



DOW CHEMICAL U.S.A.

May 12, 1975

P. O. BOX 1847
2040 DOW CENTER
MIDLAND, MICHIGAN 48640

AND 0002006311

Honorable John Stender
Assistant Secretary for Occupational
Safety and Health
U.S. Department of Labor
Washington, D.C. 20210

REQUEST FOR MODIFICATION OF VINYL CHLORIDE STANDARD

Dear Sir:

We hereby petition for a modification of the present definition of a "fabricated product" under the provisions of the vinyl chloride standard (29 C.F.R. §1910.93q(b)(6)), which exempts certain products from the scope of that standard. The purpose of the proposed modification is to clarify the scope of the fabricated product exemption as it applies to certain resins (polymers or copolymers of vinyl chloride) which contain a residual vinyl chloride level so low that, even when processed at temperatures sufficient to cause mass melting, air concentrations to which employees would be exposed would not exceed the standard's action level. This clarification of this exemption would relieve certain employers of some of the more time-consuming and burdensome requirements of the standard, simplify enforcement of the standard in many cases by the Occupational Safety and Health Administration, and provide an incentive to reduce residual vinyl chloride levels in polyvinyl chloride. At the same time, employees handling the newly exempted products would incur no greater health risk than that to which other employees may now be exposed under the standard's action level concept.

THE PROPOSED MODIFICATION:

The present definition (§1910.93q(b)(6)) reads:

"(6) 'Fabricated product' means a product made wholly or partly from polyvinyl chloride, and which does not require further processing at temperatures, and for times, sufficient to cause mass melting of the polyvinyl chloride resulting in the release of vinyl chloride."



We propose that the definition be modified to read as follows:

"(6) 'Fabricated product' means a product made wholly or partly from polyvinyl chloride;

(i) which does not require further processing at temperatures, and for times, sufficient to cause mass melting of the polyvinyl chloride resulting in the release of vinyl chloride; or

(ii) which, although such product does require further processing at temperatures, and for times, sufficient to cause mass melting of the polyvinyl chloride, results in the release of workplace atmosphere concentrations of vinyl chloride which do not exceed the action level."

RATIONALE FOR THE PROPOSED MODIFICATION.

It is generally acknowledged that the present scope of the vinyl chloride standard is exceptionally broad, arguably covering many semi-completed products where further processing cannot result in exposures above the action. Despite this low level of exposure--a level of exposure which has not yet been identified with any significant harmful health effects--employers dealing with such products are still potentially subjected to many requirements of the standard which would appear to have no significant effect on reducing the level of health risks to which their employees are exposed. On the other hand, compliance with these requirements creates a serious burden for the employers. Under these circumstances, clarification of the fabricated product exemption as it applies to these semi-completed products seems to be warranted. Furthermore, clear availability of the exemption will encourage manufacturers to conduct the work necessary to reduce the residual monomer level of such products, a desirable policy objective. To better illustrate the intent of the proposed modification, we provide the following example of one of our products which we believe would be exempted thereunder, including our data on exposure levels.

EXAMPLE: "SARAN" RESINS MANUFACTURED TO A LESS THAN 1 PPM RESIDUAL VINYL CHLORIDE CONTENT.

Dow Chemical U.S.A. produces a copolymer of vinylidene chloride and vinyl chloride. The copolymer, a synthetic plastic resin commonly known as Saran, is a dry free flowing powder which is packaged in plastic film lined drums and

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cartons, bulk shipment trucks, and bulk shipment railroad cars for purposes of storage and transport. Some of the resin is used by Dow in the manufacture of Saran Wrap plastic film and some is sold to customers who convert it into packaging films and monofilament fibers. During the past year Dow has successfully made several improvements in the copolymer manufacturing process directed at reducing the amount of vinyl chloride residue in the resin. The most recent of these improvements has resulted in the consistent manufacture of resin which is nondetectable in residual vinyl chloride when analyzed by a method sensitive to 1 ppm.

