



THE SOCIETY OF THE PLASTICS INDUSTRY, INC.
250 PARK AVENUE • NEW YORK, NEW YORK 10017 • 212/687-2675

June 29, 1972

TO: OFFICIAL REPRESENTATIVES AND COMMITTEE
CHAIRMEN OF THE PLASTIC BOTTLE DIVISION

Dear Member:

Attached is a copy of the Glass Containers Manufacturers Institute's comments regarding the BAFT environmental impact statement on PVC liquor bottles.

This statement provides interesting reading, especially page three which states "...PVC liquor bottles will have an adverse environmental impact..."

To insure that you are kept abreast of developments, if your name was not on Jerry Heckman's BAFT mailing list, your name has now been added.

During the months ahead, I will see that you and all members of the Bottle Division are kept abreast of developments through communications which, when warranted, will supplement Jerry Heckman's mailings.

Please feel free to call me anytime you have a question about this important subject.

Cordially,

Thomas J. McGrath
Staff Administrator
Plastic Bottle Division

TJM/cm
att.

SPI-23864

GLASS CONTAINER MANUFACTURERS INSTITUTE, INC.

330 MADISON AVENUE, NEW YORK, N. Y. 10017

212-687-5533

E. L. CHENEY
PRESIDENT

May 12, 1972

Mr. Rex D. Davis, Director
Alcohol, Tobacco and Firearms Div.
Internal Revenue Service
U.S. Department of the Treasury
111 Constitution Avenue
Washington, D.C. 20224

Dear Mr. Davis:

I am President of the Glass Container Manufacturers Institute, Inc., a national trade association representing glass container manufacturers, which account for over ninety percent of the domestic production of glass bottles and jars.

We have given careful consideration to the Draft Environmental Impact Statement (PB 205 561-D) made available by your Division to the Council on Environmental Quality and the public on February 14, 1972 in connection with its proposed action to approve polyvinyl chloride plastic (PVC) for the manufacture of liquor bottles under the conditions set forth in Section II of such Statement.

We are quite concerned about the general impression created by the Draft Statement, in particular the comparisons seemingly favoring polyvinyl chloride plastic over glass containers as to their relative environmental impacts. In view of our deep concern about this Statement in its present form, we feel obliged to comment upon various aspects in an attempt to clarify certain misleading impressions regarding glass containers and to correct certain inaccuracies regarding their environmental attributes in comparison with PVC containers. We trust that the comments set forth below on those items of particular significance will merit your serious consideration in developing the final version of the Statement.

For ease of reference, we have arranged the following comments to conform to the Section headings and the page numbers at the bottom of the pages in the Draft Statement:

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Section I. General Background

C. Results of Experiments (page 7)

This Subsection summarizing the results of the experimental program contains certain misleading comparisons of PVC with glass containers with regard to such characteristics as taste transfer, permeability, durability and adaptability to bottling and distribution methods.

As to the comparison of the former characteristics, we understand that the liquor industry is not unanimous in favoring the use of plastic liquor bottles, since several distillers have decided against PVC packaging because of flavor problems. We understand further that permeability of the package and clouding of the product also have presented difficulties which become more severe with increased shelf life due largely to the fact that PVC is not a chemically inert product. In addition, plastic containers are highly susceptible to penetration by sharp objects resulting in possible contamination and/or loss of product.

The chemical inertness of glass packaging, on the other hand, is one of its most positive attributes. Not only are glass bottles incapable of contaminating their contents, they also are incapable of changing the taste, odor or color of the packaged product unlike many other packaging materials. Glass is also totally impervious to liquids and gases so there can be no loss of product through permeation. Short fill due to permeation during long shelf life therefore does not occur with glass bottles. Similarly, packaged products cannot be contaminated by air or other gases entering the glass containers by diffusion.

The statement that PVC bottles are comparable to glass in their adaptability to existing bottling and distribution methods also is not correct. PVC bottles require a change in filling equipment from the usual vacuum type to a positive fill type. In addition, small size PVC bottles because of their light weight and lack of rigidity require extensive modifications in conveying, closure application, labeling and packing techniques.

Section III. Alternatives to the Proposed Action (page 10)

We question the need to augment glass containers during periods of shortages as a basis for reaching the stated

determination in this Section regarding alternatives to the Division's proposed action. We do not believe that there is past evidence of any significant number of instances which might give rise to this conclusion. To the best of our knowledge, the only shortages in the history of the industry have occurred during two strike periods, only one of which was of any meaningful duration. In fact, during World War II, glass containers were used to replace other packaging materials in short supply. Furthermore, we believe that the abundance of raw materials for container glass would preclude any possible shortages for that reason.

