(D)

Monsanto

FROM (NAME & LOCATION): Cumming Paton - General Offices

DATE: February 16, 1970

cc: W. B. Papageorge
P. S. Park
W. F. Waychoff/J. E. Springgat

SUBJECT: PCB PUBLICITY

REFERENCE:

TO :
J. H. Brydon - Montreal
G. Chew - Hong Kong
J. D. Fowler - Melbourne
J. von Morse
R. A. Onians - Brussels
G. W. Sperberg

PERSONAL AND CONFIDENTIAL

You have heard of the publicity surrounding PCBs or polychlorinated biphenyls.

We are sending a letter (copy enclosed) to the President of all domestic U. S. customers buying plasticizer-grade Aroclor®. A similar letter is being sent by the Functional Fluids group to their domestic U. S. customers.

We have plans to notify customers in the U. K. and Canada. At present, the wording of the letter is being cleared through the appropriate channels. At this time, we have no plans to notify customers in any other country. This is subject to change, of course, depending on developments. The attached information is for your guidance and information only at this time. (It does not apply to MMK-Japan. This will be handled separately.)

You will note how we presented information on this customer letter to our regional managers in the U. S. They have been asked to keep the circulation of this information to a minimum. Please do likewise.

The questions/answers are for the help of our salesmen in the U. S. They have been instructed to answer only those questions they are asked and not to put those answers in writing. They have been told not to bring up the subject of the PCB letter during calls and not to volunteer information not covered in the questions/answers list. We hope you are not troubled with requests concerning PCB "pollution" outside the U. S. A./Canada and Europe. Please follow Aroclor sales to your customers closely, however, and if they fall

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off, please investigate. We don't anticipate they will.

Should you have any questions concerning this package, please contact Bill Papageorge in St. Louis, copy myself.

We would advise against informing agents, etc. at this time. We plan to send out our letter to U. S. customers around February 28.

Cumming Paton

/dbw

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(E).

PRESENTATION TO FIELD SALES

PERSONAL AND CONFIDENTIAL

1. Introduction

As most of you are aware, there have been several newspaper and magazine articles published in the U. S. in 1969 indicating that polychlorinated biphenyls (PCBs) have been discovered in some marine, aquatic and wildlife environments. The quantities detected are said to be in the parts per million or parts per billion category.

It is claimed that the PCBs found strongly resemble chlorinated biphenyls containing 54% and 60% chlorine by weight. As you know, Monsanto sells such products under the tradenames of Aroclor® 1254 and 1260.

2. Letter to Monsanto's Aroclor Customers

As a result of this publicity and because Monsanto's name has been mentioned in at least one of the articles, it was felt that Monsanto as a responsible member of the business community had a duty to alert its Aroclor customers to a potential problem of environmental contamination. In so alerting our customers, let me emphasize that this does NOT mean that we are agreeing with the contents of any

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published articles on PCBs, nor are we necessarily disagreeing with the articles. It does not mean that we accept that Aroclor 1254 and 1260 have caused any environmental problems. We are merely fulfilling what we consider to be our moral and our legal responsibility to our customers. When you consider the present public concern with pollution and the environment (witness Newsweek's recent article headlined "The Ravaged Environment"), I think you would agree that it would be foolish and imprudent to ignore the PCB articles. But let me repeat that notification to our customers does not imply guilt on the part of Monsanto.

Accordingly, a letter has been cleared by our Legal Department for mailing to each one of our direct Monsanto customers. This letter goes to Plasticizer customers only. A very similar letter will be mailed by the Functional Fluids Group to their customers. The letters will be mailed from St. Louis about the end of February. It will be addressed to:

Office of the President
XYZ Company
Accounts Receivable Address

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The Plasticizer letter will be signed by W. E. Schalk. A copy of this letter, together with a cover letter, will be mailed to the head office of each of our Aroclor distributors. The cover letter will indicate the action Monsanto is taking with regard to its direct Aroclor customers. We will recommend that our distributors mail a similar letter promptly to each of their Aroclor customers. Copies of our letter will be made available to our distributors in quantities sufficient to meet their needs. It is not our responsibility to alert our distributors' customers. To explain the action to our distributors we have visited the head offices of Central Solvents and American Mineral Spirits.