This resin, we believe, would pose no vinyl chloride inhalation hazard to workers during warehousing, transport, or handling of the resin such as during opening of containers or subsequent fabrication operations. Our belief that this resin poses no vinyl chloride inhalation hazard is based upon worker exposure monitoring which we have done. Results of this monitoring show that workers involved with warehousing, transport, opening of containers, and subsequent handling of this resin are not exposed in excess of the 0.5 ppm of vinyl chloride action level. Data resulting from this monitoring are summarized in the two Tables and two Figures which follow.

EMPLOYEE EXPOSURE TO AIRBORNE VINYL
CHLORIDE FROM SARAN RESINS CONTAINING
<1 PPM OF RESIDUAL VINYL CHLORIDE

Sample ¹ Point	Description	ppm VC vol./vol.
1	Drum packer at Dow Saran Resin Plant filling drums all shift. Value affected by Saran Manufacturing Plant background level. 8 hr. TWA	0.3
2	Breathing zone level alongside paks stored in Dow warehouse. Values affected by Saran Manufacturing Plant background level. Various determinations. Air concentration	0.1-0.4
3	Warehouse man working all day in Dow Saran warehouse operation.	
	Man No. 1 - 8 hr. TWA	0.18
	Man No. 2 - " " "	0.06
	Man No. 3 - " " "	0.08
4	Air concentration inside transport vehicle just prior to unloading at customer's plant. Samples taken and analyzed by customers.	
	Customer "A" - rail car	<0.1
	Customer "B" - truck trailer	<0.1
5	Man unloading transport vehicle. TWA during time needed to unload vehicle.	
	Customer "A" - rail car	< .01
	Customer "B" - truck trailer	< .01
6	Breathing zone level alongside paks stored in customer's warehouse. Air concentration	
	Customer "A" (after 1 week storage)	< .01
	Customer "B"	< .01

¹ Sample points are shown by number and location on Figure 1.

Sample Point	Description	ppm VC vol./vol.																
7	Trapped headspace air inside polyethylene bag liner in fiber pak. See Fig. 2 and Table 2 for detail.	---																
8	Man opening paks at the rate of 1 to 1 1/2 minutes per pak (includes opening of P/E bag liner). TWA for only time required to open the paks.																	
	<table><tr><th><u>Sampled At</u></th><th><u>No. of Paks</u></th><th><u>Time Minutes</u></th><th></th></tr><tr><td>Dow</td><td>10</td><td>14</td><td>.02</td></tr><tr><td>Dow</td><td>8</td><td>11</td><td>.03</td></tr><tr><td>Customer "A"</td><td>20</td><td>30</td><td>< .01</td></tr></table>	<u>Sampled At</u>	<u>No. of Paks</u>	<u>Time Minutes</u>		Dow	10	14	.02	Dow	8	11	.03	Customer "A"	20	30	< .01	
<u>Sampled At</u>	<u>No. of Paks</u>	<u>Time Minutes</u>																
Dow	10	14	.02															
Dow	8	11	.03															
Customer "A"	20	30	< .01															
9	Man dumping opened paks into blender. This test was done with Saran Resin containing approx. 15 ppm residual VC. B-Z TWA during 12 minutes needed to dump 17 paks at Customer "C".	0.13																
10	Man reloading resin into paks from blender. Done with same (approx. 15 ppm VC) resin as used in point 9. B-Z TWA during 16 minutes needed to unload blender.	0.20																
11	Unusual case of loading machine hopper from a pak with a scoop. TWA for 3 minutes at Customer "A".	0.09																
	Simulated "worst case" air conc. at possible B-Z, 3 inches below top, inside of pak 1/4 full of resin after being covered for one hour. To simulate person reaching into scoop resin.	0.01																
12	Air concentration at top of open machine hopper of Saran resin.																	
	Dow Saran-Wrap Plant	0.02																
	Customer "A" Film Line	0.03																
13	Film extrusion line operator. B-Z TWA during time at the line. Includes resin and product handling plus line adjustment and maintenance.																	
	Dow Saran-Wrap Plant	0.04																
	Dow Film Line	0.02																
	Customer "A" Film Line	0.05																

