

Internal Correspondence

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To: D. J. MAC DONALD

From: R. J. HAGGERTY

Subject: Position Paper - #3500 Organic Vapor Monitor

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3M

I am attaching a summary on the #3500 Monitor report that Mimi has recently put together to help us further define some of the problems and opportunities in the industrial marketplace.

After you have had a chance to read this, I would be happy to call a meeting to talk about some of the particular points in more detail.

The technology our laboratory has developed in the area of monitors is certainly unique and will offer us a new business horizon if we are given the time to define how to take this product to market. It is imperative, in my estimation, that we immediately fund a major market research project by an outside firm, much like DuPont used, to define market size, customer needs, and the best method for selling all of our monitor products to the end user. We are currently obtaining quotes from some outside sources on the cost of obtaining this type of information.

Should you have any questions regarding this paper, please let me know.

R. J. Haggerty
RJH/tas *das*

Attachment

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#3500 ORGANIC VAPOR MONITOR
Submitted by M. I. Merino

Executive Summary

The #3500 Organic Vapor Monitor has failed to develop the anticipated new business volume for several reasons. We have made an attempt to zero in on some of the areas that need to be addressed in the following summary.

The monitoring market segment that has been identified as the main competition for the #3500 is the pump and charcoal tube market. The market for charcoal tubes is estimated to be one million units per year, yielding a four million dollar market for the #3500 (refer to Table 2). Assuming a 15% return of units for analysis, this will offer another \$2.75 million potential. If we were able to get all of the tube business plus the analysis of 15% of the tubes, the market potential would be \$6.75 million. In order to get 25% of the market (\$1.68 million) within a two year period, a government recommendation is necessary and an aggressive selling program must be implemented. Without new standards, growth will continue to be slow and a 10% market share would be realistic.

It must be noted that this market size estimate is made without consideration of the effects of any future government regulations. In addition, there are untapped industrial and lab markets for the #3500 for which a market size is difficult to assess at this time, but which could realistically be of equal size to the present tube market.

The effect of government regulations such as the benzene standard would increase the use of the #3500 in the present pump and tube market as well as in other market segments where OV monitoring is presently not a high priority. It is estimated that the market potential for the #3500 could increase 3-fold as a result of the benzene regulation alone.

Present sales efforts require a lot of selling time in each account for follow-up with seemingly little reward to the rep's green sheet. Discussions with seven of the top monitor sales reps suggest that overall the call backs are averaging seven per account just to get an initial evaluation complete and even at that point we are seeing the account ordering a box or two more for continued testing. There is a widespread hesitation to switch over to a new method without a government recommendation or extensive technical evaluation (examples: Shell, Rohm & Haas, Hoffman LaRoche).

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The only specifically regulated compounds where monitoring procedures are spelled out are vinyl chloride and acrylonitrile. Presently little field test data is available on the #3500 for AN or V-C. B.F. Goodrich has just completed testing for AN and the sales reps report that only AN monitoring can be done with the #3500. Other AN and V-C accounts are testing or are planning to test the #3500. These accounts are identified (see appendices) and need concentrated sales effort to convert to the #3500.

The major industrial accounts for the tubes and OV monitors are the chemical and petrochemical industries. When surveying companies in the top 50 chemical companies (see appendices) tube usage is directly proportional to the expertise and size of the hygiene/safety staff as well as the company's commitment to safety with little correlation to chemical sales per year or number of production workers.

In conclusion then, slower than expected sales growth is attributed to:

- 1) No official government recommendation for use of the product.
- 2) Lack of consistent corporate monitoring programs for monitoring on a regular or scheduled basis.
- 3) Customer insistence on testing this new unique procedure to perform monitoring for health and medical record keeping. Reluctance to change over to what is looked upon as untested procedure.
- 4) Sales effort required to generate even low volume usage is more than any other OH&SP product.
- 5) There is a lack of distributor support. This product area (monitoring equipment) has not been a major emphasis for most of the safety distributors. Many carry some tubes, but have little to no expertise in the monitoring market or needs.

Finally, as the market gets more competitive (DuPont's entry is just the beginning), it is necessary to aggressively obtain a strong market share as soon as possible. In order to do this, the following action plan has been prepared.