Let me summarize what Monsanto's letter says:

1) Its primary function is to alert customers to a potential environmental pollution problem. Confidentially, our Legal Department believes this will minimize and, hopefully, eliminate claims made against us for environmental pollution damage.

2) It does not imply guilt by Monsanto. At this time,

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we are taking a neutral stand on the controversy. There are real problems of analytical identification of PCBs, how accurate the levels observed are, how PCBs affect marine, aquatic and wildlife environments over the long-term. We have active programs in all these areas to better define the problem but a lot of work needs to be done before definite scientific conclusions can be drawn.

3) It points out that not all Aroclors are PCBs. This is an important distinction. Don't call the PCB problem the Aroclor problem. We sell Aroclors such as 5060, 5442 and 5460 which are NOT PCBs. They, therefore, should not be regarded as potential environmental contaminants.

4) Furthermore, it says that not all PCBs appear to be potential contaminants. Aroclors 1221, 1232, 1242 and 1248 have NOT been found in the environment. Neither have Aroclors 1262 and 1268. We can only theorize as to why this should be. At this stage, we prefer not to indulge in theories. The salient

point is that since they have not been found - in spite of intensive investigations by scientists both here and abroad - indicates that they are not persistent contaminants and, therefore, do not pose a long-term threat to the environment.

5) By including a copy of the Federal Water Pollution Standards established for all states of the Union, we are pointing out that care will be needed in preventing environmental contamination from other raw materials and products not just Aroclor 1254 and 1260. We feel this Chemical Week reprint will be useful information for many of our smaller customers.

3. Customer Reaction

We expect this letter will lead to customer reaction. Our competitors are sure to learn of it and some of them may even be kind enough to capitalize on it or at least try to.

We can't anticipate all the ways in which our customers

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react. Remember this letter is going to the "Office of the President" so it may get down to his subordinates in a variety of different ways leading to a variety of reactions. Why send it to the Office of the President? Because our Legal Department feels in this way we have really notified a company officially of the potential problem. If there is any legal litigation later, the courts might feel that sending the letter to Joe Doe, Plant Purchasing Agent, was not legal notification because Joe Doe may not be an officer of the company.

So we must be prepared to expect hearing from customer employees we've never met nor heard of before. They may call anyone in the district office, many are likely to call Mr. Schalk, some may call executives all over the St. Louis campus.

Let us concern ourselves with what happens when a customer calls your regional offices about the letter or raises the matter during a sales call. For your guidances, we've prepared some aids:

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(1) A list of DOs and DON'Ts for Regional Managers.

(2) A list of "likely" customer questions together with answers approved by Jim Springgate and our Legal Department.

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Decreased Sales

Beware of decreased sales to any account after the letter is sent out. If you suspect this, your plan of attack could be:

Monsanto: "I see your purchases of Aroclor XYZ are down. I hope it doesn't mean your business is having a tough spell".

Customer: "No, business is O.K. but it's that so-and-so letter you sent".

Monsanto: "Does this mean you've switched to a replacement for XYZ?"

Customer: "Yes".

Monsanto: Probe to find what it is. Is it inferior to Aroclor. Is it really not a contaminant too. Point out our range of products. Use Monsanto bulletins/Blue Book to get him to evaluate one of our products.

OR

Customer: "No but I'm living off inventory till my boys can get a replacement".

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Monsanto: "Let me help you with some suggestions if I can. In the Blue Book here, we cover over eighty possible products---".

Competition: Remember that Aroclor® plasticizers are outstanding products. They are inert, oxidatively and chemically stable, give good adhesion in adhesives, sealants and coatings, moisture resistant, give low vapor transmission in coatings. In other words, they are used because of PERFORMANCE. Competitors will suggest chlorinated paraffins but they are not so good. Every salesman who has gone through the Training School in the past year - and over 90% have - have been given the advantages of Aroclor over chlorinated paraffins. Use it if you have to. You might ask the customer: "How sure are you that chlorinated paraffins are not environmental contaminants. What proof do you have". Blunt the competitive attacks by getting them to be defensive.

