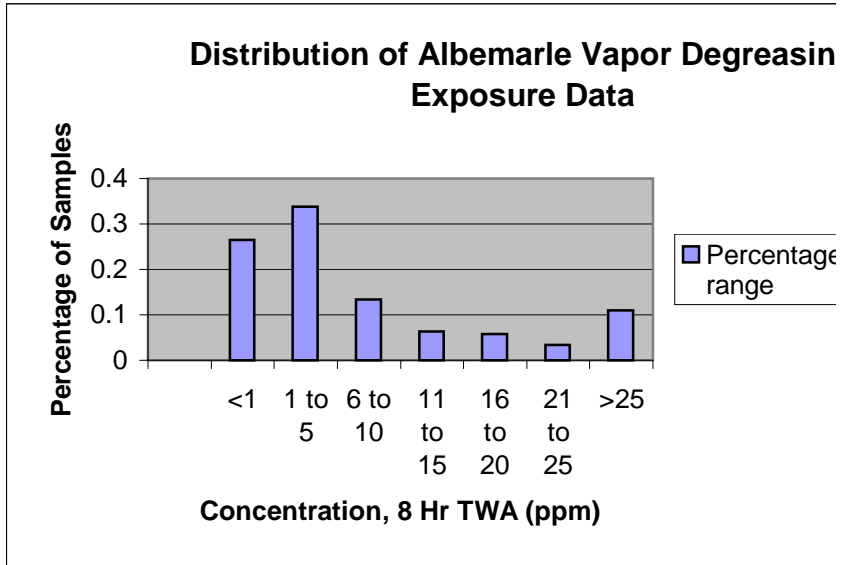
170
26
>25
19 Total
8.2%

231

trations

|Number of samples

Source: Albemarle Corp, 5/16/03 Data Set
Distribution for Personal Sample Data from Albemarle
Concentration Range <1 1 to 5 6 to 10
Percentage of sample: 26.5% 33.7% 13.3%
Number of samples 109 139 55



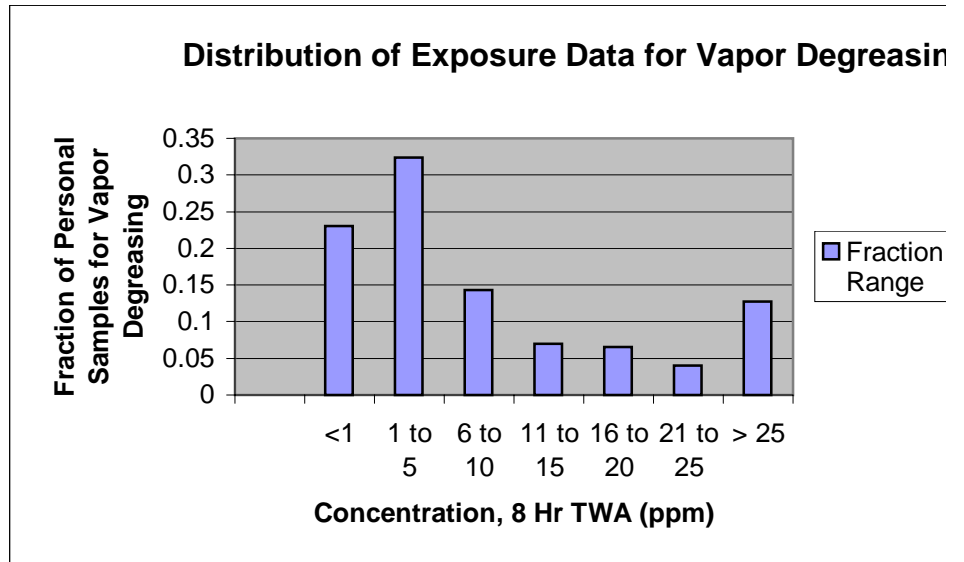
>25
8.2%
19 Total

231

Distribution for Personal Sample Data from Vendor A an
Distribution of nPB Exposure by Concentration Range (p
Concentration Range <1 1 to 5 6 to 10
Fraction of Samples in 23.1% 32.4% 14.3%
Number of Samples 116 163 72

ange

- <1
- 1 to 5
- 6 to 10
- 11 to 15
- 16 to 20
- 21 to 25
- >25



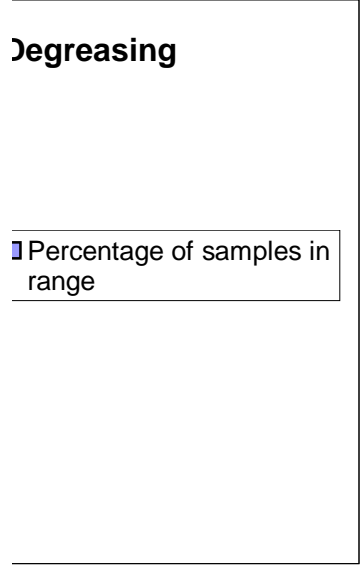
26 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100	>100
6.6%	4.4%	8.8%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
6	4	8	1	0	0	0	0	0

> 25	TOTAL
13.4%	
44	328

s in Range

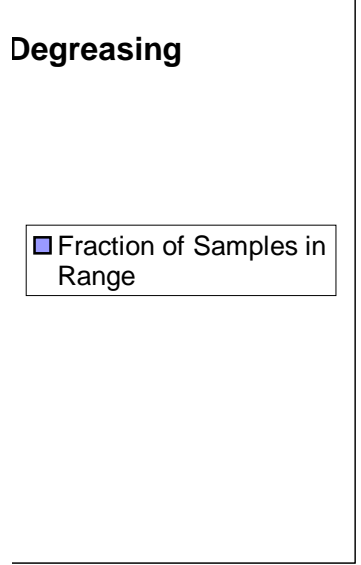
ercentage of Samples
Range

11 to 15	16 to 20	21 to 25	>25	TOTAL
6.3%	5.8%	3.4%	10.9%	100.0%
26	24	14	45	412



id Albemarle, as of 5/15/03
 ppm)

11 to 15	16 to 20	21 to 25	> 25	TOTAL
7.0%	6.6%	4.0%	12.7%	100.0%
35	33	20	64	503