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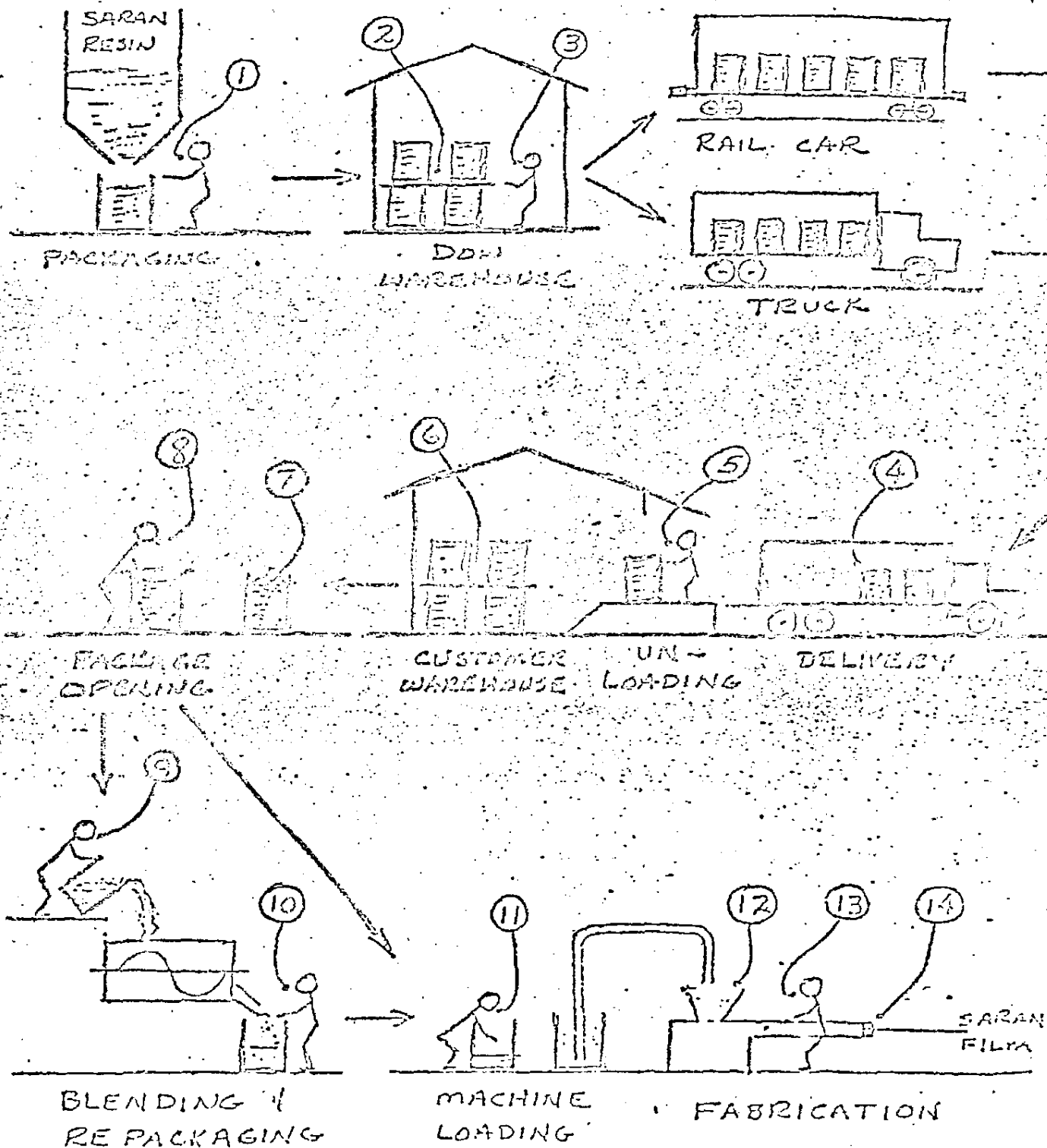
TABLE I CONT.

page 6

Sample Point	Description	ppm VC vol./vol.
14	Air concentration immediately above die extruding molten Saran resin.	
	Dow Saran-Wrap Plant	0.02
	Customer "A" Film Line	0.02