Section IV. Economic Impact (page 11)

While economic considerations are stated as not being of primary concern to the Division's determination regarding PVC containers, there appears to be heavy reliance upon information provided by the Society of the Plastics Industry. We question the validity of the economic comparison of glass and plastic bottles particularly since glass is calculated to include prepaid shipping charges while plastic bottles are quoted on the basis of FOB shipping points.

Furthermore, the representations regarding freight costs are somewhat misleading and detrimental to glass containers. Although there may at present be substantially lower trucking rates for liquor packed in plastics, we understand that traffic experts predict that if PVC liquor bottles should become generally used, the truck rates on liquor in such containers could well be increased.

Section V. Probable Impact on the Environment

A. Solid Waste Disposal (page 14)

As indicated in the introduction to this Subsection, the area of solid waste disposal is probably the most significant aspect of the potential environmental impact of PVC liquor bottles and it is this aspect of the Draft Statement which gives us particular concern. We believe that, contrary to the conclusions in this Subsection, PVC liquor bottles will have an adverse environmental impact, particularly as compared to the environmental attributes of glass containers.

The current accuracy of the statement in this Subsection that PVC from all sources accounts for approximately .15 percent of municipal solid waste is put into question by a

1970 study entitled Solid Waste Management of Plastics conducted by the Manufacturing Chemists Association. This study indicates that even at that time the PVC content of collectable refuse was about .20 to .25 percent. While we are unable to determine the source of the former statistic, this study would appear to indicate that the amount of PVC in refuse is increasing with greater consumer use and it would seem that PVC liquor bottles would only contribute to this increase. The results of this study are confirmed in a February, 1972 report by the U.S. Bureau of Mines on the subject of Processing the Plastics from Urban Refuse (TPR 50). The Bureau's report also indicates that in a study of urban refuse in the City of Madison, Wisconsin there was 2.9 weight-percent plastic before drying and 3.3 weight-percent after drying.

There is also strong evidence that the volume of plastics of all types in solid waste is increasing. According to an article in Battelle Research Outlook, Vol. 3, No. 3 (1971), plastics account for close to 4 percent of municipal solid waste. This is substantially more than indicated in earlier studies.

On the other hand, glass containers of all types account for about 6 percent by weight of municipal solid waste. Since glass liquor bottle shipments in 1971 accounted for about 8 percent by weight of all glass container shipments, it follows that they account for about only .50 percent of municipal solid waste. Furthermore, the key physical and chemical characteristics of glass make it an ideal material in all current waste disposal systems. It is chemically inert, and it does not burn, rot or otherwise degrade and accordingly, does not contaminate landfill and water runoffs. It can be readily crushed or broken up and is the most friable of all packaging materials. When ground up, being made largely of sand, it returns to the soil virtually in its original form. In addition, its chemical and physical properties are such that it can be re-used again and again with a minimum of processing of raw materials to make new glass.

We would now like to comment in some detail regarding the impact of PVC plastic bottles and glass containers on the various disposal methods described in Subsection A (1) through (5) (pages 15 through 26).

A (1) Open Dumping (page 15)

As to the statements regarding open dumping, we feel it is inaccurate to indicate that PVC plastic possesses character

istics of biological inertness comparable to glass or to conclude the PVC plastic will have little adverse effect on this method of waste disposal and would even be preferable to glass containers in view of lighter weight and less volume.

We would agree that open dumping, while unfortunately still widespread, is an undesirable waste disposal method. However, the stability characteristics of glass would clearly make it from an environmental standpoint a more desirable component of refuse than PVC plastic when disposed of in this manner. Because of their chemical inertness, glass containers in open dumps do not rot, mold, rust, putrefy, burn or otherwise degrade. Consequently, they cannot contribute to the open dump hazard of fire nor to air, land or water pollution and because of their weight would not be scattered causing litter in areas adjacent to dumps.

A (2). Sanitary Landfills (page 16)

With regard to the statements regarding the sanitary landfill method of waste disposal, we take issue with the implication that glass may be a less satisfactory component of sanitary landfills than plastic containers and the statement attributed to the Society of the Plastics Industry that the latter are very useful in such landfills. The opinion of the Los Angeles County Sanitation District that plastics present no special problems in landfill operations does not accord with a recent opinion survey of public works officials conducted by Resource Management Corporation of Bethesda, Maryland which found that about seventeen percent of those responding considered plastic packaging to be the most troublesome component in landfill operations whereas only about five percent reported glass as being a problem in this method of disposal.