TOTAL

91

TOTAL

126

33

20

Vapor Degreasing Exposure Data
Source: Vendor A

Source: Albemarle Cor
Albemarle Corporation

Sample Method	Sample Location	nPB (ppm)	
3M Organic Vapor Monitor #3500	Operator Collar	6.7	Sampling procedure in
3M Organic Vapor Monitor #3500	Operator Collar	16	Samples are activated
3M Organic Vapor Monitor #3500	Operator Collar	18	
3M Organic Vapor Monitor #3500	Operator Collar	35	Site A - metal cleaning
3M Organic Vapor Monitor #3500	Operator Collar	26	Personal Sample 1A
3M Organic Vapor Monitor #3500	Operator Collar	15	Area Sample 1A
3M Organic Vapor Monitor #3500	Operator Collar	6.7	
3M Organic Vapor Monitor #3500	Operator Collar	14	
3M Organic Vapor Monitor #3500	Operator Collar	<0.054	Site B - metal cleaning
3M Organic Vapor Monitor #3500	Operator Collar	3.9	Personal Sample #1B
3M Organic Vapor Monitor #3500	Operator collar	19	Personal Sample #2B
3M Organic Vapor Monitor #3500	hanging in air above machine	33	Area Sample 1B
3M Organic Vapor Monitor #3500	Hanging over degreaser	33	Area Sample 2B
3M Organic Vapor Monitor #3500	Hanging over degreaser	47	
3M Organic Vapor Monitor #3500	Operator Collar	3.7	
3M Organic Vapor Monitor #3500	operator collar	11	
3M Organic Vapor Monitor #3500	operator collar	16	
3M Organic Vapor Monitor #3500	operator collar	6.6	
3M Organic Vapor Monitor #3500	operator collar	11	Site C - electronics cle:
3M Organic Vapor Monitor #3500	operator collar	12	Personal Sample 1C
3M Organic Vapor Monitor #3500	operator collar	9.5	Personal Sample 2C
3M Organic Vapor Monitor #3500	operator collar	33	Area Sample 1C
3M Organic Vapor Monitor #3500	operator collar	8.4	Area Sample 2C

3M Organic Vapor Monitor #3500	on 28" tall table 3' from degreaser	8.2	
3M Organic Vapor Monitor #3500	operator collar	0.35	Site D - metal cleaning
3M Organic Vapor Monitor #3500	operator collar	7.3	Personal Sample #1D
3M Organic Vapor Monitor #3500	operator collar	14	Area Sample 1D
3M Organic Vapor Monitor #3500	operator collar	2.4	
3M Organic Vapor Monitor #3500	operator collar	1.3	
3M Organic Vapor Monitor #3500	operator collar	3.9	
3M Organic Vapor Monitor #3500	operator collar	1.7	Site E - metals cleanir
3M Organic Vapor Monitor #3500	20 feet from equipment, head level	2.5	Area samples--6 sampl
3M Organic Vapor Monitor #3500	6 feet from equipment, head level	3.7	Personal Samples--6 s
3M Organic Vapor Monitor #3500	operator collar	41	
3M Organic Vapor Monitor #3500	operator collar	3	
3M Organic Vapor Monitor #3500	operator collar	1.8	
3M Organic Vapor Monitor #3500	operator collar	2.6	
3M Organic Vapor Monitor #3500	on vapor degreaser near opening	18	
3M Organic Vapor Monitor #3500	operator collar	3.6	Site G - metals cleanir
3M Organic Vapor Monitor #3500	operator collar	1.6	Area sample 1G
3M Organic Vapor Monitor #3500	Operator collar	30	Area sample 2G
3M Organic Vapor Monitor #3500	operator collar	6.9	Personal Sample 1G
3M Organic Vapor Monitor #3500	operator collar	7.2	Personal Sample 2G
3M Organic Vapor Monitor #3500	Operator collar using CPN-217-127-M	6.2	Personal Samples 3G

3M Organic Vapor Monitor #3500	hanging in air, head level above machine	35
3M Organic Vapor Monitor #3500	on table, three feet from cleaning room door	6.2
3M Organic Vapor Monitor #3500	operator collar	4.3
3M Organic Vapor Monitor #3500	operator collar	2
3M Organic Vapor Monitor #3500	On post, head level within three feet of machine	3.8
3M Organic Vapor Monitor #3500	Within three feet of machine at an elevation of five feet above floor	25
3M Organic Vapor Monitor #3500	Operator Collar using B-250-R-SP	0.64
3M Organic Vapor Monitor #3500	Downwind area of B-250-R-SP	0.66
3M Organic Vapor Monitor #3500	Operator Collar using B-250-R-SP	0.76
3M Organic Vapor Monitor #3500	Operator collar using CPN-217-127-M	3.1
3M Organic Vapor Monitor #3500	Downwind area of CPN-217-127-M	9
3M Organic Vapor Monitor #3500	Operator collar	8.5
3M Organic Vapor Monitor #3500	Operator collar	2.3
3M Organic Vapor Monitor #3500	Operator collar	4.6
3M Organic Vapor Monitor #3500	Operator collar	44

Albemarle--"Before" an

Source: Docket ID II-D-78

A

B

C

3M Organic Vapor Monitor #3500	Operator collar	10
3M Organic Vapor Monitor #3500	Operator collar	27
3M Organic Vapor Monitor #3500	Operator collar	23
3M Organic Vapor Monitor #3500	Operator collar	26
3M Organic Vapor Monitor #3500	Operator collar	29
3M Organic Vapor Monitor #3500	Operator collar	43
3M Organic Vapor Monitor #3500	Operator collar	22
3M Organic Vapor Monitor #3500	Operator collar	50
3M Organic Vapor Monitor #3500	Operator collar	8.8
3M Organic Vapor Monitor #3500	Operator collar	4.2
3M Organic Vapor Monitor #3500	Operator collar	49
3M Organic Vapor Monitor #3500	Operator collar	6.5
3M Organic Vapor Monitor #3500	Operator collar	14
3M Organic Vapor Monitor #3500	Operator collar	12
3M Organic Vapor Monitor #3500	Operator collar	55
3M Organic Vapor Monitor #3500	Operator collar	3.8
3M Organic Vapor Monitor #3500	Operator collar	<0.03
3M Organic Vapor Monitor #3500	Operator collar	5.8
3M Organic Vapor Monitor #3500	Operator collar	<2.3ug
3M Organic Vapor Monitor #3500	Near vapor degreaser	19
3M Organic Vapor Monitor #3500	Unknown	38
3M Organic Vapor Monitor #3500	Operator collar	48
3M Organic Vapor Monitor #3500	Operator collar	23
3M Organic Vapor Monitor #3500	Unknown	18
3M Organic Vapor Monitor #3500	Unknown	14

