

AQMD Colorant Survey

2010

In the spring of 2010, the South Coast Air Quality Management District conducted a survey of Architectural Coatings Manufacturers to determine the type of colorants that are currently being used to tint coatings at the point of sale for architectural and industrial maintenance applications. This survey was conducted while researching the feasibility of setting a VOC limit on those colorants.

**Proposed
Amended Rule
1113**

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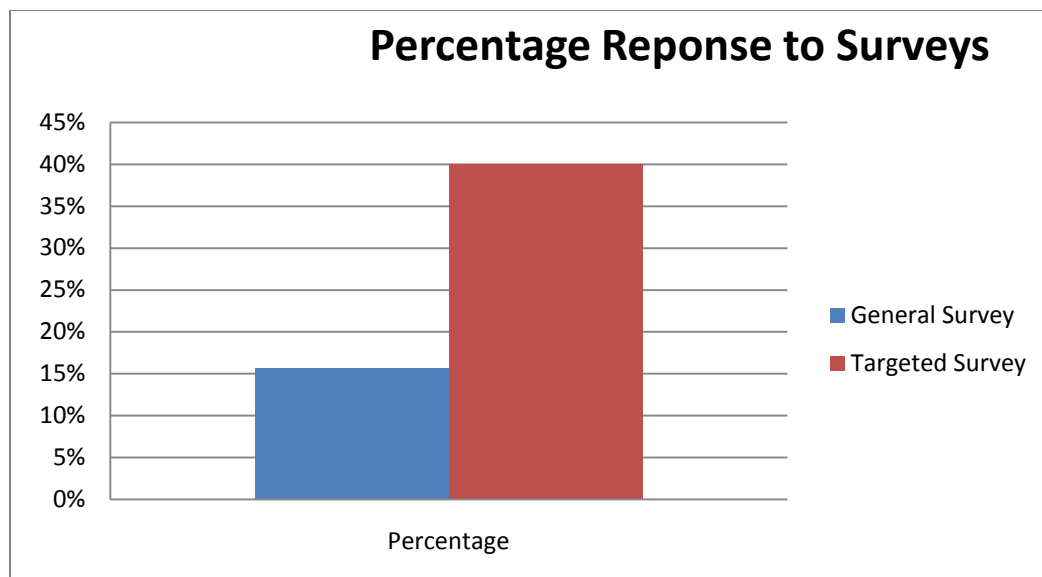
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Introduction

In early 2010 the South Coast Air Quality Management District (AQMD) released three surveys on the use of colorants to tint coatings. The AQMD is interested in the use of colorants due to their potential significant contribution on overall Volatile Organic Compound (VOC) levels of the coatings, expected to be 3-4 tons of VOCs. Currently, the AQMD does not include the point-of-sale (POS) addition of these colorants in the coatings' VOC levels.

The surveys were sent out in April, 2010, after receiving valuable feedback from some manufactures of the coatings industry, including small and large manufactures of coatings, pigment supplies, and the American Coatings Association (ACA). The first survey was a general survey sent to the 288 contacts on AQMD's Rule 1113 subscribers list that are identified as architectural coatings manufacturers. According to Rule 314 reporting, there are approximately 200 manufacturers selling architectural coatings in the AQMD. The second survey was a targeted survey sent to the 35 coating manufacturers who are listed on the AQMD's Super-Compliant Coatings Manufacturers List. The third and final survey focused on retailers. The survey was sent electronically to the 11 retailer contacts in the Rule 1113 subscribers list. In addition, hard copies of the survey were circulated to retail locations throughout the AQMD. The surveys were anonymous; therefore no data from specific companies were recorded.



Of the 288 architectural coatings manufacturers on the Rule 1113 subscribers list, 47 responded to the general survey. Of the 35 Super-Compliant Coatings Manufacturers, 14 responded to the targeted survey. The retail had 33 respondents.

This report is a summary of surveys.

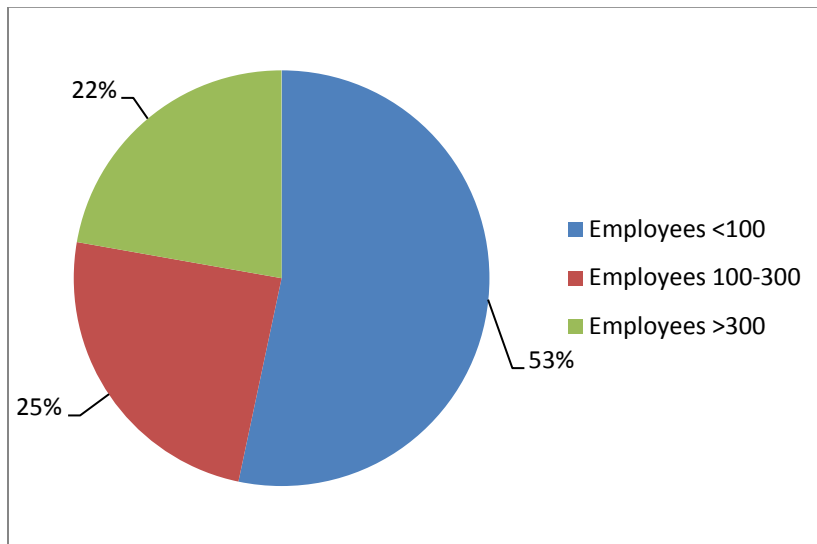
AQMD Colorant Survey

General Survey

General Survey

The general survey went out to 482 coating manufacture contacts and consisted of 19 questions and began with several basic questions, for example, total number of employees, NAICS category, and colorant use.

1. What is the total number of employees?	
Answer Options	Response Count
	45
<i>answered question</i>	45
<i>skipped question</i>	2



AQMD Colorant Survey

General Survey

2. What is the NAICS labor category for your business?

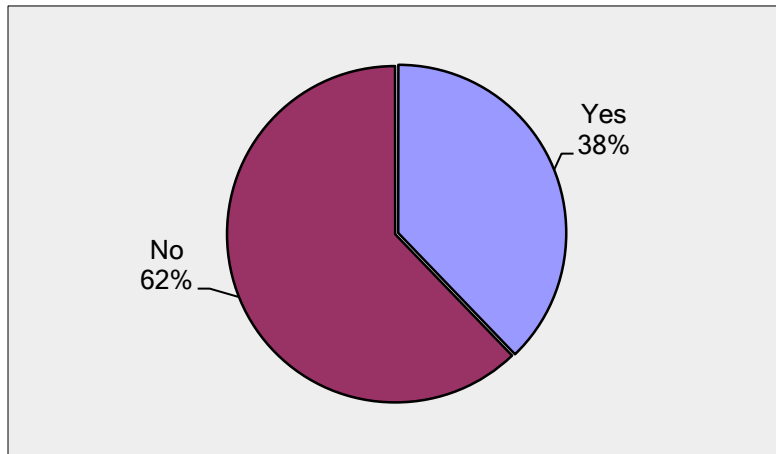
Answer Options	Response Count
	39
<i>answered question</i>	39
<i>skipped question</i>	8

NAICS Labor Code	Description	# of Companies
325510	Architectural Coatings	28
424950	Paint, Varnish, and Supplies Merchant Wholesalers	2
325211	Plastic Materials and Resin Manufacturing	2
325181	Alkalies and Chlorine Manufacturing	2
325131	Inorganic Dye and Pigment Manufacturing	1
339999	All Other Miscellaneous Manufacturing	1
339999	All Other Miscellaneous Manufacturing	1
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	1
2851		1

3. Does your company use colorants at the point of sale (POS) to tint coatings for sale to consumers in the AQMD?

Answer Options	Response Percent	Response Count
Yes	37.8%	17
No	62.2%	28
	<i>answered question</i>	45
	<i>skipped question</i>	2

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AQMD Colorant Survey

General Survey

4. How many total colorant dispensers does your company have for that purpose located in the AQMD?		
Answer Options	Response Percent	Response Count
None	33.3%	5
Up to 10	33.3%	5
Up to 20	6.7%	1
Up to 50	6.7%	1
Not sure	6.7%	1
Other (please specify)	13.3%	2
<i>170, >60</i>		
	<i>answered question</i>	15
	<i>skipped question</i>	32

5. What percent of the volume of your coatings are tinted at the point of sale?		
Answer Options	Response Percent	Response Count
None	7.1%	1
0 – 10%	35.7%	5
10 – 20%	14.3%	2
20 – 50%	0.0%	0
> 50%	35.7%	5
Not sure	7.1%	1
	<i>answered question</i>	14
	<i>skipped question</i>	33

6. Do you make your own colorant or purchase them from an outside source? Check all that apply.		
Answer Options	Response Percent	Response Count
Make own colorant	13%	2
Purchase from outside source	87%	13
	<i>answered question</i>	13
	<i>skipped question</i>	34

Note: respondents who answered “no” to question three automatically skipped this question.

AQMD Colorant Survey

General Survey

7. If you purchase colorant from an outside source, who is your supplier?	
Answer Options	Response Count
	12
<i>answered question</i>	12
<i>skipped question</i>	35

Colorant Source	# of Companies
Evonik	7
Consolidated Color	3
Plasticolors	4
Basf	1
Sierra	1
Clariant	1
Engelhart	1
Color Corporation of America	1
Elementis	2

Note: several manufacturers indicated that they purchased colorants from multiple suppliers, hence the total companies reported exceeds the response count.

8. What type(s) of colorant system(s) do you currently use and do any of them require different dispensing equipment than conventional colorants? Check all that apply.						
Answer Options	Solvent Based IM	Waterborne IM	Solvent Based Architectural	Waterborne Architectural	Different Dispenser	Response Count
Universal colorant	2	2	3	6	0	7
Colorant solely for solvent based coatings	3	0	1	0	1	3
Colorant solely for waterborne coatings	1	4	0	5	1	8
Near-zero VOC universal colorant (< 5g/L)	0	0	0	1	1	2
Near-zero VOC colorant solely for waterborne coatings	0	1	0	3	1	4
Other	0	0	0	0	0	0
Other (please specify)				1		
<i>Whatever is in 888</i>						
<i>answered question</i>						13
<i>skipped question</i>						34

AQMD Colorant Survey

General Survey

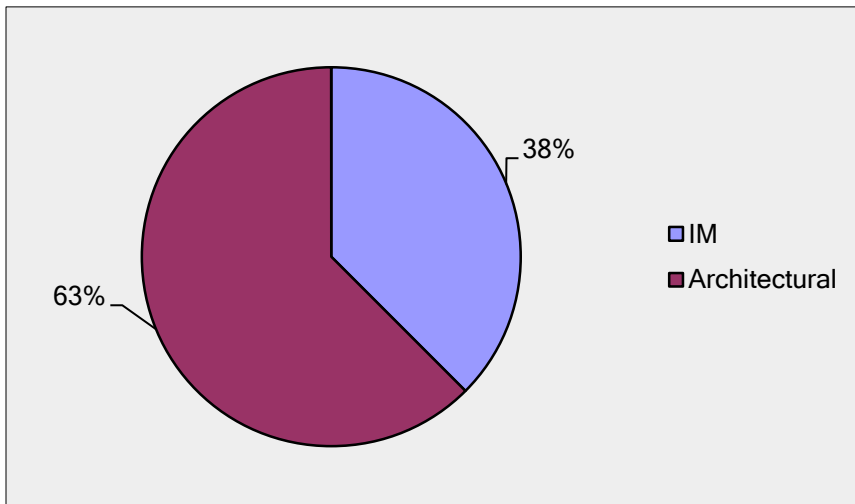
9. What type of solvent is used in the colorant(s) you use? Check all that apply.					
Answer Options	Petroleum Distillates	Glycols	None	Response Count	
Universal colorant	2	6	1	7	
Colorant solely for solvent based coatings	3	1	1	4	
Colorant solely for waterborne coatings	0	4	2	6	
Near-zero VOC universal colorant	0	1	2	3	
Near-zero VOC colorant solely for waterborne coatings	0	2	3	5	
Other	1	0	1	2	
Other (please specify)				2	
<i>888, acetate esters, glycol ethers</i>					
				<i>answered question</i>	11
				<i>skipped question</i>	36