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FLOW CHART OF SARAN RESIN HANDLING
FROM PACKAGING THRU FABRICATION



TYPICAL SARAN PACKAGE
POLYETHYLENE FILM BAG INSIDE FIBER PAK

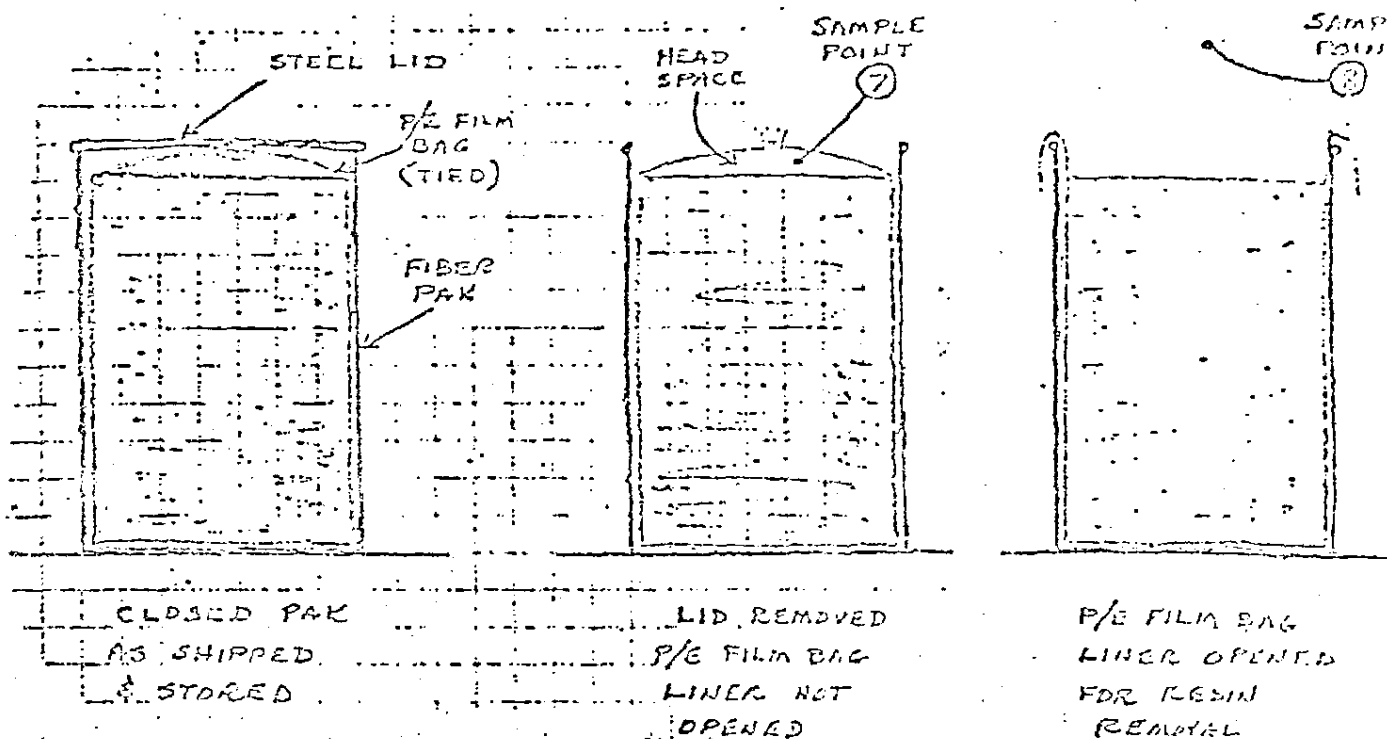


TABLE 2

PAK HEADSPACE CONCENTRATION OF VINYL CHLORIDE
OVER RESINS CONTAINING <1 PPM OF RESIDUAL VC

Headspace Analysis - PPM VC
vol./vol. as sampled on

Lot No.	Pak No.	Mfg. Date	1-22-75 ¹	2-12-75 ²	2-14-75 ²
73285	41	1-18-75	< .1	0.54	0.51
73286	46	"	1.1	0.48	0.61
73287	42	"	0.67		
73288	8	1-19-75	< .1		
73289	41	"	< .1		
73294	7	1-20-75	< .1		
73295	48	"	0.24		
73296	11	"	< .2		
73302	42	1-22-75	0.54		
73303	3	"	0.66	0.12	0.08

¹ Sampled at Dow prior to shipment.