3M Organic Vapor Monitor #3500	Unknown	34
3M Organic Vapor Monitor #3500	1 meter above machine opening	1.5
3M Organic Vapor Monitor #3500	Operator collar	7.4
3M Organic Vapor Monitor #3500	Operator collar	17
3M Organic Vapor Monitor #3500	Operator collar	0.26
3M Organic Vapor Monitor #3500	Operator collar	5.4
3M Organic Vapor Monitor #3500	Operator collar	0.34
3M Organic Vapor Monitor #3500	Operator collar	0.25
3M Organic Vapor Monitor #3500	Operator collar	28
3M Organic Vapor Monitor #3500	Operator collar	4.9
3M Organic Vapor Monitor #3500	Chem Lab - left	1
3M Organic Vapor Monitor #3500	Chem Lab - left	3.8
3M Organic Vapor Monitor #3500	Operator collar	3
3M Organic Vapor Monitor #3500	30" above machine	19
3M Organic Vapor Monitor #3500	Operator collar	10
3M Organic Vapor Monitor #3500	Near hood	0.059
3M Organic Vapor Monitor #3500	Operator collar	18
3M Organic Vapor Monitor #3500	Operator collar	4.2
3M Organic Vapor Monitor #3500	Operator collar	1.5
3M Organic Vapor Monitor #3500	Operator collar	17
3M Organic Vapor Monitor #3500	Operator #1 collar	12
3M Organic Vapor Monitor #3500	Operator #2 collar	20
3M Organic Vapor Monitor #3500	Operator collar	6.8
3M Organic Vapor Monitor #3500	Operator collar	16

3M Organic Vapor Monitor #3500	Operator collar	43
3M Organic Vapor Monitor #3500	Operator collar	44
3M Organic Vapor Monitor #3500	Operator collar	1.6
Charcoal Tube, Method 1003, Issue 2, NIOSH	Workstation next to Branson BTC-200	4.75
3M Organic Vapor Monitor #3500	Operator collar	31
3M Organic Vapor Monitor #3500	Operator collar	0.5
3M Organic Vapor Monitor #3500	Operator collar	22
3M Organic Vapor Monitor #3500	Operator collar	1.8
3M Organic Vapor Monitor #3500	Operator collar	33
3M Organic Vapor Monitor #3500	Operator collar	6.1
3M Organic Vapor Monitor #3500	Operator collar	11
3M Organic Vapor Monitor #3500	Operator collar	20
Charcoal Tube, Method 1003, Issue 2, NIOSH	Operator collar	22.5
Charcoal Tube, Method 1003, Issue 2, NIOSH	Unmanned grinding machine area	15.1
Charcoal Tube, Method 1003, Issue 2, NIOSH	18" above lip of machine	36.2
Charcoal Tube, Method 1003, Issue 2, NIOSH	Beside tank - 610 side	17.8
Charcoal Tube, Method 1003, Issue 2, NIOSH	Operator collar during machine fill	21.9
Charcoal Tube, Method 1003, Issue 2, NIOSH	Beside tank - FCB side	22.5
Charcoal Tube, Method 1003, Issue 2, NIOSH	Beside tank - clean room	26.9
Charcoal Tube, Method 1003, Issue 2, NIOSH	Freeboard extension	45

Charcoal Tube, Method 1003, Issue 2, NIOSH	Workstation outside cleaning room	0.88
Charcoal Tube, Method 1003, Issue 2, NIOSH	Inside cleaning room by cleaner	44.2

Area Samples			# of samples	39
	Average	30.33		
	Median	18.00		
	Standard Dev	55.93		
	Max	344.00		
	Min	<0.054		
Personal Samples			# of samples	109
	Average	16.47		
	Median	10.00		
	Standard Dev	16.82		
	Max	74.00		
	Min	<0.03		
Personal Samples w/Charcoal Tube			# of samples	20
	Average	25.67		
	Median	18.5		
	Standard Dev	24.25		
	Max	74		
	Min	3		
Personal Samples with Organic Badge Monitors			# of samples	84
	Average	14.2		
	Median	8.7		
	Standard Dev	14.09		
	Max	55		
	Min	<0.03		

p. (Docket X-B-57)