10. What is the VOC content of the colorant system(s) you currently use? Check all that apply.						
Answer Options	0 - 50 g/L	50 - 100 g/L	100 - 250 g/L	> 250 g/L	Response Count	
Universal colorant	1	0	0	5	6	
Colorant solely for solvent based coatings	0	0	0	3	3	
Colorant solely for waterborne coatings	1	1	1	3	6	
Near-zero VOC universal colorant	3	0	0	0	3	
Near-zero VOC colorant solely for waterborne coatings	4	0	0	0	4	
Other	0	0	0	0	0	
Other (please specify)					1	
					<i>answered question</i>	11
					<i>skipped question</i>	36

AQMD Colorant Survey

General Survey

11. Are there any coating categories that your company requires conventional VOC-containing colorants to tint successfully?		
Answer Options	Response Percent	Response Count
IM	37.5%	3
Architectural	62.5%	5
Other (please specify)		2
	<i>answered question</i>	8
	<i>skipped question</i>	39

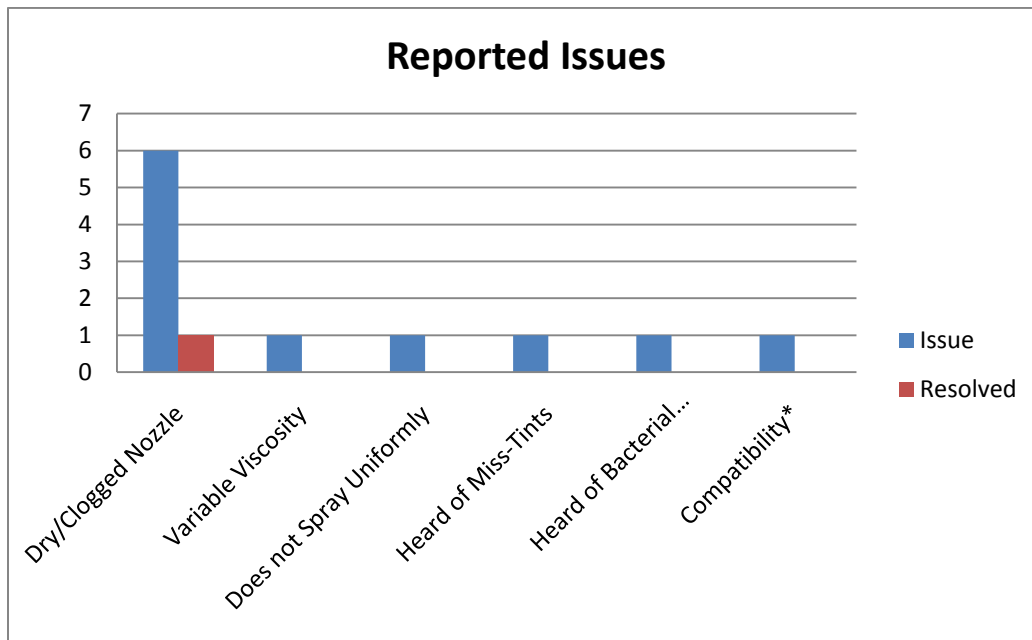
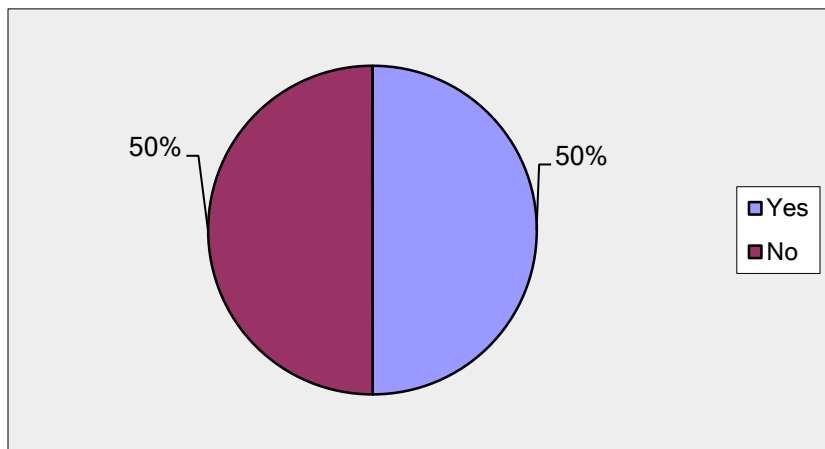


AQMD Colorant Survey

General Survey

12. Have you experienced problems associated with either dispensing equipment or coatings to which near zero-VOC (< 5g/L) colorants have been added?

Answer Options	Response Percent	Response Count
Yes	50.0%	5
No	50.0%	5
Explain		6
<i>answered question</i>		10
<i>skipped question</i>		37

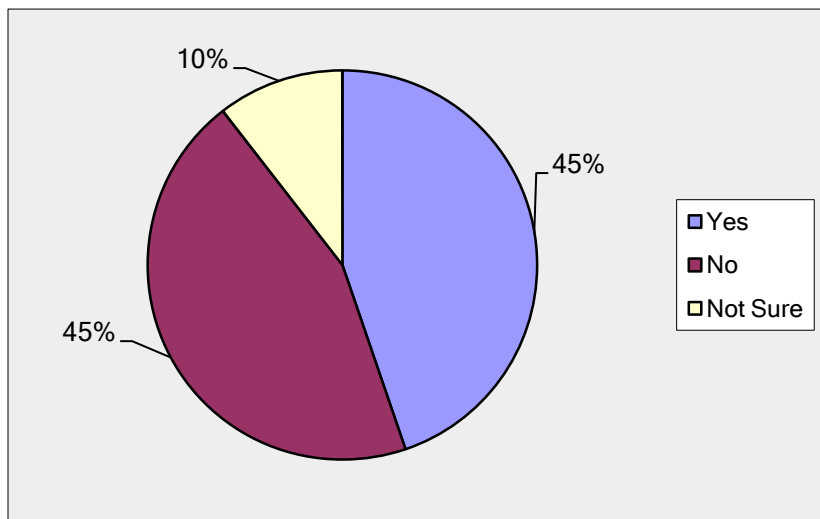


* foam, gloss, durability, water sensitivity, & blocking

AQMD Colorant Survey

General Survey

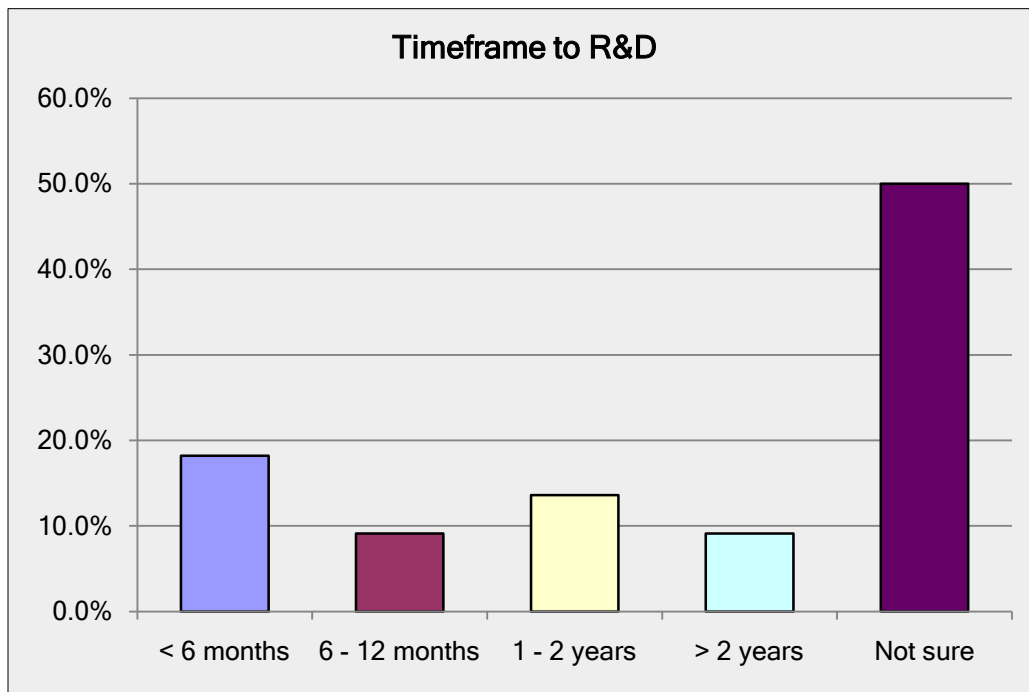
13. Do you currently use or are you conducting research and development on near zero-VOC colorants (< 5 g/L)?		
Answer Options	Response Percent	Response Count
Yes	44.7%	17
No	44.7%	17
Not Sure	10.5%	4
<i>answered question</i>		38
<i>skipped question</i>		9



AQMD Colorant Survey

General Survey

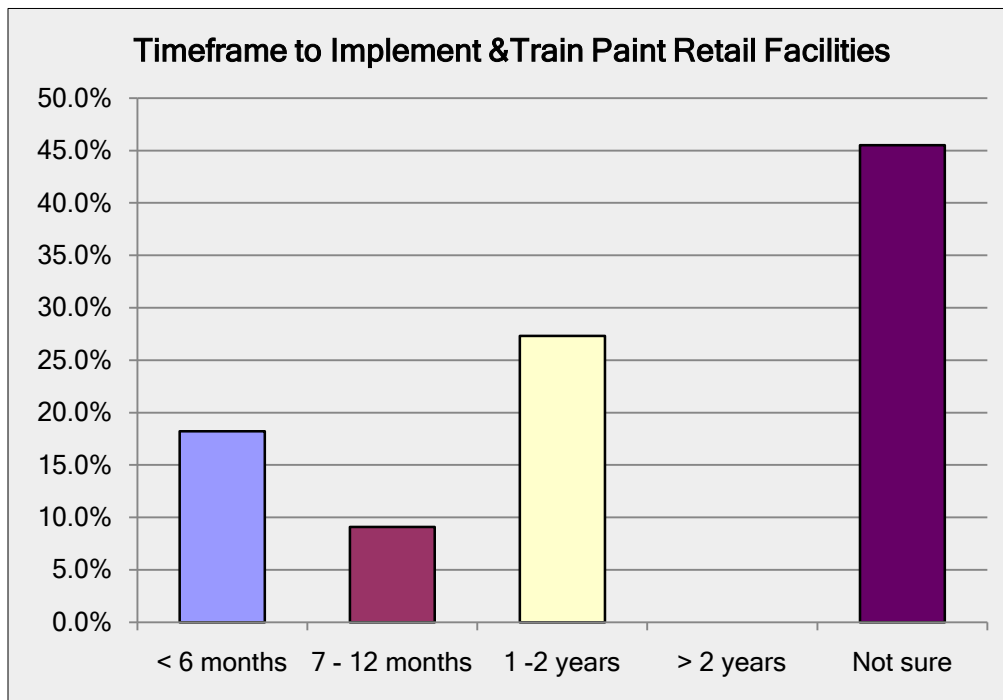
14. What was the timeframe or what is the estimated timeframe to complete the development?		
Answer Options	Response Percent	Response Count
< 6 months	18.2%	4
6 - 12 months	9.1%	2
1 - 2 years	13.6%	3
> 2 years	9.1%	2
Not sure	50.0%	11
<i>answered question</i>		22
<i>skipped question</i>		25