² Sampled at customer's plant (by customer).

All samples taken with syringe and hollow needle
punctured through P/E film bag into headspace air.

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CONCLUSION:

Plastic resins produced by Dow Chemical U.S.A. which are copolymers of vinylidene chloride and vinyl chloride, commonly known as "Saran," are now manufactured to comply with a specification of nondetectable (less than 1 ppm) residual vinyl chloride content. This resin has an extremely low potential for contributing vinyl chloride to the workplace atmosphere. Personnel monitoring of workers involved with warehousing, unpackaging, and handling of these resins has shown that workers performing these operations would not be exposed in excess of the 0.5 ppm of vinyl chloride action level. We believe this example illustrates the case for clearly classifying certain semi-completed products (especially certain plastic resins) as fabricated products through the modification proposed in this petition. The proposed modification would not increase worker exposure to vinyl chloride beyond exposure levels presently permitted by the standard, would relieve employers (most of whom are smaller companies which purchase such resins from resin manufacturers for some further processing) of requirements which can be difficult to meet, would simplify enforcement of the standard, and would serve as an inducement to the manufacturers of such semi-completed products to reduce the residual level of vinyl chloride in their products. Under these circumstances, we urge you to adopt this proposed clarifying modification, which we would be pleased to discuss further with you or your representatives.

Respectfully submitted,



L. M. Thomka
Olefin Plastics Department

cc: Mr. Grover Wrenn, OSHA
(Division of Health Standards Development)

Information Letter de Lettre de renseignements

Health Protection Branch Direction générale de la protection de la santé

May 9, 1975

I.L. No. 439

1e 9 mai 1975

I.R. N° 439

TO: Food Manufacturers, Food
Packaging Materials Suppliers

AUX: Fabricants d'aliments, Four-
nisseurs de matériel d'emballage

SUBJECT: Food Packaging Materials
containing Vinyl Chloride

OBJET: Matériel d'emballage contenant du
chlorure de vinyle

For many years polyvinylchloride, a versatile plastic produced by polymerizing vinyl chloride, has been used to fabricate a wide variety of products, including containers for foods.

Since vinyl chloride is a gas at normal temperatures, it was generally accepted prior to 1973 that any unpolymerized monomer remaining in polyvinylchloride resin after polymerization, would dissipate from the resin when subjected to subsequent manufacturing processes. It has been recognized recently that residual vinyl chloride can in fact persist in fabricated articles such as food packaging materials, and there is evidence that it may thereby be transferred to foods.

Section B.23.001 of the Food and Drug Regulations prohibits the sale of any food in a package that may yield to its content any substance that may be injurious to the health of a consumer of the food. There is considerable scientific and medical evidence which suggests that vinyl chloride, when inhaled, is harmful to man. The oral toxicity data which are presently available are insufficient to allow the establishment of a safe level of this monomer in foods. Therefore, it has been concluded, in the interests of protecting the health of the consumer, that the quality of polyvinylchloride based materials used for packaging foods should be such that there will be no migration of vinyl chloride from these materials to foods packaged therein.

Le chlorure de polyvinyle, plastique à usages multiples dérivé de la polymérisation du chlorure de vinyle, est, depuis de nombreuses années, utilisé dans la fabrication de toute sorte de produits, y compris les contenants pour les aliments.

Étant donné que le chlorure de vinyle est un gaz à des températures normales, on présumait généralement, avant 1973, qu'un monomère présent dans la résine après polymérisation se dissiperait lors des procédés de fabrication subséquents. Il a été reconnu récemment que les résidus de chlorure de vinyle peuvent en fait subsister dans des articles fabriqués, comme par exemple les matériaux d'emballage pour aliments et, selon les preuves connues, cette substance pourrait alors être transmise aux aliments.