March 19, 1998 letter to Wil Monroe

coconut shell charcoal tubes

Concentration (ppm) 8 hr TWA

3

2

Site A - metal clear Concentration (ppm) 8

Personal Sample 1 3

Personal Sample 1 3

Personal Sample 1 2

Personal Sample 1 1

Area Sample 1A 2

Area Sample 1B 2

Concentration (ppm) 8 hr TWA

62

74

66

72

SITE B

Concentrat

Personal Sample 3B 72

Personal Sample 4B 66

Personal Sample 5B 16

Personal Sample 6B 21

Personal Sample 7B 24

Area Sample 3B 74

Area Sample 4B 62

Area Sample 5B 86

Concentration (ppm) 8 hr TWA

6

15

42

35

Site C

Concentrat

Personal Sample 3C 6

Personal Sample 4C 15

Area Sample 3C 42

Area Sample 4C 35

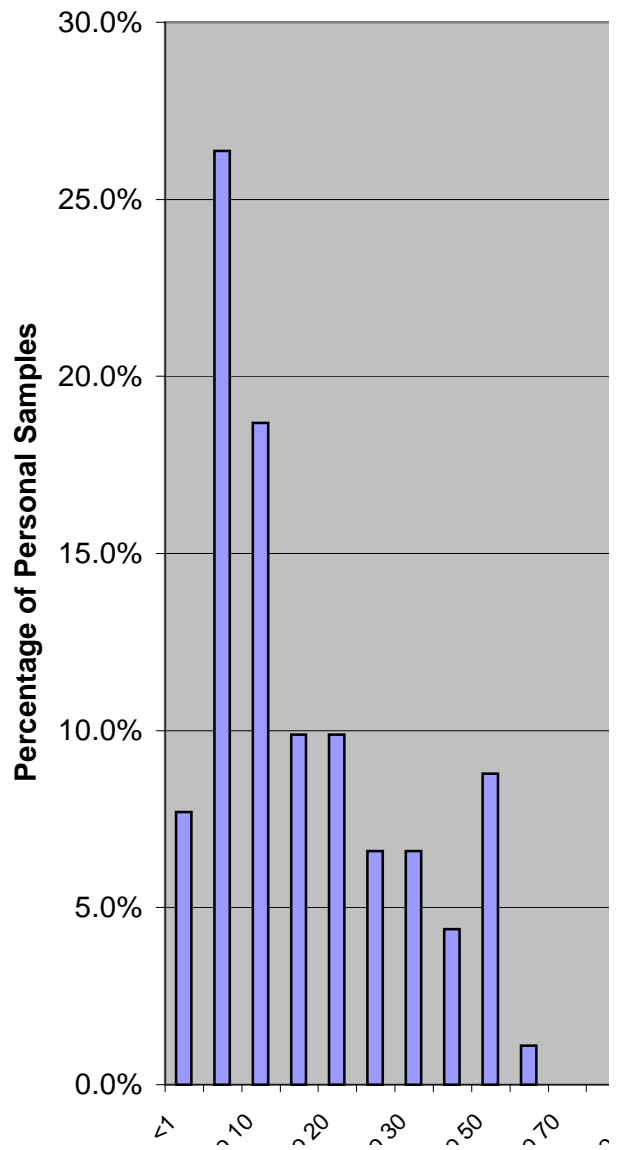
Concentration (ppm) 8 hr TWA	Site D	Concentration
30	Area Sample 2D	3
3	Area Sample 3D	344
	Area Sample 4D	3
	Area Sample 5D	3

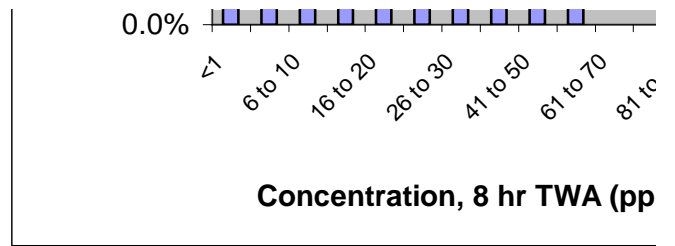
Concentration (ppm) 8 hr TWA	Site E	Concentration
1 to 12 ppm	Personal Sample 1E	5
1 to 6 ppm	Personal Sample 2E	13
	Personal Sample 3E	42
	Personal Sample 4E	4
	Personal Sample 5E	5
	Personal Sample 6E	6

Concentration (ppm) 8 hr TWA		
0.1	Personal Sample 7E	5
	Personal Sample 8E	1
	Personal Sample 9E	2
45.9	Area Sample 1E	4
0.1	Area Sample 2E	12
0.1	Area Sample 3E	1
0.3	Area Sample 4E	7

Initial Concentration (ppm, 8 hr TWA)	Concentration after Assistance (ppm, 8 hr TWA)	Sample Type	Value
		Area Sample 5E	1
id "After" Stewardship (Not in averages for end use)			
		Area Sample 6E	5
170	20	Site F	
80	10	Personal Sample 1F	0.7
20	1	Personal Sample 2F	11
		Personal Sample 3F	58
		Personal Sample 4F	4
		Area Sample 1F	9

Percentage of Vapor Degreasir





Distribution for Personal Sample Data from Vendor A

Distribution of nPB Exposure by Concentration Range (ppm)

Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30
Percentage of Vend	7.7%	26.4%	18.7%	9.9%	9.9%	6.6%	6.6%
Number of samples	7	24	17	9	9	6	6

8 hr TWA

Concentration (ppm)

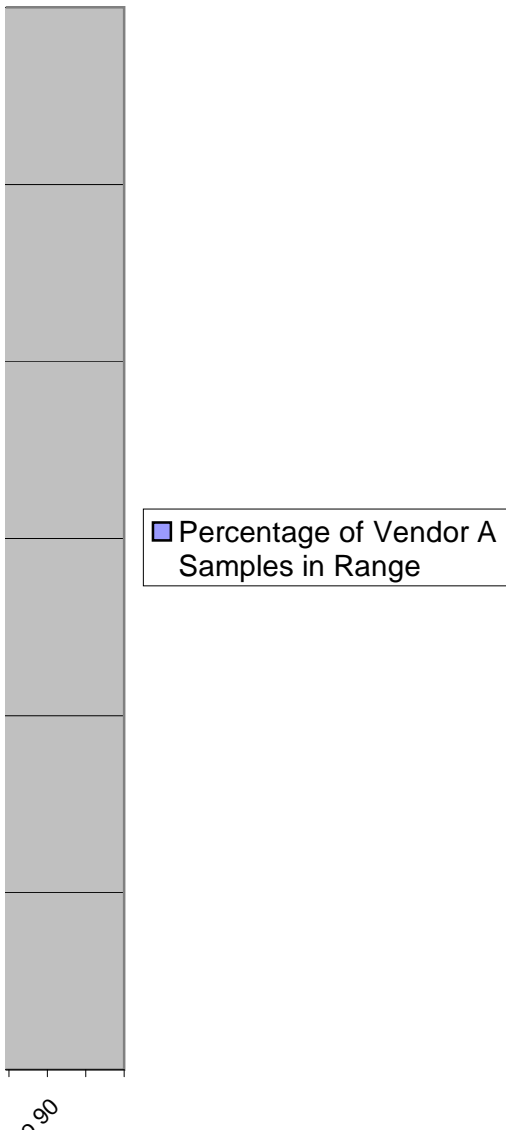
Note: Personal Samples 5B, 6B, 7B made "after improvements"

Concentration (ppm) Note: appears to be identical to other Site C data set

:ion (ppm)

:ion (ppm)

ing Samples in Range





31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100	>100	TOTAL
4.4%	8.8%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
4	8	1	0	0	0	0	0	91

Source: Albemarle Corp.