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ACTION PLAN

1. Develop a plan with sales managers to concentrate selling efforts on the chemical and petrochemical industry for the balance of 1979 (the major users of tubes). Plans are to identify 10-20 accounts in each territory and set objectives for 4th Quarter 1979 and 1st Quarter 1980.
2. Generate and compile as much third party data with Tech Service and sales reps to help shorten the evaluation time delay we are now experiencing.
3. Develop and test a program with sales managers for speeding up evaluations at major accounts (free analysis or special pricing) during 4th Quarter. Also, work with distributors to set up for potential customers product sampling or direct mailing programs (example: Godfrey Safety).
4. Identify and test alternatives to present safety distribution.
 - A. Catalogue Selling: Aldrich Chemical Co. - test underway
J.T. Baker
Lab Safety and Supply
Other lab safety houses
5. Develop a "data bank" concept where we computerize and store monitor information as part of our analysis service to customers. Terry McCloskey's assistance will be needed for market research.
6. Consider a direct selling effort with same OH&SP sales force for future monitor products.
7. Increase product awareness and support for this new concept.
Examples:
 - June 1979: ASSE mailing to 15,000 members (completed)
Follow up leads with questionnaires
 - August 1979: Article on diffusion monitors in special monitoring issue of National Safety News (submitted for publication).
 - Continue regional meetings to professional groups (AIHA, ASSE, ACS, etc.)
8. Utilize the #3500 mailing list (MMM) of approximately 600 people to gain more information on #3500 market acceptance, intent to buy, usage and new product needs. This mailing list of customers has been developed during the course of the last nine months. A questionnaire is being developed for a direct mailing to the mailing list in August. Terry McCloskey's assistance will be required for specific follow-ups.
9. Test a package program for monitors and analysis (with pre-paid analysis for a single compound) positioned as the most economical package in the business. (This may be the best way to get the smaller accounts to start monitoring.) This could be the beginning of a monitoring program for the accounts without hygienists or monitoring expertise. Target date is 4th Quarter 1979 - 1st Quarter 1980.

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10. A strong position against the DuPont OV Monitor is being developed. Their perceived advantages noted in their claims will be evaluated in the lab and until then other weaknesses will be exploited. First broadcast due in early August.
11. Fund a Market Research Study for monitors to get a firmer fix on the usage patterns of larger companies and determine what size the present non-monitoring market size is. (DuPont uses an outside firm SRI or Snell to identify monitor market size, so information should be readily available to us if we are willing to buy it.)

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DISCUSSION

The sales of the Organic Vapor Monitor have been growing more slowly than forecasted one year ago. The present sales volume is \$104,000 (29,000 units) with \$23,000 (6,500) units in June and 33% of forecast.

Several factors are affecting the growth of this product. They are as follows:

- 1) Decision makers contacted have been primarily those with industrial hygiene responsibility at corporate headquarters or plant locations. These people are cautious about changing monitoring procedures and require testing of the procedure before adopting it. Many depend on their labs to conduct tests. Others are waiting for the government to help them decide.
- 2) Follow up at accounts who are willing to test the #3500 on a regular (at least monthly) basis is imperative. In several cases, 3 visits from St. Paul and over 7 follow-ups by a rep were required to get an account okay or corporate approval. This process is taking from 7 months to 1 year or more.
- 3) Lack of government regulations for benzene, carcinogens, ketones, etc. is all but eliminating sales of the charcoal tubes at smaller accounts. Only large accounts take the initiative to monitor on their own for organics. One segment of the #3500 market (petroleum refineries) has a market potential at least 5 times greater if a benzene standard issues. Technical expertise has been required in the past to do monitoring. Some small accounts will call in their insurance companies instead of buying equipment or supplies.
- 4) It is estimated no more than 7 of our 75 headquarter safety distributors have handled a line of monitoring products in the past.

The safety distributors are just learning how to sell the product and the analysis business is recognized as the best program they have. But, many say it will take some time to create and generate the business.

Table I shows the sales through distribution from January through April of 1979. 86 out of 100 of the monitor distributor locations have ordered less than \$1,000 worth of monitors.

TABLE I - Sales by Distributor Locations

<u>Dollar Sales</u> <u>Volume Categories</u>	<u>1979 April YTD</u>	<u>Total Orders (cases)</u>
\$5,000	2	28
\$2,000 - \$5,000	7	11 - 28
\$1,000 - \$2,000	5	6 - 11
\$100 - \$1,000	34	<1 - 6
\$0 - \$100	52*	<1

* Less than one case orders were being filled. This no longer is happening.