Furthermore, PVC containers while not biodegradable, are also not chemically inert. They cannot be as readily crushed or shredded as glass containers and when crushed or flattened tend to return to their original shape when pressure is released thus contributing to possible landfill instability. A recent study by Drexel University showed that container glass does not leach in landfills and therefore does not pollute land or water. Glass containers provide a firm base for landfills due to their chemical inertness and rigidity.

A (3). Controlled and Uncontrolled Incineration
(pages 20 and 25)

Moving to the treatment in this Subsection of both controlled and uncontrolled incineration of PVC, the discussions fail, in our view, to fully take into account reliable technical data and other pertinent factual information readily available from independent sources other than the Society of the Plastics Industry which would indicate a possible adverse environmental impact from the incineration of plastics.

In controlled incineration (page 20), the combustion of PVC results in the extensive emission of gases in the form of hydrochloric acid (HCL) mist. We understand that responsible environmentalists fear that emissions of such gases constitute a very serious air pollution hazard and could result in "acid rain". Support as to the air pollution hazard of such gases is provided by a recent recommendation of the Federal Environmental Protection Agency, reached after extensive study, to the Hackensack, New Jersey Meadowlands Development Commission that it defer commitment to a proposed 6,000 ton per day incinerator plant until all other accepted methods of waste disposal have been fully explored and found to be inadequate. In addition, we understand that government officials in the City of Chicago are concerned that a new city incinerator, perhaps the most efficient one in current conventional operation throughout the country, is continually emitting some 200 TPM of HCL to the atmosphere. The above-mentioned 1972 study by the U.S. Bureau of Mines further indicates that there is evidence that halides liberated by plastics such as PVC can cause corrosion and pollution problems especially in incinerators that are poorly designed and operated.

As regards possible corrosion of incinerator parts by PVC plastics, we would support the remarks of Mr. Connolly referred to in this Subsection contrary to the conclusion in the study conducted for the Society of the Plastics Industry by Professors Kaiser and Carotti of New York University. We would also point out in this connection that glass does not corrode or otherwise damage incinerator parts.

Further, as to the matter of air pollution from PVC plastic, we would question any conclusions based on the Kaiser study that HCL emissions can be adequately controlled through proper incinerator operation. We would point out in this regard that as yet no acceptable HCL levels have been established.

although we understand the Federal Environmental Protection Agency is currently engaged in developing them. We also note that the Kaiser study was based upon an examination of the operations of a city incinerator located in Babylon, New York which could hardly be described as typical or representative of the average municipal incinerator in operation throughout the country. It is our understanding that there are perhaps less than a dozen incinerators in the entire country which operate as efficiently as the Babylon plant. The vast majority are poorly equipped, obsolete and are major sources of air pollution. Therefore, this study can only indicate what is possible with the most advanced present day technology, not what is typical.

Glass bottles, on the other hand, do not burn during incineration and consequently do not contribute to air pollution. By breaking up during the incineration process, they tend to aerate the batch resulting in more complete combustion of the other materials which serves to reduce the amount of emissions to the atmosphere.

As regards the possible problem of PVC plastic in uncontrolled incineration (page 25), we believe that there is evidence available to refute the conclusion in this Subsection of the Draft Statement that the problem is not significant. This conclusion appears to ignore the instances cited in this Subsection from the report of the 1969 spring meeting of the Edison Electric Institute.

While the Draft Statement indicates a paucity of available domestic sources of information there is a report by the Swiss Reinsurance Company of Zurich, Switzerland on fire insurance experience with plastics which points up the corrosive damage factor and the blinding clouds of smoke resulting from PVC fires. This report cites a 1967 fire in Hanover, Germany in which sixty-six pounds of PVC burned in a fire which caused some nine million dollars in damage much of it attributable to the effect of the burning PVC. The report indicates that while PVC does not catch fire easily, once it is hot it decomposes giving off hydrochloric acid vapor which causes heavy corrosive damage to machinery, equipment and metal and electronic components. The report further cites a 1967 department store fire in Brussels, Belgium involving plastics where combustion created heavy smoke causing several hundred deaths and severe material damage. Glass by comparison, because of its inertness, cannot contribute to the magnitude of fires in distilleries, warehouses, stores or other places where liquor bottles may be held in large inventories.

C. Safety (page 29)

We would also take issue with the conclusion in this Subsection that partial replacement of glass containers by PVC bottles will undoubtedly reduce the number of injuries resulting from breakages of glass bottles and the improper reliance upon the final report of the National Commission on Product Safety as support therefor.

We would point out that the Commission's report involved carbonated beverage bottles not liquor bottles. This is clearly indicated in the text of the report appended as Appendix III to the Draft Statement. Glass liquor bottles were neither discussed nor challenged during the course of the Commission's hearings or deliberations and do not present a safety problem.