Site F - hand wipe plastic film Concentration (ppm) 8 hr TWA

Personal Samples--4 samples 28 to 47 ppm Note: samples for 6 to 10 minutes

Personal sample w/high volum < 1 ppm Note: sample 90-120 minutes

	# of meas.	Avg Conc.	Conc. Range (ppm)
Customer #1	5	89.3	51.1 to 107.9
Customer #2	2	79.7	67.1 to 92.2
Average		68.19	

Albemarle Site E--Coil Flushing applications	Concentration, ppm
Personal Sample 1Ecold	5
Personal Sample 2Ecold	13
Personal Sample 3Ecold	42

Albemarle Site F - Plastic Film Wiping	Concentration, ppm	Note: this is short term monitoring
Personal Sample 1Fcold	28	
Personal Sample 2Fcold	28<x<47	
Personal Sample 3Fcold	28<x<47	
Personal Sample 4Fcold	47	
Area Sample 1 Fcold	<1	Note: this is an area sample, 90 tc

Source: HETA 2000-0233-284 6-Nov-00 Air-tight cold cleaning machine
Trilithic, Inc. concentration (ppm) charcoal-tube samplers

Location for Personal Samples nPB

Components	0.02
Components	0.18
Components	-0.01
Components	-0.02
Tech Station I	0.02
Tech Station I	0.02
Tech Station I	0.02
Custom Filters	0.08
Custom Filters	0.02
Custom Filters	0.02
Filters	0.17
Filters	0.04
Filters	-0.02
Filters	0.05
Filters	-0.01
Tunables	-0.02
Tunables	-0.02
Tunables	0.02
Tunables	0.08
Engineering Support	0.63

Location for Area Samples

On exhaust duct above the deg	4.42
On cart, 5 ft from degreaser	1.7

On cabinet, near degreaser roc	0.03
on metal rack, near degreaser	0.02
near the degreaser room windc	0.02
5' from the degreaser room wir	0.02
Office next to degreaser room	0.02

g, for only 6 to 10 minutes

o 120 minutes with high volume exhaust

Aerosol exposure data

Source: Vendor B

Samples taken 5/8/98

Sampling technique: Charcoal Tube

Sample #	Job Description	Concentration (ppm)	
		8 hr-TWA	15 min STEL
5981-01	QC Technician	15.1	
5981-02	Mechanic	11.3	
5981-03	Mechanic	17	
5981-04	Maintenance Supervisor	30.2	
5981-09	Mechanic		57.5
5981-10	Maintenance Supervisor		254
5981-11	Mechanic		45.1
5981-12	Maintenance Supervisor		243
5981-13	Mechanic		151
5981-14	QC Technician		134
5981-15	Mechanic		123
5981-16	QC Technician		92.8
5981-05	Inlet to Vent Fan	93.8	
5981-06	Cleaning Area	194	
5981-07	Left Middle of Shop	21.2	
5981-08	Right Front of Shop	8.76	

Fraction of Personal Samples

Area Samples		# of samples	4
Average	79.44		
Median	57.5		
Standard Dev.	85.08381		
Max	194		
Min	8.76		
8-hr TWA Personal Samples		# of samples	4
Average	18.4		
Median	16.05		
Standard Dev.	8.215838		
Max	30.2		
Min	11.3		
15 min STEL Personal Samples		# of samples	8
Average	137.55		
Median	128.5		
Standard Dev.	77.49938		
Max	254		
Min	45.1		

Albemarle Corp. Data # measure Avg. Conc. Concentration range (ppm)

Customer spray cleaner (brakes cle 4 9.2 5 to 14

Average, All 13.8

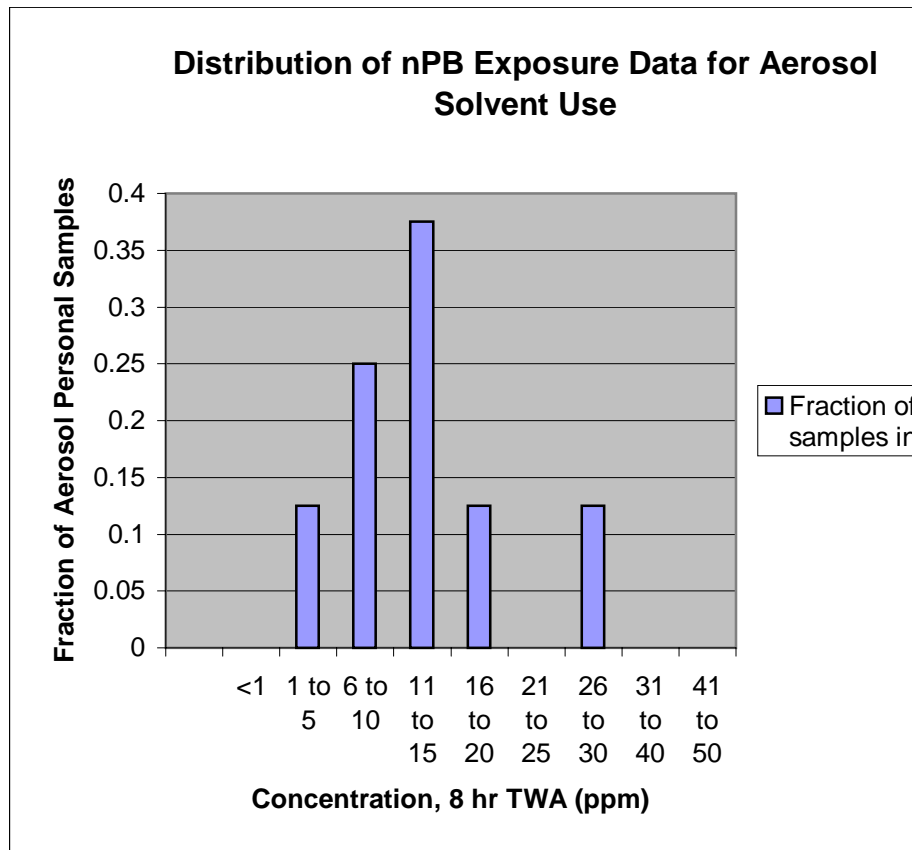
PERSONAL SAMPLES

Distribution of nPB Exposure by Concentration Range (ppm)

Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25
Fraction of aerosol samples in range	0.0%	12.5%	25.0%	37.5%	12.5%	0.0%

Number of samples

0 1 2 3 1 0
?