AQMD Colorant Survey

General Survey

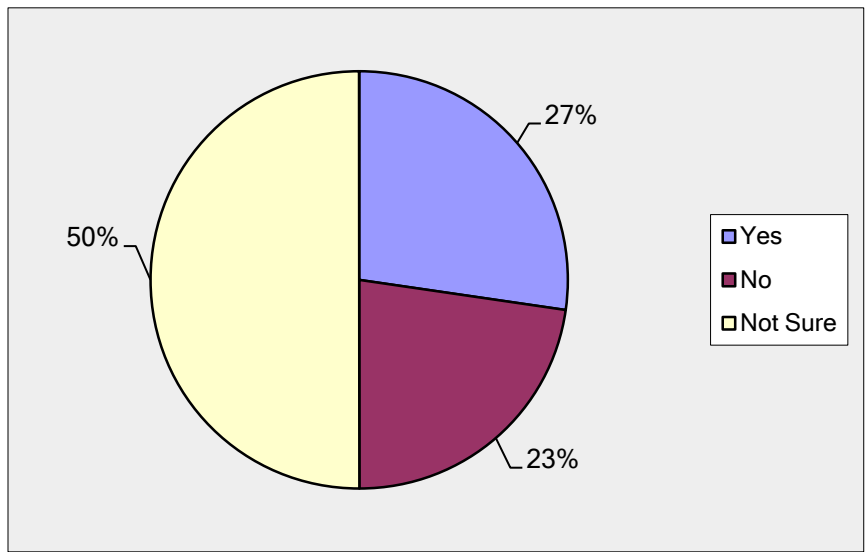
15. What was the timeframe or what is the estimated timeframe to implement and train paint retail facilities on the use of near zero-VOC (< 5 g/L) colorants once the development was/is complete?		
Answer Options	Response Percent	Response Count
< 6 months	18.2%	4
6 - 12 months	9.1%	2
1 -2 years	27.3%	6
> 2 years	0.0%	0
Not sure	45.5%	10
<i>answered question</i>		22
<i>skipped question</i>		25



AQMD Colorant Survey

General Survey

16. Does that colorant system require a different dispensing unit?		
Answer Options	Response Percent	Response Count
Yes	27.3%	6
No	22.7%	5
Not Sure	50.0%	11
<i>answered question</i>		22
<i>skipped question</i>		25

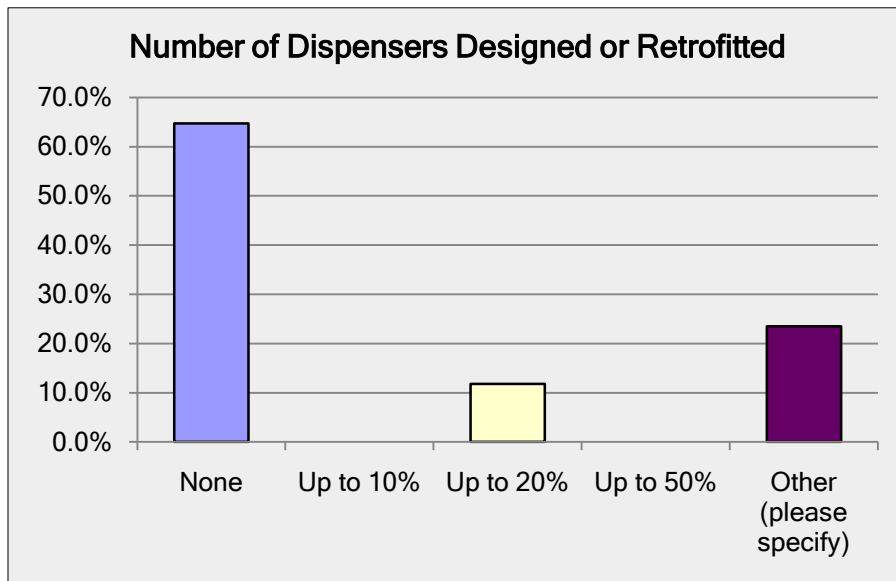


AQMD Colorant Survey

General Survey

17. How many of the colorant dispensers you currently have in the AQMD (see question 4) are designed or can be retrofitted for the use of near zero-VOC (< 5 g/L) colorants?		
Answer Options	Response Percent	Response Count
None	64.7%	11
Up to 10%	0.0%	0
Up to 20%	11.8%	2
Up to 50%	0.0%	0
Other (please specify)	23.5%	4
<i>answered question</i>		17
<i>skipped question</i>		30

Other (please specify)	Response Count
No dispensers in SCAQMD	3
All of them	1

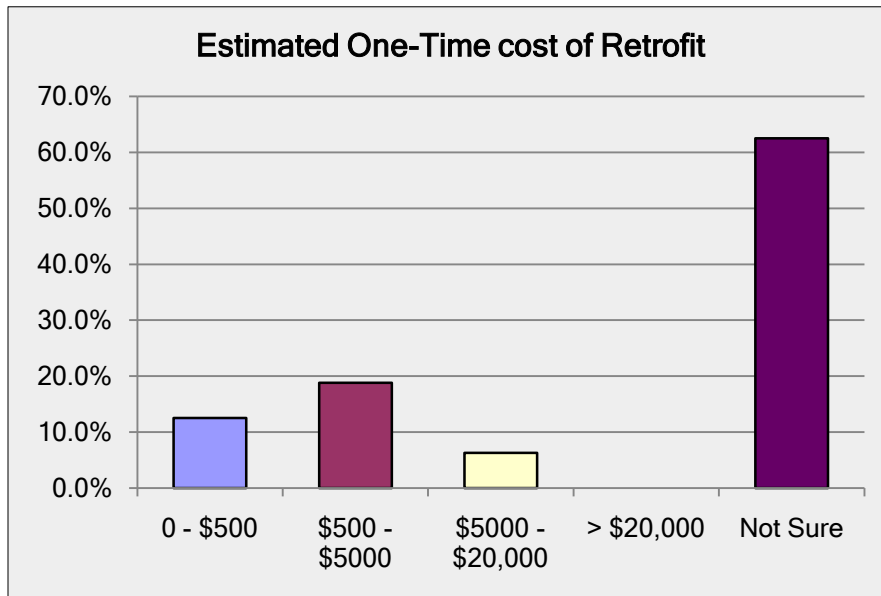


Note: the respondents who answered “no” to the previous question automatically skipped this question.

AQMD Colorant Survey

General Survey

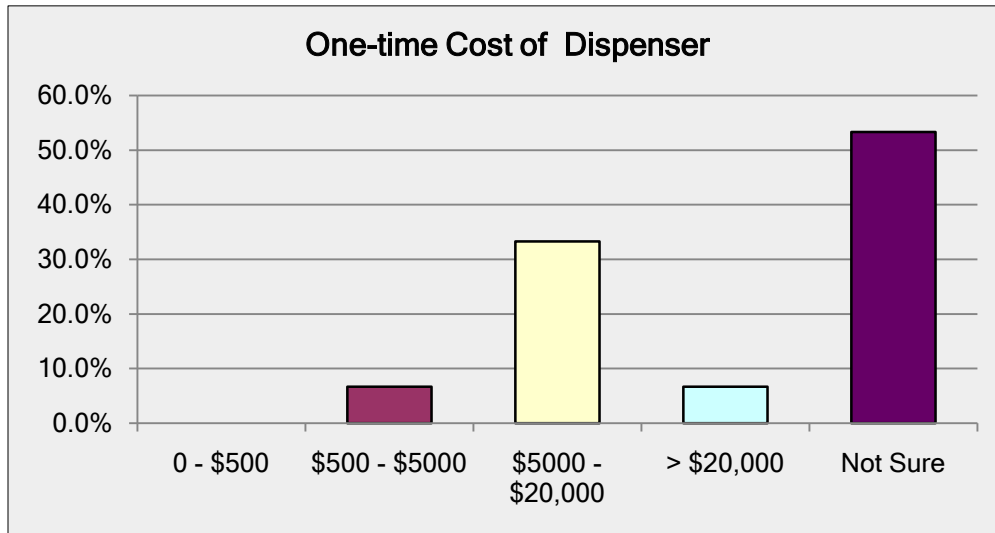
18. What is the estimated one-time cost of retrofitting a colorant dispenser?		
Answer Options	Response Percent	Response Count
0 - \$500	12.5%	2
\$500 - \$5000	18.8%	3
\$5000 - \$20,000	6.3%	1
> \$20,000	0.0%	0
Not Sure	62.5%	10
	<i>answered question</i>	16
	<i>skipped question</i>	31



AQMD Colorant Survey

General Survey

19. What is the one-time cost of a new near zero-VOC (< 5 g/L) colorant dispenser?		
Answer Options	Response Percent	Response Count
0 - \$500	0.0%	0
\$500 - \$5000	6.7%	1
\$5000 - \$20,000	33.3%	5
> \$20,000	6.7%	1
Not Sure	53.3%	8
<i>answered question</i>		15
<i>skipped question</i>		32



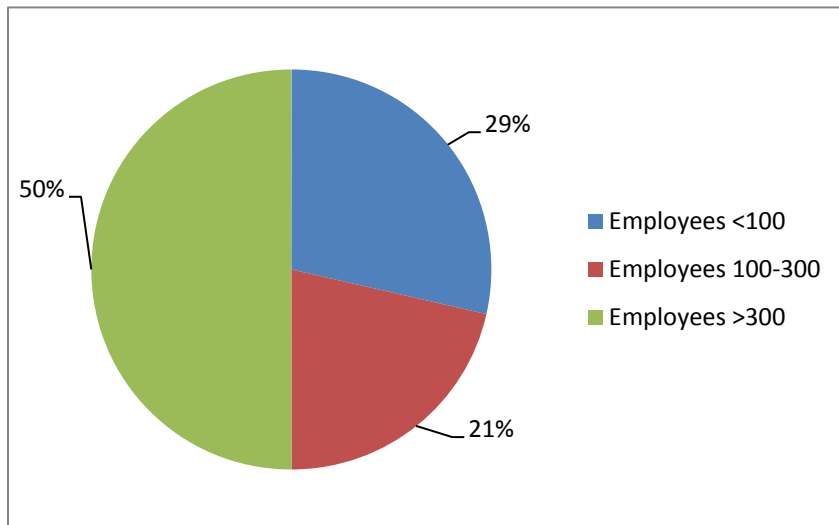
AQMD Colorant Survey

Targeted Survey

Targeted Survey

The second survey was a targeted survey which went to the coating manufacturers who are included on the AQMD Super-Compliant Manufacturers List. Those companies more likely would have already experimented with near zero-VOC colorants so could provide more insight on the transition.

1. What is the total number of employees?	
Answer Options	Response Count
	14
<i>answered question</i>	14
<i>skipped question</i>	0



This survey is comprised of a greater number of large companies.