Selon l'article B.23.001 des Règlements sur les aliments et drogues, il est défendu de vendre un aliment dont l'emballage peut transmettre à son contenu une substance pouvant être nuisible à la santé d'un consommateur de l'aliment. De très nombreuses données scientifiques et médicales donnent à penser que l'inhalation de chlorure de vinyle est nuisible à l'homme. Les données actuelles sur la toxicité orale ne suffisent pas pour établir un niveau de sécurité pour ce monomère dans les aliments. Dans avoir énoncé que, pour protéger la santé du consommateur, la qualité des matériaux à base de chlorure de polyvinyle utilisés pour l'emballage des produits alimentaires devrait être telle qu'il n'y ait pas de migration du chlorure de vinyle de ce matériel au produit qu'il contient.

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Health and Welfare
Canada

Santé et Bien-être social
Canada

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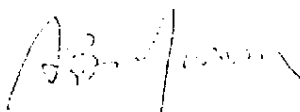
It is my intention, therefore, to recommend that Division 22 of the Food and Drug Regulations be amended to prohibit the sale of any food in a package that may yield to its contents any amount of vinyl chloride, as determined by the official method for that food.

Your comments on this proposal should be directed to the Assistant Director General, Food Directorate, Health Protection Branch, Department of National Health and Welfare, Carlingwood Plaza, Ottawa, Ontario, K1A 0L2, within one month from the date of this letter.

Je ne propose donc de recommander que le titre 22 des Réglements sur les aliments et drogues soit modifié de façon à interdire la vente de tout aliment dans un emballage pouvant transmettre à son contenu n'importe quelle quantité de chlorure de vinyle, déterminée selon la méthode officielle pour l'aliment en question.

A ce propos, veuillez adresser vos observations au Directeur général adjoint, à la Direction des aliments, Direction générale de la protection de la santé, Ministère de la Santé nationale et du Bien-être social, Carlingwood Plaza, Ottawa, Ontario, K1A 0L2, dans un délai d'un mois après la date de cette lettre.

Le Sous-ministre adjoint,



A.B. Morrison, Ph.D.,
Assistant Deputy Minister

U.S. DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
WASHINGTON, D. C.

Assistant Secretary

25 APR 1975

Mr. Martin H. Barcovic
Assistant General Counsel to
THE SOCIETY OF THE PLASTICS
INDUSTRY, INC.
1150 17th Street, N.W., Suite 1000
Washington, D. C. 20036

Dear Mr. Barcovic:

This is to advise that implementation and practice of the program for labeling as outlined in your letter of March 31, 1975, pages 1-7 would satisfy the requirements of the Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1910.93 (g) for labeling vinyl chloride (VC) or polyvinyl chloride (PVC) being transported.

The request from B. F. Goodrich (referred to in your letter on page 3) is being considered by the Office of Standards. As you know, the standard requires that all containers of PVC be labeled. There are no provisions for exclusion of containers that are for export movement. You may, however, petition the Assistant Secretary under Part 1911.3 for amendment to the standard. A copy of Part 1911 is enclosed for your information.

The above would also apply to the request to exempt samples of polyvinyl chloride from labeling (page 3 of your letter). Again, you may petition for an amendment to exempt the transportation of PVC samples.

In each instance when petitioning for an amendment, you should show that the conditions, practices, means, methods, operations or processes used or proposed to be used would

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provide employment and places of employment to employers which are as safe and healthful as those required by the standard, were it not amended.

If I can be of further assistance, please contact me.

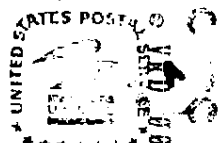
Sincerely,

JOHN STENDER

John H. Stender
Assistant Secretary of Labor

Enclosure

western union Mailgram



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MR K L SCHURTER
CONTINENTAL OIL CO
PARK EIGHTY PLAZA EAST
SADDLE BROOK NJ 07662

(1) M.L. ZL
(2) TOF FK
~~WRS DVP~~

JOHN R LAWRENCE
TECHNICAL DIRECTOR
THE SOCIETY OF THE PLASTICS INDUSTRY

CHEMICALS
RESEARCH

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