15-min STEL, Personal Samples

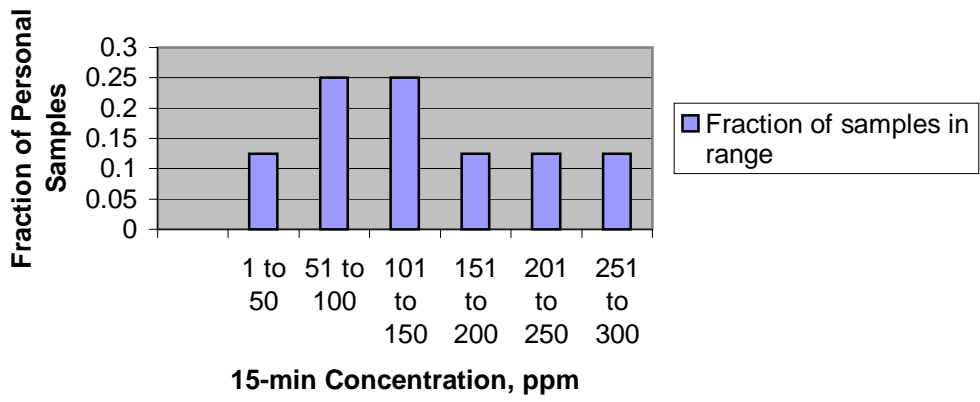
Distribution of nPB Exposure by Concentration Range (ppm)

Concentration Range 1 to 50 51 to 100 101 to 150 151 to 200 201 to 250 251 to 300 TOTAL

Fraction of samples in 12.5% 25.0% 25.0% 12.5% 12.5% 12.5%

Number of samples 1 2 2 1 1 1 8

Distribution of Short-Term nPB Exposure Data for Aerosol Solvent Use



26 to 30 31 to 40 41 to 50 51 to 60 TOTAL
 12.5% 0.0% 0.0% 0.0%

1 0 0 0 8

rosol

raction of aerosol
amples in range

Adhesives Exposure Data

All NIOSH samplers are SKC Anasorb CSC Lot 2000 Charcoal tubes

Source:

HETA 2000-0410-2891

Aug, 2002 report

Sample type: Charcoal tube

7/31/2001-8/2/2001

STN Cushion after improving ventilation equipment

Station#	Date	Exposure		Date	E: ppm nPB
		ppm nPB	ppm iPB		
1	07/31/01	8.8	0.10	08/01/01	
2	07/31/01	15.0	0.20	08/01/01	10.6
3	07/31/01	15.1	0.10	08/01/01	14.2
4	07/31/01	21.1	0.20	08/01/01	16.3
5	07/31/01	14.7	0.20	08/01/01	16.1
6	07/31/01	31.9	0.30	08/01/01	17.0
7	07/31/01	16.5	0.10	08/01/01	17.3
8	07/31/01	13.9	0.10	08/01/01	17.5
9	07/31/01	15.1	0.20	08/01/01	7.7
10	07/31/01	11.8	0.10	08/01/01	21.8
11	07/31/01	15.8	0.20	08/01/01	29.0
12	07/31/01	18.9	0.20	08/01/01	17.8
Average overall					
	7/31/01	16.55	0.167	08/01/01	16.85
Standard Deviation overall					
		5.737	0.0651		5.518

HETA 98-0153

12/21/2000 letter

Sample type: Charcoal tube

11/14/2000 measurements

Custom Products, after improving ventilation

Job Title	Department	Exposure	
		ppm nPB	ppm iPB
Assembler	Assembly	18.0	0.30
Assembler	Assembly	20.7	0.35
Sprayer	Assembly	32.0	0.48
Assembler	Assembly	9.9	0.20
Sprayer	Assembly	14.9	0.25
Assembler	Assembly	24.4	0.40
Assembler	Assembly	31.8	0.55
Assembler	Assembly	11.5	0.19
Sprayer	Assembly	18.1	0.26
Assembler	Assembly	19.9	0.21
Foreman	Assembly	6.1	0.10
Sprayer	Covers	58.0	0.11
Sprayer	Covers	26.5	0.07
Sprayer	Covers	25.3	0.06
Sprayer	Covers	5.4	0.03
Sprayer	Covers	33.7	0.07
Sprayer	Covers	51.6	0.10
Sprayer	Covers	28.2	0.05

Sprayer	Covers	36.8	0.06
Sprayer	Covers	45.3	0.10
Sprayer	Covers	13.9	0.06
Sprayer	Covers	23.2	0.05
Foreman	Covers	2.8	0.02
Foreman	Sew	1.2	<0.01
Operator	Saw	1.6	0.04
Operator	Saw	1.6	<0.01
Operator	Saw	2.0	0.05
Operator	Saw	1.7	0.03
Operator	Saw	1.9	0.04
Foreman	Saw	1.8	0.05
Average Overall		18.99	0.153
Average for Sprayers		29.49	0.125
Average for Assemblers		19.46	0.314
Average for Saw Operators		1.76	0.040
Average for Assembly Dept.		18.85	0.299
Average for Covers Dept.		29.23	0.065
Average for Saw Dept.		1.77	0.042
Standard Deviation Overall		15.832	0.1465
Standard Deviation for Sprayers		14.840	0.1241
Standard Deviation for Assemblers		7.475	0.1315
Standard Deviation for Saw Operators		0.182	0.0082
Standard Deviation for Assembly Dept.		8.304	0.1348
Standard Deviation for Covers Dept.		17.124	0.0275
Standard Deviation for Saw Dept.		0.163	0.0084

Albemarle Corporation

Sampling procedure in March 19, 1998 letter to Wil Monroe
Samples are activated coconut shell charcoal tubes

Site H - 5/98	Concentration (ppm) 8 hr TWA
Personal Sample #1H (98-8090, 98-809)	27
Personal Sample #2H (98-8091, 98-809)	34
Area Sample, Booth 1H (98-8094)	11
Area Sample, Booth 2H (98-8095)	5