2. What is the labor category for your business?	
Answer Options	Response Count
	12
<i>answered question</i>	12
<i>skipped question</i>	2

AQMD Colorant Survey

Targeted Survey

NAICs Code	Labor	Description	# of Companies
325510		Architectural Coatings	11
?			1

3. Does your company use colorants at the point of sale to tint coatings for sale to consumers in the AQMD?		
Answer Options	Response Percent	Response Count
Yes	50%	7
No	50%	7
<i>answered question</i>		14
<i>skipped question</i>		0

4. How many total colorant dispensers does your company have for that purpose located in the AQMD?		
Answer Options	Response Percent	Response Count
None	0%	0
Up to 10	40%	2
Up to 20	0%	0
Up to 50	20%	1
Not sure	0%	0
Other (please specify) 170, >60	40%	2
<i>answered question</i>		5
<i>skipped question</i>		9

5. What percent of the volume of your coatings are tinted at the point of sale (POS)?		
Answer Options	Response Percent	Response Count
None	0%	0
0 - 10%	0%	0
10 - 20%	25%	1
20 - 50%	25%	1
> 50%	50%	2
Not sure	0%	0
<i>answered question</i>		4
<i>skipped question</i>		10

AQMD Colorant Survey

Targeted Survey

6. Do you make your own colorant or purchase them from an outside source? Check all that apply.		
Answer Options	Response Percent	Response Count
Make own colorant	50%	3
Purchase from outside source	50%	3
<i>answered question</i>		5
<i>skipped question</i>		9

7. If you purchase colorant from an outside source, who is your supplier?	
Answer Options	Response Count
	3
<i>answered question</i>	3
<i>skipped question</i>	11

Colorant Source	Response Count
Consolidated color	1
Elementis	2
Evonik	2

Note: respondents listed multiple companies; hence the response count exceeds the number who answered the question.

AQMD Colorant Survey

Targeted Survey

8. What type(s) of colorant system(s) do you currently use and do any of them require different dispensing equipment than conventional colorants? Check all that apply.						
Answer Options	Solvent Based IM	Waterborne IM	Solvent Based Architectural	Waterborne Architectural	Different Dispenser	Response Count
Universal colorant	0	0	2	2	1	2
Colorant solely for solvent based coatings	4	1	1	0	3	4
Colorant solely for waterborne coatings	0	2	0	1	1	2
Near-zero VOC universal colorant (< 5g/L)	0	0	0	0	0	0
Near-zero VOC colorant solely for waterborne coatings	0	2	0	1	1	3
Powder tinting	0	0	0	1	0	1
Other	0	1	0	0	1	1
Other (please specify)						1
Solely for Waterborne <15 g/L						
<i>answered question</i>						5
<i>skipped question</i>						9

None of the responding companies are using near-zero VOC universal colorants. The majority are using colorants for solvent based coatings.

9. What type of solvent is used in the colorant(s) you use? Check all that apply.				
Answer Options	Petroleum Distillates	Glycols	None	Response Count
Universal colorant	0	2	0	2
Colorant solely for solvent based coatings	3	0	0	3
Colorant solely for waterborne coatings	0	2	0	2
Near-zero VOC universal colorant	0	0	0	0
Near-zero VOC colorant solely for waterborne coatings	0	1	2	3
Powder tinting	0	0	1	1

AQMD Colorant Survey

Targeted Survey

Other	0	0	0	0
Other (please specify)	1			
CONFIDENTIAL BUSINESS INFORMATION				
<i>answered question</i>				5
<i>skipped question</i>				9

10. What is the VOC content of the colorant system(s) you currently use? Check all that apply.

Answer Options	0 - 50 g/L	50 - 100 g/L	100 - 250 g/L	> 250 g/L	Response Count
Universal colorant	0	0	0	2	2
Colorant solely for solvent based coatings	0	0	0	4	4
Colorant solely for waterborne coatings	2	0	0	1	3
Near-zero VOC universal colorant	0	0	0	0	0
Near-zero VOC colorant solely for waterborne coatings	4	0	0	0	4
Powder tinting	0	0	0	0	0
Other	0	0	0	0	0
Other (please specify)	0				
INDUSTRIAL COATINGS, MARINE COATINGS, & AEROSPACE COATINGS					
<i>answered question</i>					5
<i>skipped question</i>					9

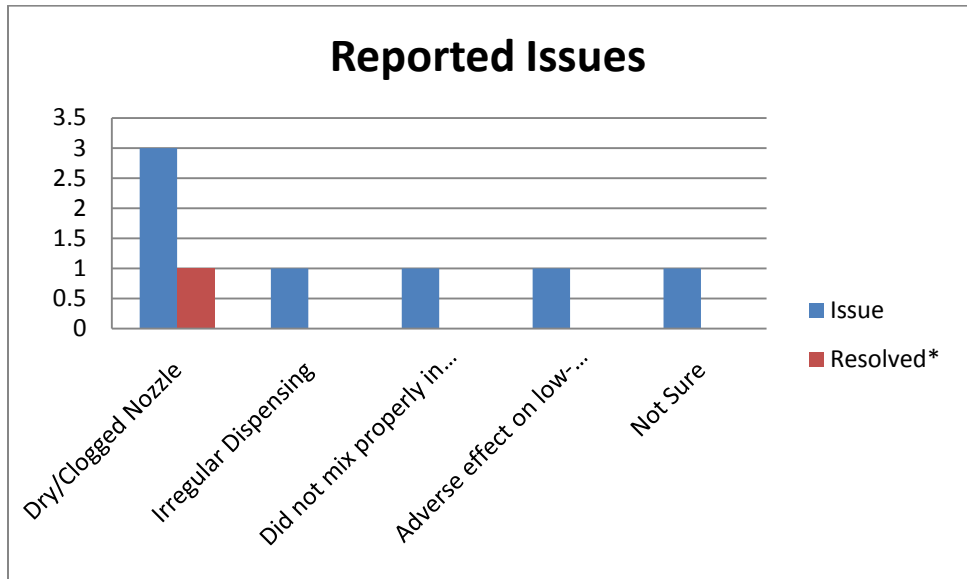
11. Are there any coating categories that your company requires conventional VOC-containing colorants to tint successfully?

Answer Options	Response Percent	Response Count
IM	75%	3
Architectural	25%	1
Other (please specify)	1	
<i>answered question</i>		4
<i>skipped question</i>		10

AQMD Colorant Survey

Targeted Survey

12. Have you experienced problems associated with either dispensing equipment or coatings to which near zero-VOC (< 5 g/L) colorants have been added?		
Answer Options	Response Percent	Response Count
Yes	100%	4
No	0%	0
Explain		5
<i>answered question</i>		4
<i>skipped question</i>		10



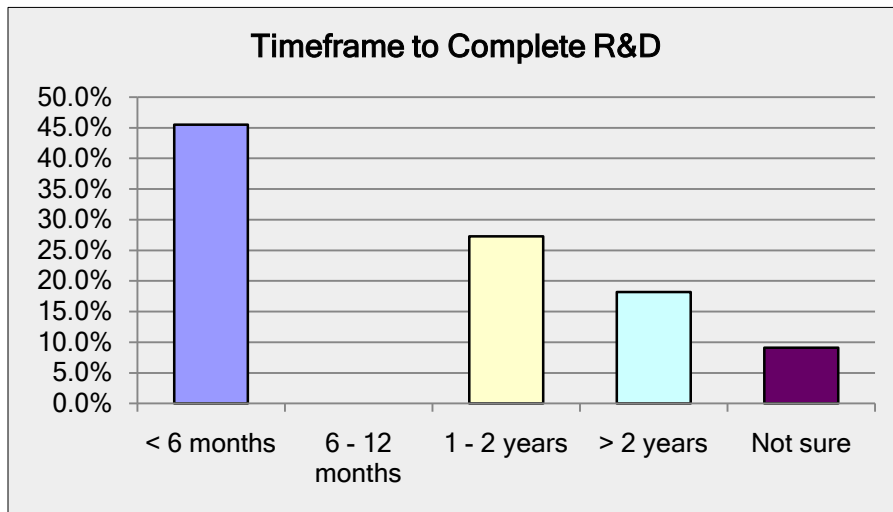
*We originally had a lot of problems related to clogging of dispensing tips, clogging/damage to dispensing unit recirculation pumps. We ended up having to change to a different line of colorant and make some minor equipment modifications to resolve this problem. This was a huge issue and took a couple of years to resolve. We are now 100% zero VOC colorants for all waterborne products. Certain lines of colorants can have adverse performance properties of the coating such as adhesion or foaming due to the high levels of surfactants in the low VOC colorants.

AQMD Colorant Survey

Targeted Survey

13. Do you currently use or are you conducting research and development on near zero-VOC colorants (< 5 g/L)?		
Answer Options	Response Percent	Response Count
Yes	100%	12
No	0%	0
Not Sure	0%	0
<i>answered question</i>		12
<i>skipped question</i>		2

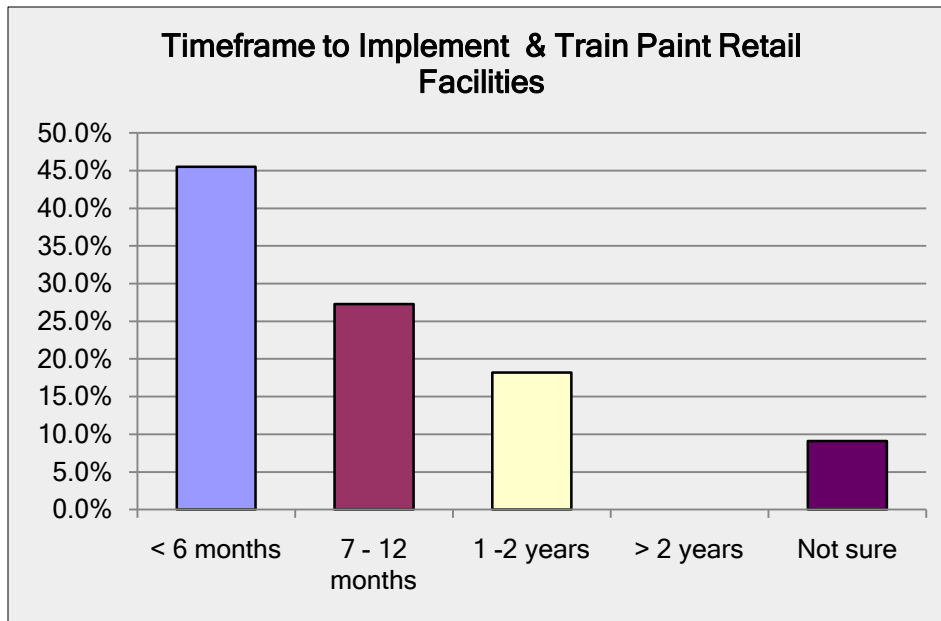
14. What was the timeframe or what is the estimated timeframe to complete the development?		
Answer Options	Response Percent	Response Count
< 6 months	45.5%	5
6 - 12 months	0.0%	0
1 - 2 years	27.3%	3
> 2 years	18.2%	2
Not sure	9.1%	1
<i>answered question</i>		11
<i>skipped question</i>		3