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If the customer is going to evaluate replacements, make sure he gets samples of plenty of our standard plasticizers.

Future: There may be some panicky reaction to start with. Your job will be to calm it down. To do that, you have to be confident Our Aroclor sales have increased every year for ten years - in boom or recession. We want 1970 to be no different. Let's not enter a new decade with a down-turn.

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DOs AND DON'Ts FOR REGIONAL MANAGERS

DO

1. Make sure salesmen are thoroughly familiar with objectives of letter by February 20.

2. Notify sales correspondents/lead correspondents/ office managers that calls may come from customers re our Aroclor letter.

3. Ask sales correspondents/lead correspondents/office managers to transfer such to (1) regional manager or (2) salesman if available. If not, to take down the question in writing and pass to (1) regional manager or (2) salesman.

4. Alert other Business Group/Division Managers that Aroclor letter is being sent out. Show them letter.

5. Ask other Business Group/Division Managers NOT to bring subject up on calls and to refer all enquiries to Plasticizer Regional Manager.

6. Stick to answers given to specific questions if these are ones asked.

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DO (Continued)

7. Write down any customer questions not covered in attached list and send to Cumming Paton in St. Louis.

8. Ask salesmen to stick closely to given answers on specific questions.

9. Ask salesmen to channel any questions not covered through you for screening before transmission to St. Louis.

10. Minimize calls to St. Louis on this letter.

11. Be alert to decreased sales and to competitive activity.

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DOs AND DON'Ts FOR REGIONAL MANAGERS

DON'T

1. Have sales correspondents/lead correspondents/office managers attempt to answer customer enquiries on Aroclor problem.

2. Bring up the subject of the Aroclor letter with customers.

3. Don't volunteer information beyond that given in letter unless specifically asked and then handle according to prepared answers or refer to Cumming Paton if no answer given.

4. Don't volunteer answers to questions not asked.

5. Pronounce on safe or unsafe applications.

6. Commit St. Louis to any actions on behalf of any customer.

7. Promise customized help without "sounding out" St. Louis.

8. Give indications that Aroclor 1254/1260 will be discontinued.

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COMPANY CONFIDENTIAL

POSSIBLE CUSTOMER QUESTIONS ON PCBs

PUBLICITY

Question 1

What articles have appeared on the PCB problem?
Will you send me copies?

Answer:

In the U.S., newspaper articles have appeared in the San Francisco Chronicle on Feb. 24, 1969, the San Francisco Examiner on Feb. 25, 1969, and the Hartford Times on Aug. 3, 1969. Numerous articles were generated by the Wisconsin "DDT Hearings" in May, 1969. At the hearings, witnesses discussed the problem of PCBs as "interfering substances" in their search for DDT in the environment. PCBs, they said, produced peaks on a gas chromatograph similar to the peaks produced by DDT. In no case was PCB indicted at the Wisconsin hearings.

Copies of the articles will be made available on request. Regional managers should contact E. V. John, Public Relations Manager Organic Chemicals Division, in St. Louis and copies will be forwarded to the customer through the regional manager's office.

In addition to the newspaper articles mentioned above, there have been radio broadcasts. At the time of the San Francisco Chronicle and Examiner articles, radios in the San Francisco area also carried the story. In August, the sports editor of the Hartford Times syndicated a radio broadcast on the subject of PCBs, and in Dec., 1969, the Canadian Broadcasting Co. (radio) carried an interview they taped with a member of our medical department.

Question 2

Were Monsnato's Aroclors specifically mentioned in these articles?
If so, which ones?

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Answer

Monsanto's Aroclors were mentioned in some of the articles but only in the San Francisco Chronicle story in Feb., 1969, was Aroclor 1262 specifically mentioned by number. In several of the articles, Monsanto was also identified as the sole U.S. producer of polychlorinated biphenyls, marketed under the tradename of Aroclor.

Question 3

What did the articles on the PCB problem say?