Site I - 6/98	Concentration (ppm) 8 hr TWA
Personal Sample # 1I (98-8121)	66
Personal Sample # 2I (98-8118)	68
Personal Sample # 3I (98-8116)	18
Personal Sample # 4I (98-8120)	56

Site J - 6/98	Concentration (ppm) 8 hr TWA
Personal Sample # 1J (98-8112)	32
Personal Sample # 2J (98-8123)	92

Personal Sample # 3J (98-8124)	44
Personal Sample # 4J (98-8125)	80
Personal Sample # 5J (98-8126)	45

Site K - 6/98	Concentration (ppm) 8 hr TWA
Personal Sample # 1K (98-8130)	43
Personal Sample # 2K (98-8129)	38
Personal Sample # 3K (98-8131)	39
Personal Sample # 4K (98-8128)	26
Area Sample # 1K (98-8132)	17

	# of meas	Avg Conc.	Conc. Range (ppm)
Customer #3 - Spray adhesive	4	19.4	5.1 to 33.8
Customer #4 - Spray adhesive	5	44.7	13.9 to 68.9
Customer #5 - Spray adhesive	5	58.8	32.1 to 92.3
Customer #6 - Spray adhesive	5	33.14	17.4 to 42.8
Customer #8 - Flooring contact adhesiv	4	32.2	24 to 43 (area measure of 34 p

Area Samples	# of sample	5
	Average	9.4
	Median	8.70
	Standard C	4.92
	Max	17.00
	Min	5.00

Personal Samples	# of sample	89	With Custom Products pre-ventila
	Average	43.47	172.5
	Median	32.00	
	Standard C	41.54	
	Max	143.00	381.2
	Min	1.20	

Area Samples after Ventilation	# of sample	1
	Average	9.4
	Median	8.70
	Standard C	4.92
	Max	17.00
	Min	5.00

Personal Samples after Ventilation	# of sample	42
	Average	18.30
	Median	15.46
	Standard C	13.69
	Max	58.00
	Min	1.20

Average Personal Sample Value Before Concentrat	# Samples
Custom Products	168.9 69
Marx Industries	91.5 17
STN Cushion Company	58.50 14
All Three NIOSH Sites	141.7 100

Distribution of nPB Exposure by Concentration Range (ppm)

Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20
Percentage of samples in range	0.0%	8.3%	4.6%	11.0%	16.5%
Number of samples	0	9	5	12	18

Distribution of nPB Exposure After Improving Ventilation (ppm)

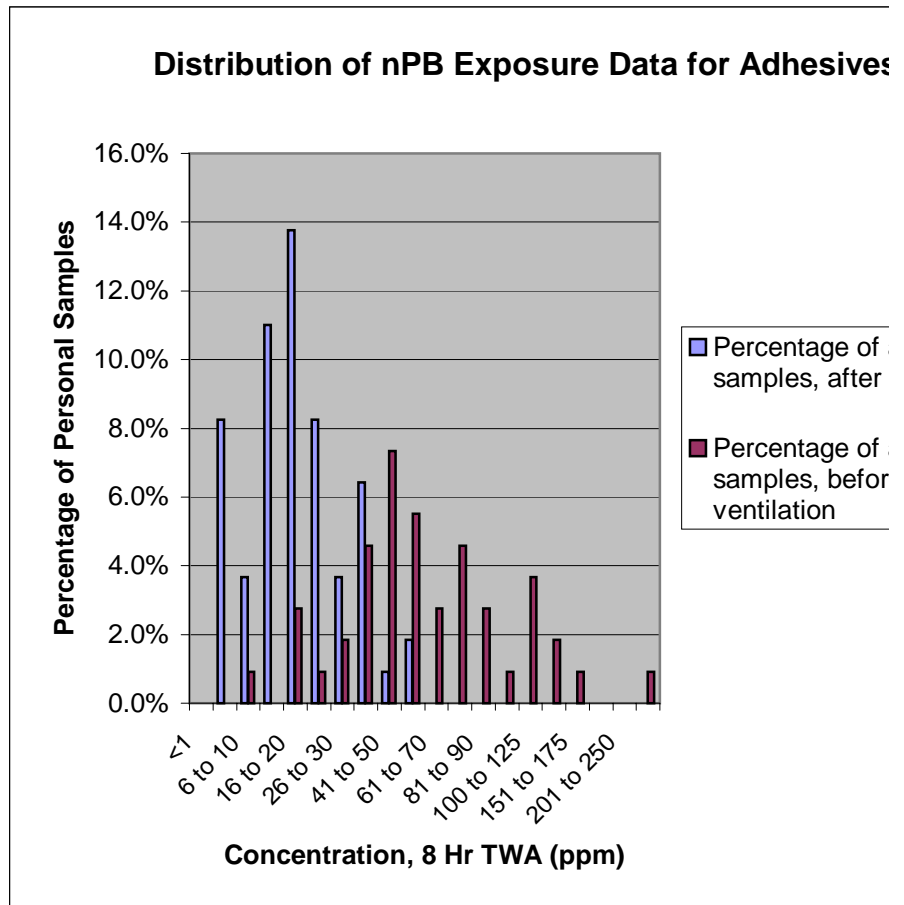
Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20
Percentage of samples in range	0.0%	14.3%	6.3%	19.0%	23.8%
Number of samples	0	9	4	12	15

Distribution of nPB Exposure Before Improving Ventilation (ppm)

Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20
Percentage of samples in range	0.0%	0.0%	2.2%	0.0%	6.5%
Number of samples	0	0	1	0	3