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There are several parameters that must be considered when estimating market size and potential for the OVM. The total number of employees at a plant and total number of workers exposed to a hazard does not represent the number of people that are or could legally be forced to monitor.

EXPERTISE

Sampling location and regularity of sampling has been left up to the hygienists or safety personnel in the past. They have acquired expertise using the pump and tube method; a method developed under government contract and used by OSHA for compliance monitoring. There are approximately 4,500+ registered industrial hygienists in the U.S., each of whom could hypothetically be responsible for 1,000 workers in a plant. If 25% of these workers were exposed to organic vapors and these hygienists monitored 10% of these people to get a representative sample of organic vapor exposures, this would generate a maximum potential of \$1.6 MM.

Luckily, there are other people doing monitoring; those trained on the job or those who have acquired this responsibility. In addition, some of these people monitor more than 10% of their workers depending on the chemical process and hazard involved. This market segment represents additional dollar potential for monitors.

COMPANY COMMITMENT

In addition, the size (sales volume of chemicals or number of workers) of the company is not always directly proportional to the amount of monitoring performed. Boeing Corporation and Witco Chemical Corporate Headquarters claim to use only 200-300 charcoal tubes per year. Witco has two corporate safety people and one safety and hygiene employee and primarily use Draeger tubes in limited quantities.

The company's hygiene staff and commitment to safety has a major part to do with the amount of monitoring performed. For example, Celanese and Union Carbide corporate headquarters each say they use 5,000 - 7,000 charcoal tubes per year. These companies have about 10-12 corporate hygienists each. 3M is another example with a hygiene staff of 8-10 and growing. We use from 4,000 - 6,000 tubes per year.

The top 50 chemical producers on the whole have a solid hygiene staff and therefore estimates can be extrapolated from data of some key accounts.

There is reason to believe based on market information on Draeger sales that the large majority (60-70%) of charcoal tubes are purchased by the larger chemical companies and those with large hygiene staffs. It is estimated that 50% of this business is being sold direct from SKC and others.

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MARKET SIZE

The best estimates that can be made at this time show the number of charcoal tubes sold in the U.S. this year to be approximately 1 million units giving the OVM a \$4 million market (see Table II). With a 15% return of units for analysis, this gives an additional \$2.75 million.

The ease of use of the monitors may create a new market, the size of which is difficult to assess at this time. It is reasonable to believe that it could be a market equal to the size of the existing charcoal tube market, even without the regulations. A separate marketing effort is important to get to this segment of the market.

Lastly, with competition like DuPont entering the marketplace, the concept of diffusional monitors may gain faster acceptance in the next year and more evaluations may be conducted. However, there is some evidence that field testing of the #3500 may be slowed-up at some companies who may elect to start testing 3M and DuPont. This could delay corporate acceptance in spite of the fact that 3M and Abcor are the only products in the NIOSH evaluation.

SUMMARY

The direct replacement of the tube market is the most easily reached and identified segment of the market. The market potential for the #3500 in this segment is:

\$ 4 million/year (monitor)
\$ 2.75 million/year (analysis)
\$ 6.75 million/year

TABLE II

1979 Market Potential Summary Based on Charcoal Tube Usage Estimates

<u>Government</u>	<u>Units/Year</u>	<u>\$</u>	<u>%</u>
Fed. OSHA	36,000	\$ 128,000	3
State OSHA	136,000	486,000	12
* Air Force (world wide)	160,000+	571,000	<u>14</u>
			29
<u>Industry</u>			
Chemical Companies (top 50)	250,000	892,500	22
Rubber (top 10)	50,000	178,000	4
Pharmaceutical (top 10)	50,000	178,000	4
Plastics (top 10)	50,000	178,000	<u>4</u>
			34
<u>Insurance Companies</u>	80,000	286,000	<u>7</u>
			7
<u>Miscellaneous</u>	350,000	1,250,000	<u>31</u>
			31
Conglomerates			
Electronic			
Paints & Coatings			
Other Government			
Navy			
Coast Guard			
	<u>1,100,000</u>	<u>\$4,100,000</u>	

*waiting for NIOSH approval

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APPENDICES

- I. FIELD COMMENTS
- II. GOVERNMENT MARKET
- III. REGULATED MARKET POTENTIALS
- IV. DRAEGER TUBE MARKET SUMMARY
- V. KEY ACCOUNT SUMMARY

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