AQMD Colorant Survey

Targeted Survey

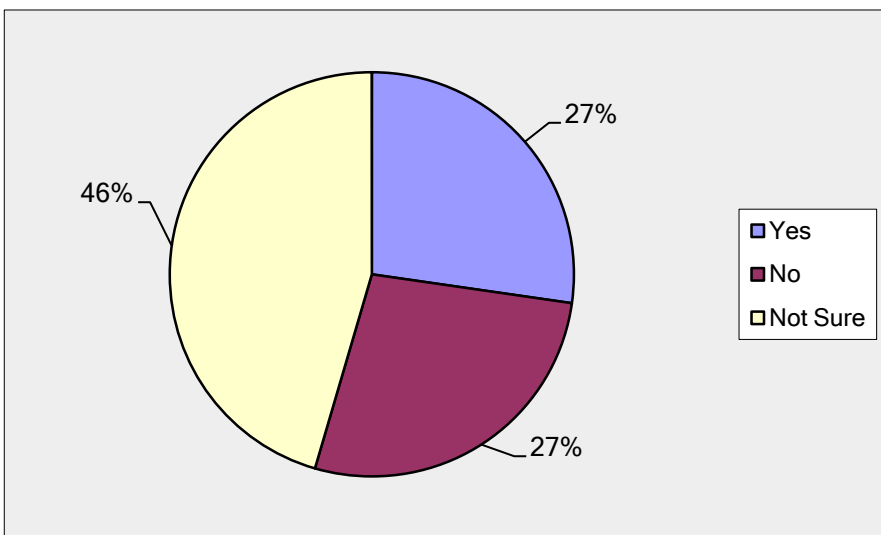
15. What were the timeframe or what is the estimated timeframe to implement and train paint retail facilities on the use of near zero-VOC (< 5 g/L) colorants once the development was/is complete?		
Answer Options	Response Percent	Response Count
< 6 months	45.5%	5
7 - 12 months	27.3%	3
1 -2 years	18.2%	2
> 2 years	0.0%	0
Not sure	9.1%	1
<i>answered question</i>		11
<i>skipped question</i>		3



AQMD Colorant Survey

Targeted Survey

16. Does that colorant system require a different dispensing unit?		
Answer Options	Response Percent	Response Count
Yes	27.3%	3
No	27.3%	3
Not Sure	45.5%	5
<i>answered question</i>		11
<i>skipped question</i>		3



17. How many of the colorant dispensers you currently have in the AQMD (see question 4) can be retrofitted for the use of near zero-VOC (< 5 g/L) colorants?		
Answer Options	Response Percent	Response Count
None	54.5%	6
Up to 10%	0.0%	0
Up to 20%	0.0%	0
Up to 50%	9.1%	1
Other (please specify)	36.4%	4
Our distributors have dispensers		
Task already completed		
Currently using zero VOC for waterborne; solvent based technology is not available		
ABOUT 60%		
<i>answered question</i>		11
<i>skipped question</i>		3

AQMD Colorant Survey

Targeted Survey

18. What is the estimated one-time cost of retrofitting a colorant dispenser?		
Answer Options	Response Percent	Response Count
0 - \$500	9.1%	1
\$500 - \$5000	18.2%	2
\$5000 - \$20,000	0%	0
> \$20,000	9.1%	1
Not Sure	63.6%	7
	<i>answered question</i>	11
	<i>skipped question</i>	3

19. What is the equipment life of the retrofitted dispenser?		
Answer Options	Response Percent	Response Count
0 - 5 years	0.0%	0
5 - 10 years	18.2%	2
10 - 20 years	9.1%	1
> 20 years	0.0%	0
Not sure	72.7%	8
	<i>answered question</i>	11
	<i>skipped question</i>	3

20. What is the one-time cost of training for the retrofitted dispenser?		
Answer Options	Response Percent	Response Count
0 - \$50	18.2%	2
\$50 - \$100	0.0%	0
\$100 - \$500	9.1%	1
> \$500	0.0%	0
Not sure	72.7%	8
	<i>answered question</i>	11
	<i>skipped question</i>	3

AQMD Colorant Survey

Targeted Survey

21. What is the additional operating and maintenance cost associated with the retrofitted dispenser?		
Answer Options	Response Percent	Response Count
0 - \$50	18.2%	2
\$50 - \$100	0%	0
\$100 - \$500	0%	0
> \$500	0%	0
Not sure	81.8%	9
	<i>answered question</i>	11
	<i>skipped question</i>	3

22. How many of the colorant dispensers you currently have in the AQMD are designed for use with near zero-VOC (<5 g/L) colorants?		
Answer Options	Response Percent	Response Count
None	36.4%	4
Up to 10%	9.1%	1
Up to 20%	0.0%	0
Up to 50%	0.0%	0
Not sure	36.4%	4
Other (please specify)	18.2%	2
	<i>answered question</i>	11
	<i>skipped question</i>	3

23. What is the one-time cost of a new near zero-VOC (< 5 g/L) colorant dispenser?		
Answer Options	Response Percent	Response Count
0 - \$500	0%	0
\$500 - \$5000	0%	0
\$5000 - \$20,000	18.2%	2
\$20,000 - \$35,000	18.2%	2
> \$35,000	9.1%	1
Not Sure	54.5%	6
	<i>answered question</i>	11
	<i>skipped question</i>	3

AQMD Colorant Survey

Targeted Survey

24. What is the equipment life of a new near zero-VOC (<5 g/L) colorant dispenser?		
Answer Options	Response Percent	Response Count
0 - 5 years	0.0%	0
5 - 10 years	9.1%	1
10 - 20 years	27.3%	3
> 20 years	9.1%	1
Not sure	54.5%	6
	<i>answered question</i>	11
	<i>skipped question</i>	3

25. What is the one-time cost of training for a new near-zero VOC (<5 g/L) colorant dispenser?		
Answer Options	Response Percent	Response Count
0 - \$50	0.0%	0
\$50 - \$100	9.1%	1
\$100 - \$500	18.2%	2
> \$500	9.1%	1
Not sure	63.6%	7
	<i>answered question</i>	11
	<i>skipped question</i>	3

26. What is the additional operating and maintenance cost associated with a new near-zero VOC (<5 g/L) colorant dispenser?		
Answer Options	Response Percent	Response Count
0 - \$50	9.1%	1
\$50 - \$100	0%	0
\$100 - \$500	0%	0
> \$500	9.1%	1
Not sure	81.8%	9
	<i>answered question</i>	11
	<i>skipped question</i>	3

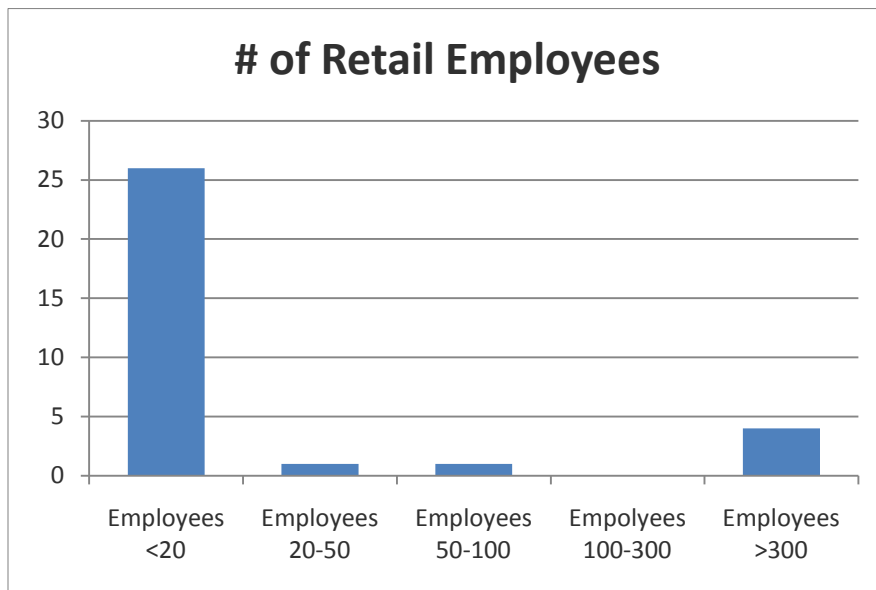
AQMD Colorant Survey

Retail Survey

Retail Survey

AQMD inspectors visited various retail stores to distribute surveys. The number of retail locations were not recorded therefore the percentage of responses are unknown.

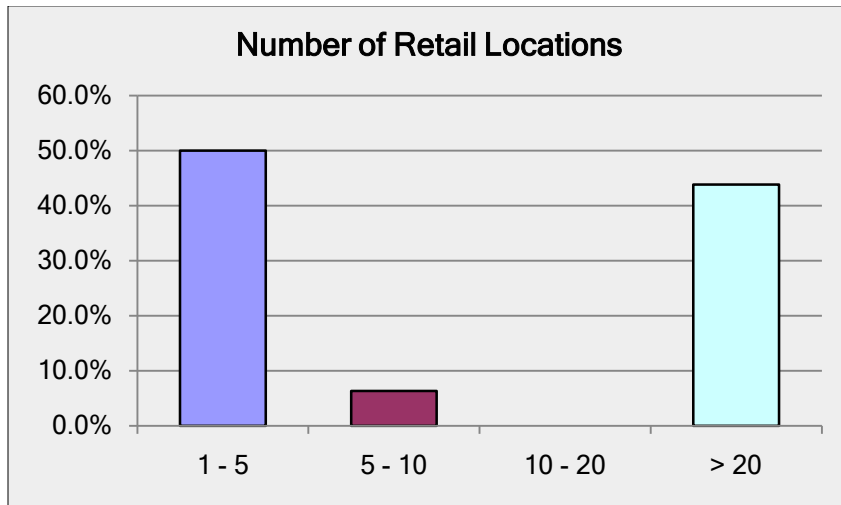
1. What is the total number of employees?	
Answer Options	Response Count
	32
<i>answered question</i>	32
<i>skipped question</i>	1



2. How many retail locations in the AQMD?		
Answer Options	Response Percent	Response Count
1 - 5	50.0%	16
5 - 10	6.3%	2
10 - 20	0.0%	0
> 20	43.8%	14
<i>answered question</i>		32
<i>skipped question</i>		1

AQMD Colorant Survey

Retail Survey



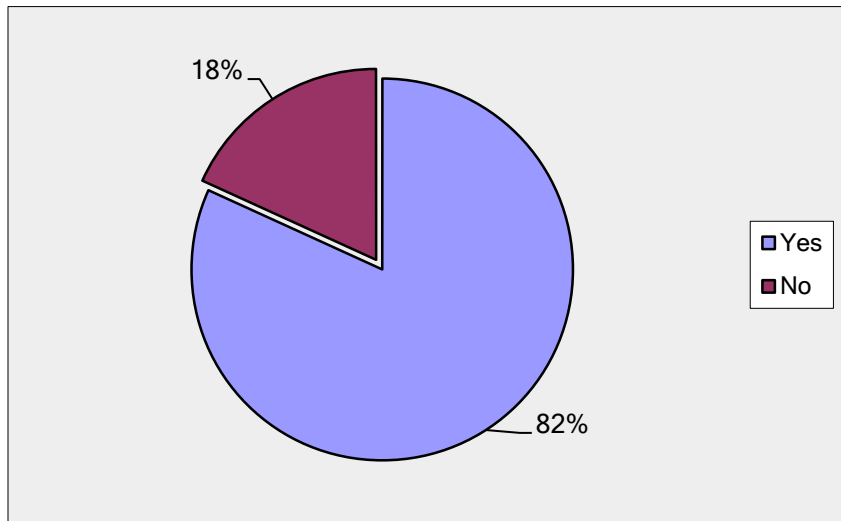
3. What is the NAICs labor category for your business?	
Answer Options	Response Count
	15
<i>answered question</i>	15
<i>skipped question</i>	18