Answer

Since the outset of the "PCB problem", when the first article appeared in the U.S. press in Feb., 1969, the whole question has been closely interwoven with the question of DDT as a possible environmental contaminant.

The San Francisco Chronicle article carried a headline, "A Menacing New Pollutant." In rather sensational style, it identified PCB as a threat to birds and humans, highly toxic in a gaseous state and related to known cancer-causers. PCB presence in the environment is rising swiftly, the article stated.

The Examiner article called PCB a "plastic pollutant in the Bay and Mothers' Milk." This article called PCB an "alarming" new chemical pollutant that is playing a role in the declining peregrine falcon population, has been found in mothers' milk, and is the "latest addition to a growing list of chemicals in the ocean---- the newest symptom of man's chemical invasion of the ocean."

These two articles quoted Dr. Robert Risebrough, a researcher at the Institute of Marine Resources in the University of California's Department of Nutritional Scientists, on the detrimental effects of PCBs. Later Dr. Risebrough said he had been misquoted in some newspaper stories.

The Hartford Times story called PCB pollution a "new puzzle." Less sensational than the San Francisco articles, the Times gave an account of PCBs being found in the environment and the studies under way to determine their biological effects. This article, says Dr. Risebrough, tends to clear PCB of blame.

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Articles generated by the Wisconsin DDT hearings generally discussed PCB as an interfering substance discovered in scientists' search for DDT in the environment. Dr. Risebrough said at the hearings that there was no proof at the moment that PCB alone can cause thin eggshells, one of the phenomenon that he had discovered in studying the declining population of the peregrine falcon.

LEGISLATION

Question 1

Are there any Federal/State/local laws under which the use or discharge of Aroclors could be prohibited?

Answer:

No existing Federal, State, or local laws prohibit the discharge of Aroclors. However, in a number of states the basic water pollution control legislation is so broad that state agencies can prohibit chemicals, deemed necessary, from being discharged.

Question 2

Is the DDT and the PCB problem related?

Answer:

We are not a manufacturer of DDT or other chlorinated hydrocarbon pesticide and, therefore, have no knowledge of the seriousness of the charges against DDT other than what has been so widely publicized on TV, in the press and in technical journals. To the extent that both DDT and PCB are chlorinated hydrocarbons, then there is a similarity. They are sufficiently different in their chemical structures, however, that it would be entirely wrong to assume that both behave in the same way in the environment. There is another and more obvious difference. DDT and other chlorinated hydrocarbon pesticides were specifically designed for a job that obviously leads to their being scattered in wide spread fashion across the countryside. Rain, birds, wind, insects further scatter these pesticides in an uncontrollable manner. PCBs are not used in this fashion and

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Monsanto has never sought to promote this. This, we believe, is an important distinction that should not be overlooked if DDT and PCB are linked as a common pollutant of the environment. To our knowledge PCBs have never been identified in the absence of DET or other chlorinated hydrocarbon pesticides.

Question 3

Could it be PCB that's causing the environmental problems and not DDT?

Answer:

We believe that present-day GLC and mass spectrometric techniques are sufficiently accurate to be able to differentiate between DDT, related pesticides, their metabolites and PCB.

Question 4

What authority do State and local governments have in banning/ controlling the use of PCBs.

Answer:

They do have authority to ban or control use of any substances they consider harmful.

EFFLUENT AND ITS CONTROL

Question 1

How do I dispose of Aroclor 1254/1260, etc. effluent from my plant?

Answer:

We would suggest collecting all process effluent, equipment washings, tank or drum washings and then regularly taking to the nearest toxic materials dump. You may also be able to use a sanitary land-fill if permits are issued for this in your locality. We don't recommend feeding this material to local sewage treatment plants or taking out to sea in drums for dumping. These methods do not

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solve the problem of contamination. We are working on the disposal of these materials by incineration and biodegradation. Our work in these areas has not yet reached the stage where we can offer practical suggestions. It is of interest to note, however, that research is underway fo find catalysts to make DDT self-destructive. The possibility exists that we could find catalysts that would destroy PCBs in settling tanks constructed to catch all your effluents.