Section VI. Relationship Between the Short-Term Use of
Man's Environment and the Maintenance and
Enhancement of Long-Term Productivity (page 30)

We further question the conclusion in this Section that the replacement of glass containers by PVC bottles will increase the efficiency and productivity of sanitation workers since the weight of the refuse load is the most significant cost factor in municipal solid waste collection.

Glass characteristically is heavier than plastic packaging, but that is not necessarily a disadvantage in solid waste collection. Studies published by the Public Health Service of the U.S. Department of Health, Education and Welfare (SW-9C - SW-5C), indicate that weight is not the most significant cost factor. While weight is used as a matter of convenience in measuring solid waste accumulations, volume actually limits how much refuse can be handled by trucks and other solid waste collection equipment. Capacity to handle weight in mixed refuse is seldom a limiting factor. Furthermore, glass bottles can be crushed in compactor trucks reducing their volume some 90 percent.

Similarly, volume rather than weight is the major factor in incinerators and landfills. Particularly in the latter, space is of critical importance and the ease with which glass bottles may be crushed is a major attribute in this situation.

Furthermore, the above-mentioned study by Resource Management Corporation found that municipal public works officials consider glass containers to be the least difficult

of all packaging materials to handle in refuse collection systems. Corrugated boxes, paper, metal and plastic containers were all considered more troublesome in the collection phase of solid waste disposal.

Section VII. Irreversible Commitment of Resources (page 31)

The contention of the Society of the Plastics Industry that glass bottles require eight times the material required for a plastic bottle of similar capacity and shape, when taken in the context of conservation of resources, is misleading in that it creates an erroneous impression that raw materials for glass may be in more limited supply than PVC resins. There can be no question that raw materials for glass are in vastly greater supply than PVC resin raw materials. The principal materials in glass are sand, soda ash and limestone which are among the most plentiful raw materials on earth.

In addition, glass is made of raw materials that of themselves are not sources of energy unlike the raw materials for PVC which are primary energy sources. The conversion of sand, soda ash and limestone into molten glass and forming it into bottles obviously requires energy, but the source of the energy is not fixed. Glass can be melted by burning natural gas, liquified petroleum gas, fuel oil and producer gas made from coal, as well as by electric heat produced from nuclear energy, fossil fuel or water power. The great ease with which glass can be recycled also is pertinent to the resource and energy conservation picture. The use of salvaged glass in the glass furnace raw materials mix, for example, reduces energy consumption in that it lowers the temperatures required to melt the batch.

As a final comment on this Section, we would question the assertion that PVC containers can be readily reused in new plastic products or otherwise. To the best of our knowledge, present technology cannot provide a means of refabricating used PVC containers into new containers or products of economic significance other than those indicated in this Section by the Society of the Plastics Industry. The U.S. Bureau of Mines study referred to above supports the belief that given the present state of the art and the technical complexities involved, the recovery and reuse of plastic from municipal solid waste is only at the theoretical stage and practical application is far from being a commercial reality. This becomes an even more critical environmental

factor as plastics represent an increasingly larger component of the solid waste stream.

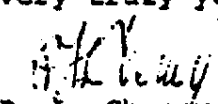
In contrast, the glass container industry has already made significant progress in the recycling of used glass containers into new containers or useful secondary products of potentially economic value. With a minimum of processing by color sorting and crushing, used bottles can be recycled into new bottles. As much as fifty percent of the materials in the glass furnace mix can be salvaged glass. With virtually no processing other than crushing, used bottles also can be converted into a broad range of other potentially useful products such as; glassphalt and slurry seal, road paving materials; construction bricks, blocks and panels; glass wool and foam insulation; terrazzo tile flooring; and reflective paints.

Glass containers today are being recycled at a rate approaching a billion bottles a year. They are being redeemed by the glass container industry at more than 90 collection centers in 25 states. Most of them are being recycled into new bottles and jars, but substantial quantities are also being devoted to the development of secondary products of the sort listed above. In addition, techniques and hardware are currently being developed to mechanically separate container glass on a mass production basis at municipal or regional refuse processing centers.

The adaptability of any packaging material to such waste recovery systems is of prime importance in assessing its environmental impact. It is pertinent, therefore, that unlike glass containers PVC bottles are not being recycled today and that the technology is not presently available for doing so in any meaningful volume.

In conclusion, we have attempted to give you the benefit of our considered comments on this very significant Draft Environmental Impact Statement. We trust that you will consider them to be constructive and we will be pleased to discuss any questions you may have regarding them. We would also request that we be afforded an opportunity in the future to comment in a more timely fashion on matters within the Division's responsibility which directly affect our interests.

Very truly yours,


R. L. Cheney

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SPI-23874