NAICs Labor Category	Description	# of Retailers
444120	Paint and Wallpaper Stores	12
325510	Paint and Coating Manufacturing	1
	Retail/Wholesale	1
	Unknown	1

AQMD Colorant Survey

Retail Survey

4. Does your company use colorants at the point of sale to tint coatings for sale to consumers in the AQMD?		
Answer Options	Response Percent	Response Count
Yes	81.8%	27
No	18.2%	6
<i>answered question</i>		33
<i>skipped question</i>		0

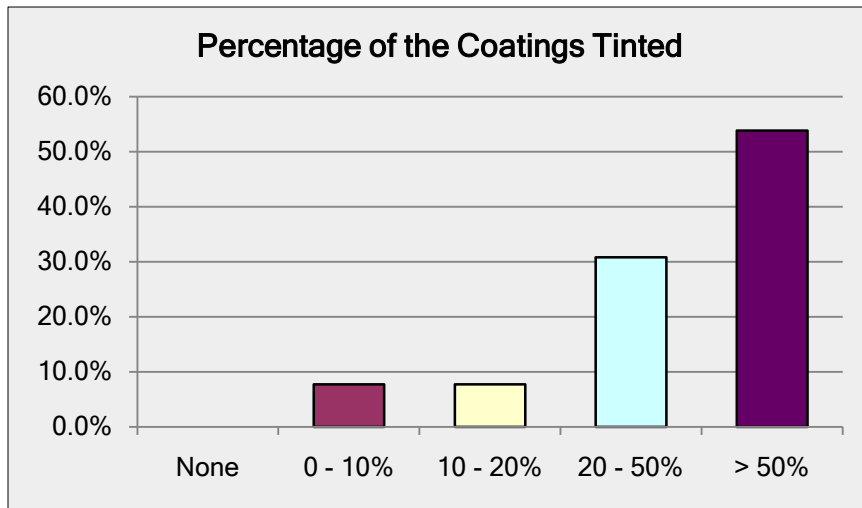


5. How many total colorant dispensers does your company have for that purpose located in the AQMD?		
Answer Options	Response Percent	Response Count
None	0.0%	0
Up to 10	85.2%	23
Up to 20	7.4%	2
Up to 50	0.0%	0
Other (please specify)	7.4%	2
>60		
>50		
<i>answered question</i>		27
<i>skipped question</i>		6

AQMD Colorant Survey

Retail Survey

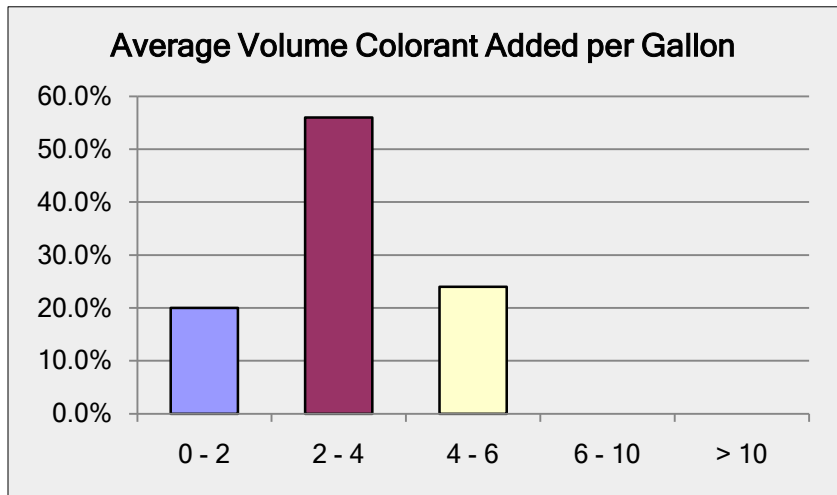
6. What percentage of the coatings that you sell, do you tint for the customer?		
Answer Options	Response Percent	Response Count
None	0.0%	0
0 – 10%	7.7%	2
10 – 20%	7.7%	2
20 – 50%	30.8%	8
> 50%	53.8%	14
<i>answered question</i>		26
<i>skipped question</i>		7



AQMD Colorant Survey

Retail Survey

7. What is the average volume (in ounces) of colorant added per gallon?		
Answer Options	Response Percent	Response Count
0 - 2	20.0%	5
2 - 4	56.0%	14
4 - 6	24.0%	6
6 - 10	0.0%	0
> 10	0.0%	0
<i>answered question</i>		25
<i>skipped question</i>		8



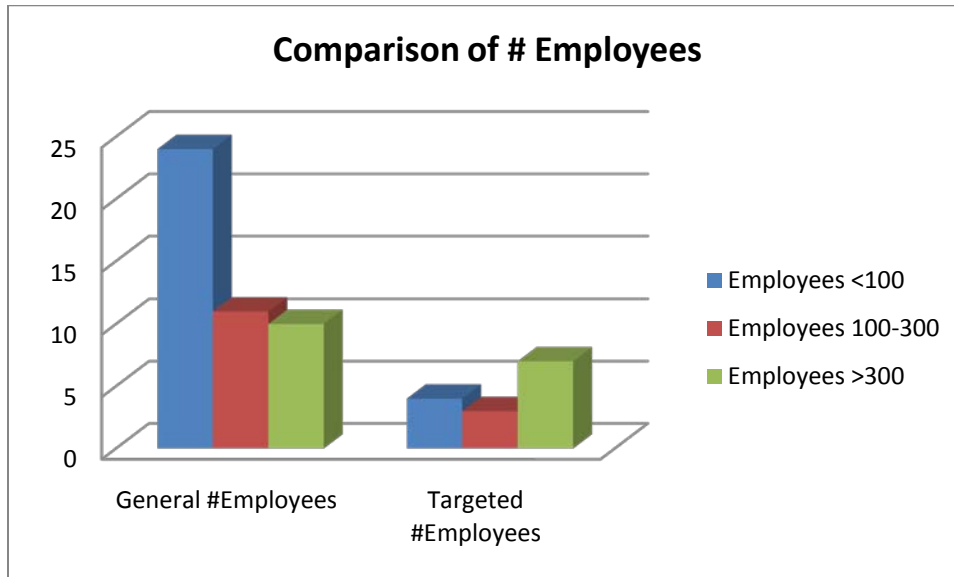
AQMD Colorant Survey

Compiled General & Targeted Surveys

Compiled Surveys

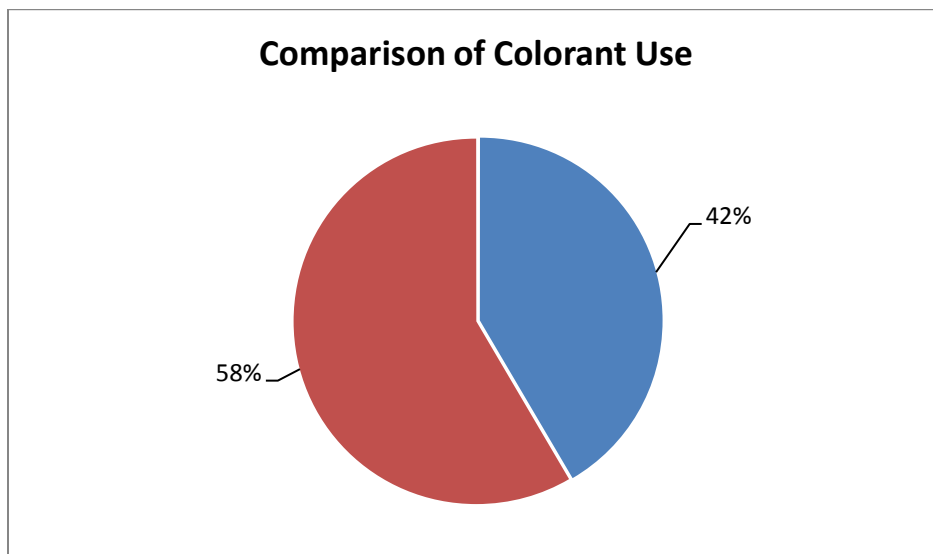
In this section, the results from the general and targeted surveys were combined by their similar questions.

What is the total number of employees?



As seen from the results above, the general survey had more companies with less than 100 employees, whereas the targeted survey had companies with a greater number of employees.

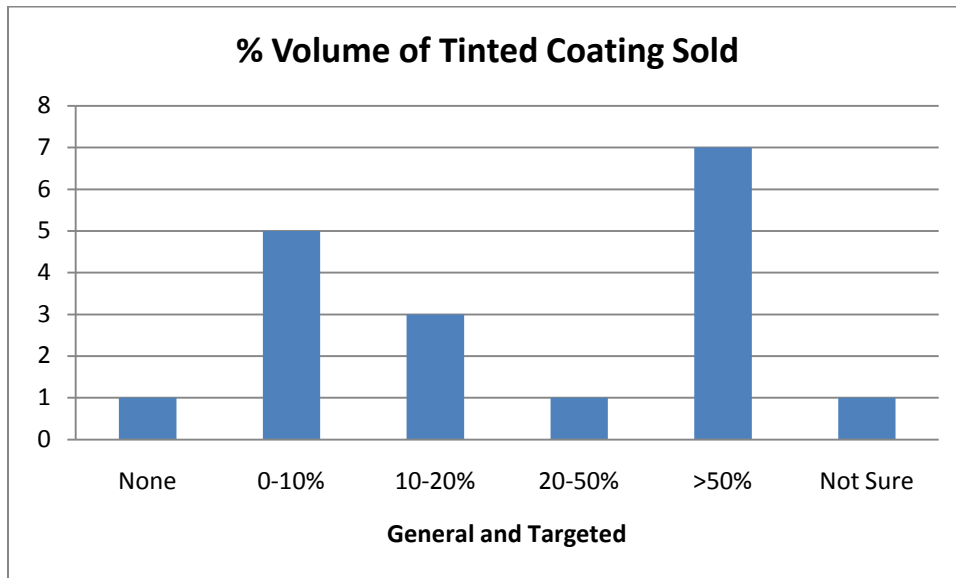
Does your company use colorants at the point of sale to tint coatings for sale to consumers in the AQMD?



AQMD Colorant Survey

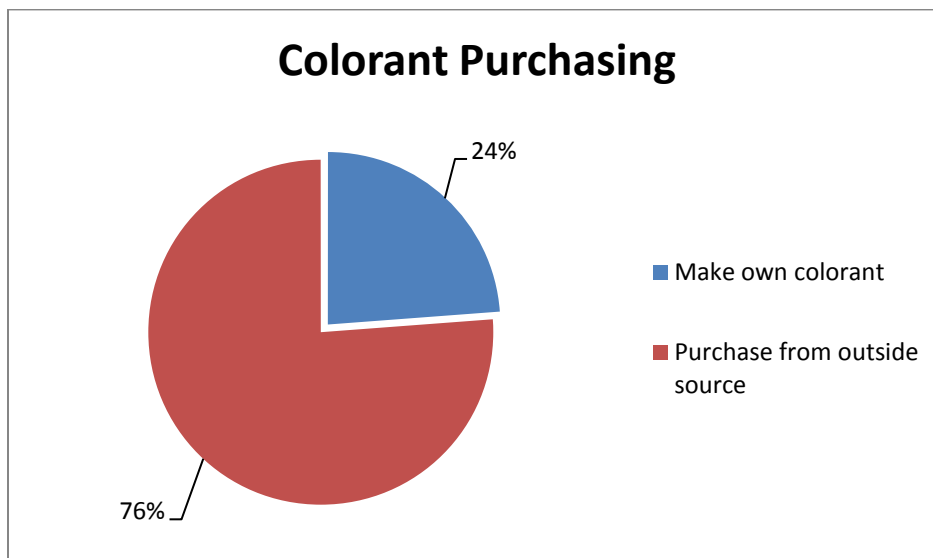
Compiled General & Targeted Surveys

What percent of the volume of your coatings are tinted at the point of sale?