Distribution, as % of all samples

Concentration Range	<1	1 to 5	6 to 10	11 to 15	16 to 20
Percentage of all samples, after ventilation	0.0%	8.3%	3.7%	11.0%	13.8%
Percentage of all samples, before ventilation	0.0%	0.0%	0.9%	0.0%	2.8%



xposure ppm iPB	Date	Exposure		Exposure	
		ppm nPB	ppm iPB	Average, ppm nPB	ppm iPB
	08/02/01				
0.10	08/02/01	20.7	0.10	Average,	15.4
0.10	08/02/01	24.8	0.20	Average,	18.0
0.20	08/02/01	19.9	0.20	Average,	19.1
0.20	08/02/01	23.8	0.20	Average,	18.2
0.10	08/02/01	34.9	0.40	Average,	27.9
0.20	08/02/01	15.3	0.20	Average,	16.4
0.10	08/02/01	14.3	0.20	Average,	15.2
0.10	08/02/01	28.4	0.30	Average,	17.1
0.20	08/02/01	17.8	0.20	Average,	17.1
0.20	08/02/01	32.7	0.30	Average,	25.8
0.20	08/02/01	24.1	0.20	Average,	20.3
0.155	08/02/01	23.34	0.227	Average,	19.15
0.0522		6.679	0.0786		4.129
					0.0431

HETA 98-0153 5/26/1999 letter Sample type: Charcoal tube
 11/10-12/1998 m Custom Products, before improving ventilation
 exposure, ppm of nPI

Job Title	Department	# of Sampl	Mean	Minimum	Maximum
	Assembly	36	169.8	60.0	250.7
Sprayers	Assembly	15	193.0	115.3	250.7
Assemblers	Assembly	20	154.7	60.0	234.9
Sprayers	Covers	21	197.0	117.3	381.2
Saw Operator	Saw	12	117.1	85.1	159.2
All Exposure Data		69	168.9	60.0	381.2

HETA 99-0260 2/1/2000 letter Sample type: Charcoal tube
 11/17/99 Marx Industries, before improving ventilation
 Exposure

Job Title	Location	ppm nPB	ppm iPB
Adhesive Spraye	Glue Line	105.9	0.32
Adhesive Spraye	Glue Line	89.2	0.25
Adhesive Spraye	Glue Line	77.3	0.23
Adhesive Spraye	Glue Line	131.4	0.35
Adhesive Spraye	Glue Line	115.0	0.33
Adhesive Spraye	Glue Line	66.3	0.22
Adhesive Spraye	Glue Line	57.7	0.19
Doffer	Glue Line	51.8	0.16
Supervisor	Glue Line	18.1	0.08
Adhesive Spraye	Springs Line	86.1	0.24
Adhesive Spraye	Springs Line	160.0	0.43
Adhesive Spraye	Springs Line	121.0	0.32
Adhesive Spraye	Springs Line	253.9	0.68
Adhesive Spraye	Springs Line	123.1	0.35
Foam Set-up	Springs Line	38.0	0.11
Doffer	Springs Line	45.9	0.14

Supervisor Springs Line	15.6	0.05
Area Air Sample Focus Saw Area	8.7	0.06
Area Air Sample Cutting Area--Ne	5.3	INVALID
Average Personal Samplers Over:	91.5	0.3
Average for Adh Sprayers	115.6	0.3
Average for Doffers	48.9	0.2
Average for Glue Line	79.2	0.2
Average for Springs Line	105.5	0.3
Average for Area Samples	7.0	0.1
Standard Deviation Personal Sam	58.61	0.15
Standard Deviation for Adh Spray	52.52	0.13
Standard Deviation for Doffers	4.17	0.01
Standard Deviation for Glue Line	35.24	0.09
Standard Deviation for Springs Lir	77.56	0.20
Standard Deviation for Area Samp	2.40	

ition data added

21 to 25	26 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90
9.2%	5.5%	11.0%	8.3%	7.3%	2.8%	4.6%	2.8%
10	6	12	9	8	3	5	3

21 to 25	26 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90
14.3%	6.3%	11.1%	1.6%	3.2%	0.0%	0.0%	0.0%
9	4	7	1	2	0	0	0

21 to 25	26 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90
2.2%	4.3%	10.9%	17.4%	13.0%	6.5%	10.9%	6.5%
1	2	5	8	6	3	5	3

21 to 25	26 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90
8.3%	3.7%	6.4%	0.9%	1.8%	0.0%	0.0%	0.0%
0.9%	1.8%	4.6%	7.3%	5.5%	2.8%	4.6%	2.8%

for Adhesives

- Percentage of all samples, after ventilation
- Percentage of all samples, before ventilation

Source:

HETA 2000-0410 3/7/2001 letter Sample type: Charcoal tube
11/14/2000 meas STN Cushion before improving ventilation

Job Title	Department	Exposure	
		ppm nPB	ppm iPB
Sprayer	Fabrication	41.3	0.45
Sprayer	Fabrication	143.0	1.35
Sprayer	Fabrication	72.4	0.78
Sprayer	Fabrication	47.6	0.33
Sprayer	Fabrication	73.4	0.69
Sprayer	Fabrication	48.6	0.49
Sprayer	Fabrication	75.8	0.77
Sprayer	Fabrication	78.3	0.74
Sprayer	Fabrication	51.3	0.57
Part Time	Fabrication	47.6	0.52
Part Time	Fabrication	54.9	0.56
Part Time	Fabrication	56.7	0.65
Floater	Fabrication	8.7	0.19
Floater	Fabrication	19.4	0.28
Average overall		58.50	0.598
Average for sprayers		70.19	0.686
Average for "part time"		53.07	0.577
Average for Floaters		14.05	0.235
Standard Deviation overall		31.568	0.2830
Standard Deviation for sprayers		30.785	0.2945
Standard Deviation for "part time"		4.819	0.0666
Standard Deviation for Floaters		7.566	0.0636

91 to 100	100 to 125	126 to 150	151 to 175	176 to 200	201 to 250	251 to 300	>300	TOTAL
0.9%	3.7%	1.8%	0.9%	0.0%	0.0%	0.9%		
1	4	2	1	0	0	1		109

91 to 100	100 to 125	126 to 150	151 to 175	176 to 200	201 to 250	251 to 300	>300	TOTAL
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
0	0	0	0	0	0	0	0	63

91 to 100	100 to 125	126 to 150	151 to 175	176 to 200	201 to 250	251 to 300	>300	TOTAL
2.2%	8.7%	4.3%	2.2%	0.0%	0.0%	2.2%		
1	4	2	1	0	0	1		46

91 to 100	100 to 125	126 to 150	151 to 175	176 to 200	201 to 250	251 to 300	>300	TOTAL
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	57.8%
0.9%	3.7%	1.8%	0.9%	0.0%	0.0%	0.9%		42.2%