Question 2

Can I test my effluent to see if my effluent has no Aroclor 1254, etc. ?

Answer:

Yes. Analytical equipment is available that can do this if the proper technique is used. The basis of the method is GLC or gas liquid chromatography. Are you or anyone in your company familiar with this? Do you have GLC equipment? If you do, we can send you a description of a method that could identify PCB. If not, there may be a good analytical testing laboratory in the vicinity where you could send samples and rely on the results if you want to test your effluent.

Question 3

What is a "safe" PCB level for effluent leaving my plant?

Answer:

As our letter points out, parts per million (ppm) and parts per billion (ppb) have been mentioned in the published articles. There is still a lot of doubt as to how absolute any quoted values are. To bring this into the realms of reality, this definition of ppm and ppb may help clarify things.

To give you a practical example, the escape of one-two gallons per day could lead to samples in a stream beside the plant showing 10-50 ppb on analysis.

Question 4

You must have quite a control problem at your plants--I would think Monsanto's Aroclor plants are the major polluters--how are you handling control?

Answer:

The Aroclor products we make to sell at a profit, so economics dictate maximum housekeeping, minimum loses. The Aroclor process is a "dry process" or closed system.

Question 5

How does Monsanto think Aroclors can get into the environment and cause so much pollution?

Answer:

Disposal, leakage from systems using it, spills, etc.

Question 6

If I analyze my effluent stream and find ppb there, how do I know it didn't come from air-borne contamination or was present in the process water that I pump from the XYZ river into my plant?

Answer:

Analyze water entering your plant and compare. There is a method available for sampling air.

Question 7

You seem to think from the tone of your letter that the source of pollution is from effluent disposal into streams. In my process, Aroclor 1254, 1260, etc. vapors escape. What precautions can I take to prevent (a) employee problems and (b) escape of vapors into the atmosphere?

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Answer (7):

Articles on PCB interference with pesticides analysis have mentioned the possibility of loss to the atmosphere from vaporization when Aroclors are heated. We find this hard to believe and it warrants considerable investigation.

TOXICITY

Question 1

If PCB is a danger to fish and birds, how about humans?

Answer:

The amounts being found in the environment are not considered a danger to humans or fish. The whole question on chlorinated pesticides relates to birds.

Question 2

Are Aroclor 1254/1260, etc. more toxic than other Aroclors? Why?

Answer:

There is a difference in toxicity depending on degree of chlorination. This is not to say that higher chlorination is more toxic than lower chlorination. The alleged PCB problem is not really related to degree of toxicity.

DIFFERENCES BETWEEN AROCLORS

Question 1*

In your letter, you state that Aroclor® 5060, 5442 and 5460 are not PCBs. What are they?

Answer:

They are chlorinated terphenyls.

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Question 2*

What's the difference between a chlorinated biphenyl and a terphenyl?

Answer:

A terphenyl has three benzenes linked together and biphenyl only two. They are, therefore, similar but different, just as naphthalene is different from benzene.

Question 3*

Why should PCB be an environmental contaminant and chlorinated terphenyls not?

Answer:

I don't think there is any positive answer on this and I can't give you any theories. However, I would emphasize that not all PCBs appear to be contaminants. Those such as Aroclor 1221, 1232, and 1242 haven't been identified in marine, aquatic and wildlife environments. Chlorinated terphenyls - at least those made by Monsanto - have not been identified in the environment either.

Question 4

Since you sell other PCBs beside Aroclor 1254 and 1260, why are they not found in the environment?

Answer:

One reason could be that they biodegrade and hence never build up to a level where they can be labelled persistent contaminants. Therefore, although you would find it in an effluent stream if you analyzed it just after you poured PCB into it, its absence when a river, for example, is analyzed downstream at a later date would indicate degradation by bacterial organisms.

We are actively working on this aspect of biodegradability in our laboratories at this time. Results of this type of work won't come to hand quickly but our preliminary work on PCBs of less than 54% chlorine looks promising.

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Question 5

In your letter, you make no mention of Aroclor 1262 and 1268. What is their status?