When combining the general and targeted survey responses, the majority of the companies are tinting over 50% of their coatings at the point of sale.

Do you make your own colorant or purchase from an outside source?



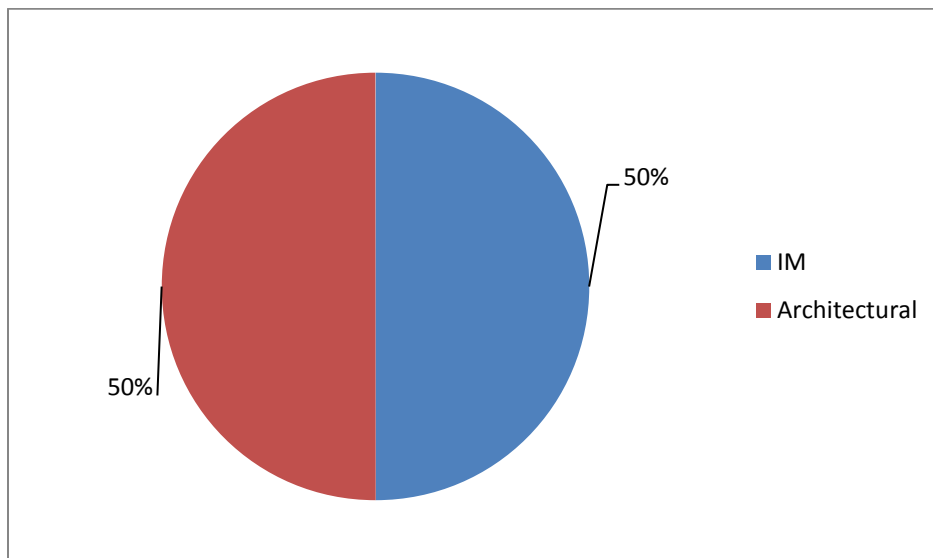
AQMD Colorant Survey

Compiled General & Targeted Surveys

What is the VOC content of the colorant system(s) you currently use? Check all that apply.

Answer Options	0 - 50 g/L	50 - 100 g/L	100 - 250 g/L	> 250 g/L
Universal colorant	1	0	0	7
Colorant solely for solvent based coatings	0	0	0	7
Colorant solely for waterborne coatings	3	1	1	4
Near-zero VOC universal colorant	3	0	0	0
Near-zero VOC colorant solely for waterborne	8	0	0	0
Other	0	0	0	0

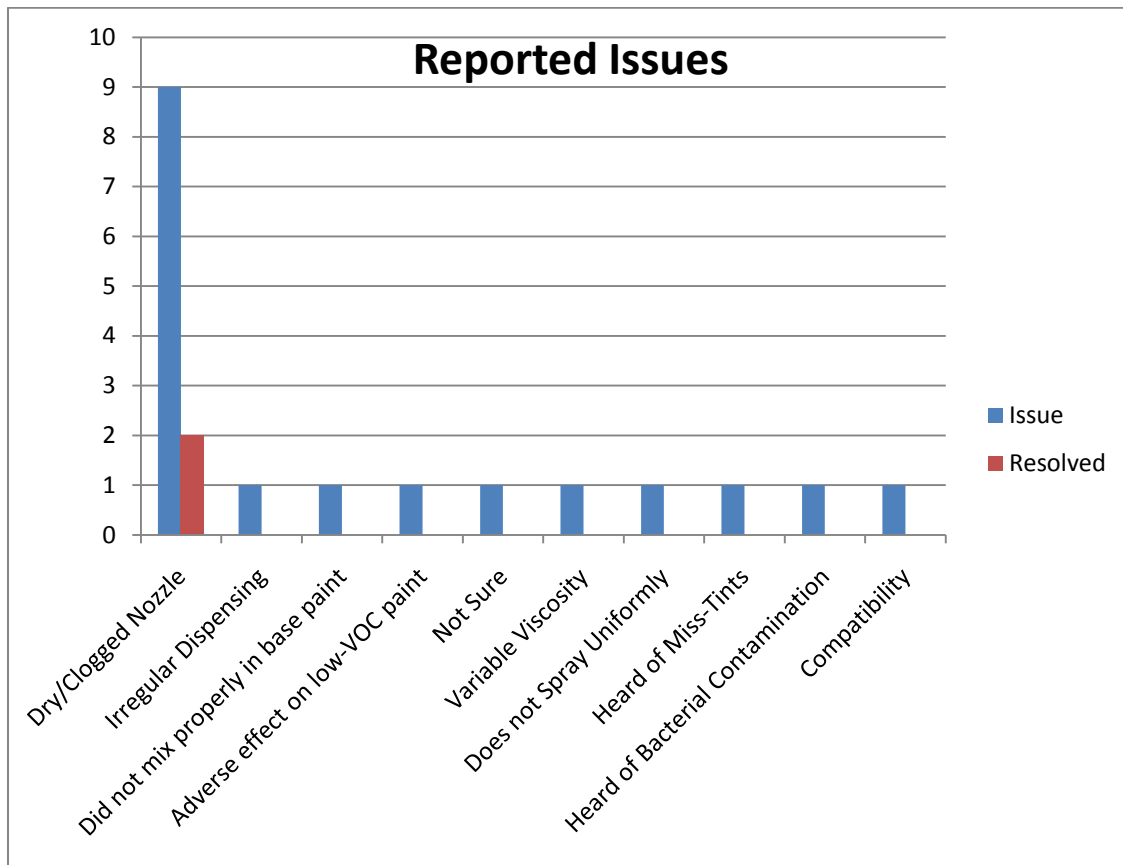
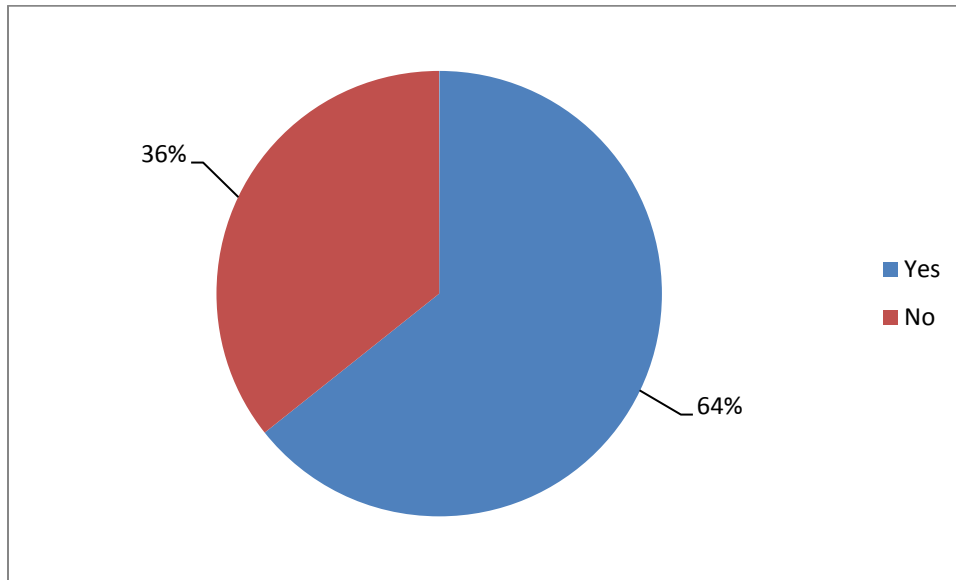
Are there any coating categories that your company requires conventional VOC-containing colorants to tint successfully?



AQMD Colorant Survey

Compiled General & Targeted Surveys

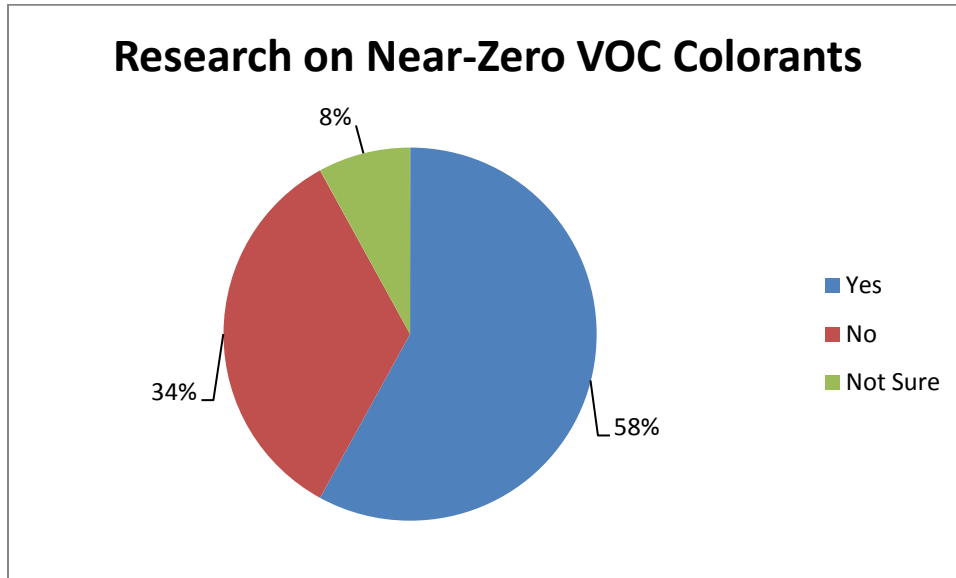
Have you experienced problems associated with either dispensing equipment or coatings to which near zero-VOC (< 5g/L) colorants have been added?



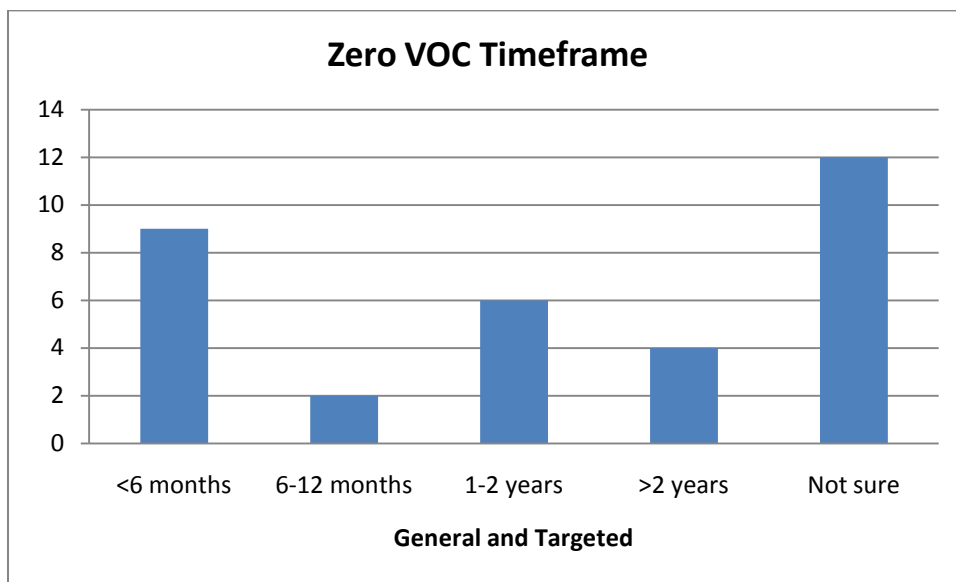
AQMD Colorant Survey

Compiled General & Targeted Surveys

Do you currently use or are you conducting research and development on near zero-VOC colorants?