Answer:

It could be that their semi-solid/solid water insoluble nature means they are far, far less likely to become "mobile" contaminants. It could be that their structural differences from Aroclor 1254 and 1260 are responsible for the apparent lack of a problem. In any event, they have not been identified by scientists in the environment and--believe me-- a lot of scientists seem to be looking for PCBs.

Question 6*

Both Aroclor 5460 and 1260 contain 60% chlorine. Why is one a problem (1260) and apparently not the other (5460)?

Answer:

A terphenyl has three benzenes linked together and biphenyl only two. They are, therefore, similar but different, just as naphthalene is different from benzene.

I would emphasize that not all PCBs appear to be contaminants. Those such as Aroclor 1221, 1232, and 1342 haven't been identified in marine, aquatic and wildlife environments. Chlorinated terphenyls--at least those made by Monsanto--have not been identified in the environment either.

Question 7*

Does this PCB problem mean that you have discontinued efforts to get Aroclor 5460 approved by FDA?

Answer:

No.

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Question 8*

Is the reason for not resubmitting your petition to the FDA for approval of Aroclor 5460 due to this PCB publicity?

Answer:

No.

Question 9

What's the problem then?

Answer:

We are bringing a new solid Aroclor plant on-stream in the next two-three months. We want to make sure it produces the same quality Aroclor 5460 we used in our feeding studies for the FDA. Once we're sure that's O.K. -- and we feel it will be--then we'll get the petition moving again but FDA clearances do take time.

Question 10

Does this PCB publicity mean that FDA approval of Aroclor 5460 is not going to be obtained?

Answer:

We have no reason to think the two things are related. Aroclor 5460 is not chemically a PCB. The delay resulted from the need to set up certain analytical methods to satisfy FDA. This involved analytical instrumentation and is being completed now. It is my understanding we plan to resubmit our petition although I personally don't know the exact date.

CONTAINERS

Question 1

Joe Doe buys all my used Aroclor drums without me having to wash them. I get $3.00 a piece. I can't afford to wash them out. Even if I did, what would I do with the washings?

(Question 1 con't)

What should I do? Should I tell Joe Doe? Will Monsanto take them back or pay me $3.00 plus my costs to take them to a dump?

Answer:

Don't have an answer at this time. We just don't know.

APPLICATIONS

Question 1*

Could Aroclor 1254/1260 escape from my sealant/adhesive/coating whatever into the environment?

Answer:

This will depend entirely on the final use to which your product is used--its ultimate disposition.

Question 2*

My product X contains Aroclor 1254/1260. What should I tell my customers?

Answer:

Tell your customer--We want to advise you of a possible environmental problem. Without knowing what your customer does with product X, this is hard to answer. (We would say that it would not seem wise to use Aroclor 1254 or 1260 for keeping dust down on the roads, for use in dental sealing compounds or as carriers for pesticides.)*

*Only if you suspect or are told this is what the application is.

Question 3

Does Monsanto intend to continue manufacture of Aroclor 1254/1260, etc.?

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Answer (3):

I have been given no indication otherwise.

Question 4*

Should I look for replacement for Aroclor 1254/1260, etc. ?

Answer:

I think only you can decide this. How easy would this be for you? Do you have any other replacement product in mind?

Question 5*

Does Monsanto have replacement products for Aroclor 1254 and 1260?

Answer:

As you know, we have over eighty plasticizers in our line and there's quite a bit of product interplay so it is possible that there is another product in our line that might replace them. What resin do you use? Perhaps we could look at these resin/plasticizer Selector Charts in the back of the Blue Book. I've got it with me.

Question 6*

Is Monsanto working on replacements for Aroclor 1254 and 1260?

Answer:

These research fellows are always busy on things like that. To some people Aroclor 1254 and 1260 have draw-backs.-- quite apart from present publicity on PCB. Aroclor 1254 is fairly volatile. Aroclor 1260 is very viscous and difficult to handle. For polysulfide sealants, for example, the technical people in St. Louis have just sent us data on products that will behave better than Aroclor 1254 in polysulfide sealants. Maybe there's something here for you to look at. Let's go over it.

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