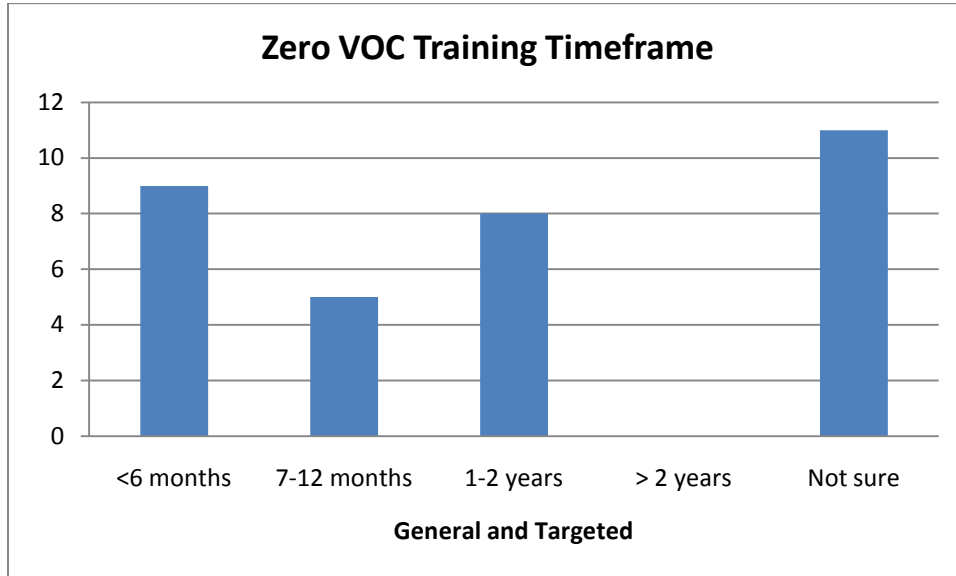
What was the timeframe or what is the estimated timeframe to complete the development?



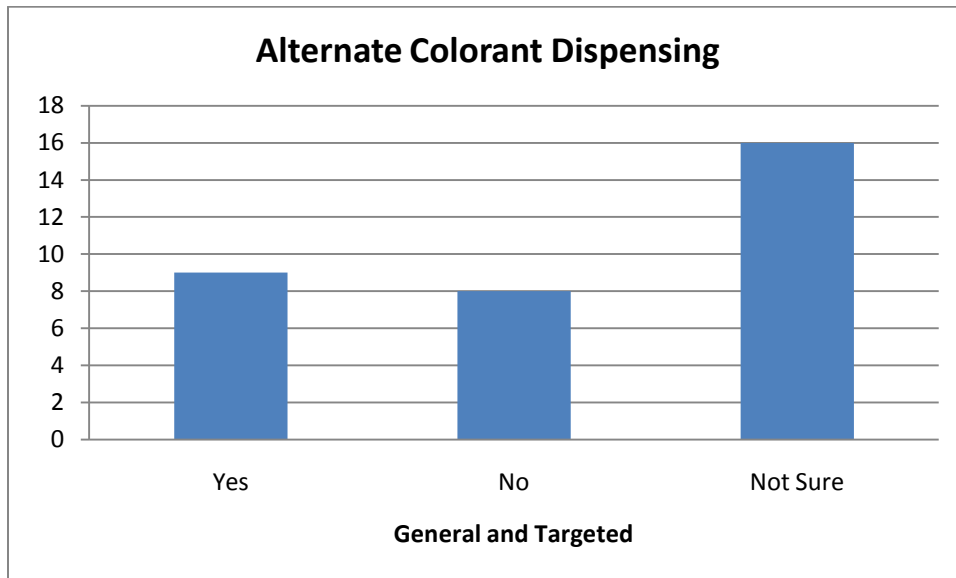
AQMD Colorant Survey

Compiled General & Targeted Surveys

What were the timeframe or what is the estimated timeframe to implement and train paint retail facilities on the use of near zero-VOC (< 5 g/L) colorants once the development was/is complete?



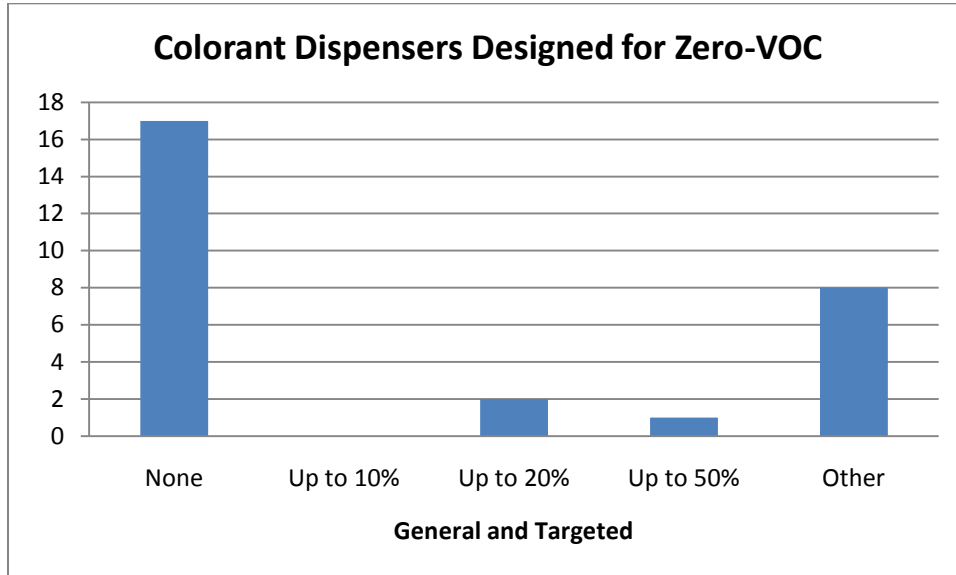
Does that colorant system require a different dispensing unit?



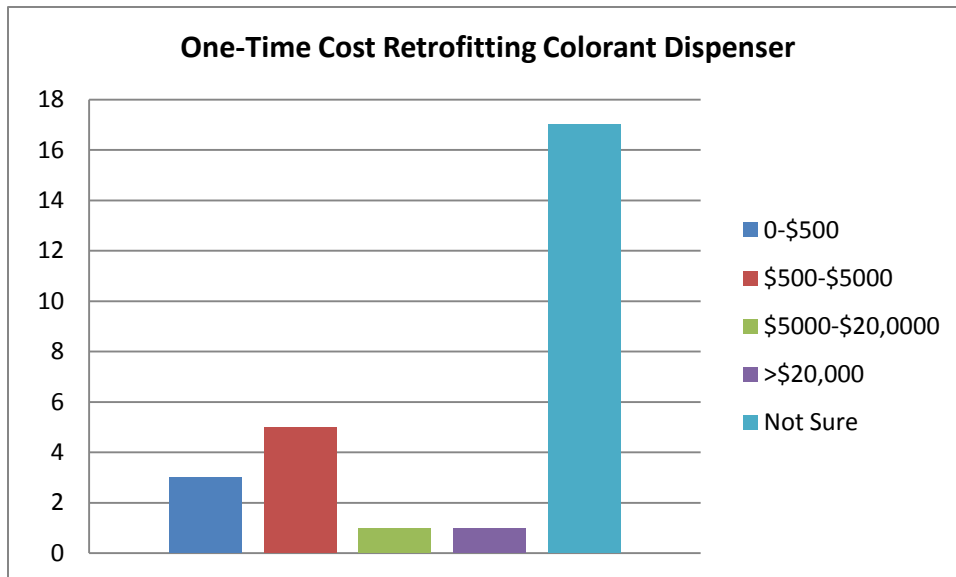
AQMD Colorant Survey

Compiled General & Targeted Surveys

How many of the colorant dispensers you currently have in the AQMD (see question 4) are designed or can be retrofitted for the use of near zero-VOC (< 5 g/L) colorants?



What is the estimated one-time cost of retrofitting a colorant dispenser?



AQMD Colorant Survey

Discussion and Emission Calculation

Discussion

Staff appreciates all of the manufacturer's and retailer's time in filling out the surveys. The results are insightful. The survey definitively shows that manufacturers are working toward the use of near-zero VOC colorants. The largest hurdle appears to be the issue of tip drying in the dispenser which can lead to miss-tints. For several manufacturers these issues have been resolved and they have gone forward to successfully utilize near-zero VOC colorants. The survey results for which coatings require conventional colorants was split down the middle. Further feedback outside of this survey indicates that the higher performance IM coatings require conventional colorants but are not tinted at the point of sale in large quantities. In site visits to local retailers, staff documented the use of a near-zero VOC colorant for waterborne IM coatings being added in a conventional dispenser.

In discussions with manufacturer who have either switched to near-zero VOC colorant, there are several options each of which present different challenges.

Powder tinting	Pigments must be pre-packaged which limits color selection. Dispenser for powder pigments not yet commercially available. No negative impact on film properties.
Universal colorant containing humectants	Humectants help issue with tip drying but can have detrimental effect on the film properties, especially for saturated colors in deep bases. Reported problems include film softness and blocking.
Waterborne colorant with no humectants	Less impact on film properties but tip drying is an issue which requires dispensing equipment with humidification units.

In addition, staff documented near-Zero VOC colorants being used with both a conventional carousel dispenser and with a dispenser missing the sponge used to keep the tip wet. In both instances the retail staff indicated that the dispensers needed 5 - 10 minutes of daily maintenance to keep the nozzles clear. No additional maintenance was mentioned at retail locations containing the dispensing units containing the full humidification units.

AQMD Colorant Survey

Discussion and Emission Calculation

Estimated VOC Emissions

Based on the results from the surveys and the California Air Resources Board (CARB) 2005 survey of coatings sold in California in calendar year 2004¹; assuming 45% of those coatings were sold in the AQMD, the VOC emissions from colorant added at the POS can be estimated. The majority of the respondents to the surveys indicated that more than 50% of the products sold in stores are tinted with colorants, the majority of which are flat or non-flat coatings. The highest sales are for light base (up to 4 ounces) followed by the saturated colors of the clear bases (up to 12 ounces). The VOC emissions estimate below assumes the VOC of Coating content of colorant to be 500 g/L (325 g/L VOC of Material), based on what has been documented in the field. This analysis only included Flat, Non-Flat and IM coatings, and assumes that 80% of the coatings are tinted at the point of sale, even though other coatings are also tinted at the point of sale (Stains, Quick Dry Enamels, Rust Preventative Coatings, Recycled Coatings, etc.).

Category	Volume Sold (gallons)	Emissions (tpd)			
		Colorant Added: 3 oz	4 oz	5 oz	6 oz
Flat & Non-Flat	25,608,202	2.23	2.98	3.72	4.47
IM Solvent Based	505,047	0.04	0.06	0.07	0.09
IM Waterborne	249,494	0.02	0.03	0.04	0.04

¹ The 2005 CARB survey is used to indicate the higher volume sales in 2004, with an adjustment for volumes and emissions representing the South Coast only; however, the 2004 sales volume does not necessarily represent the upper bounds of paint sales or economic activity, although it does reflect pre-recession volumes.

Map of Cities and Communities Above 4,000 Feet

