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No. 74-2284

United States Court of Appeals

No. 74-2284

State of New York, et al., Petitioners,

vs.
United States Department of Justice, et al., Respondents.

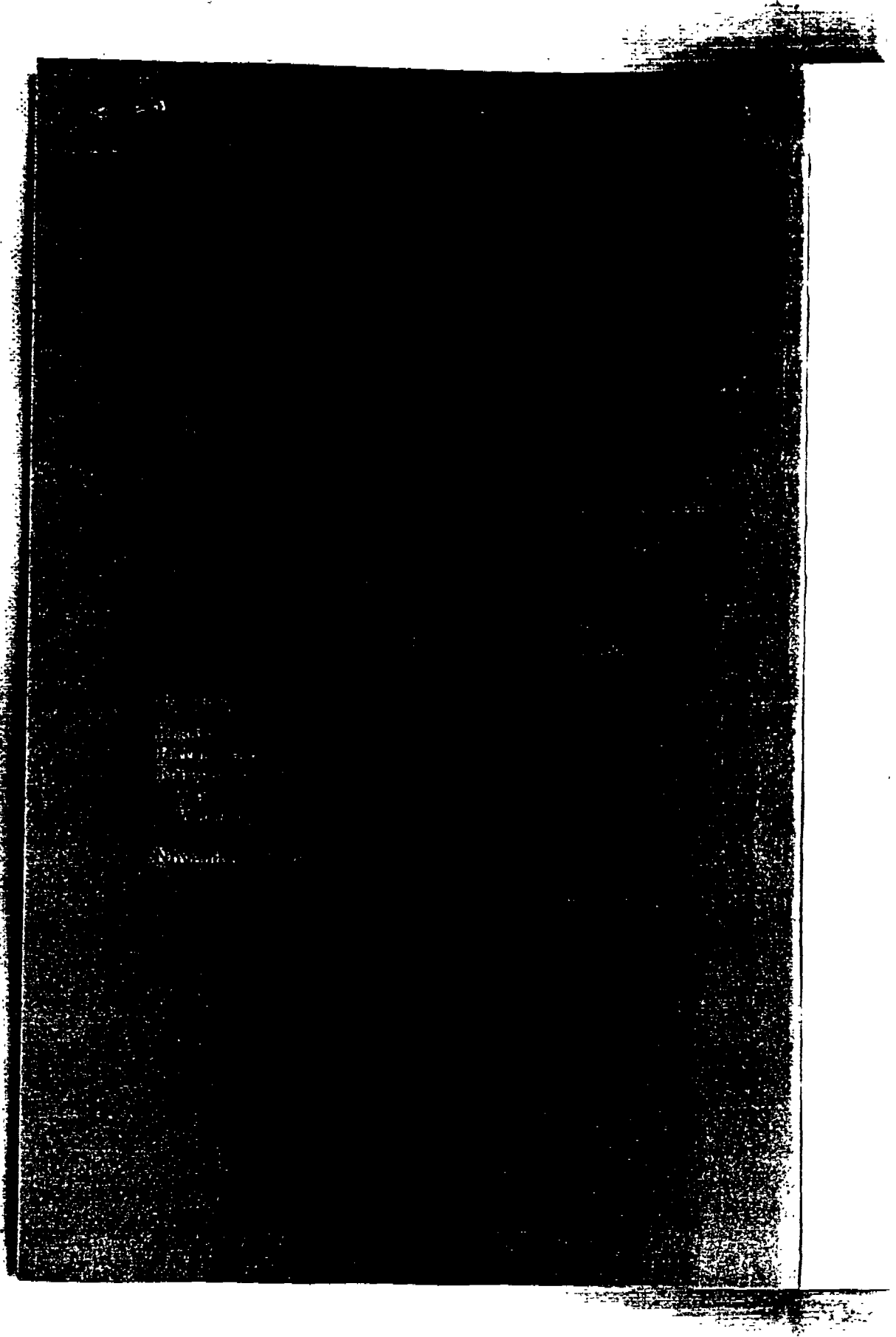
For Petitioners: [illegible]

For Respondents: [illegible]

On Petition for Review of an Order of the
Occupational Safety and Health Administration
Under Section 10 of the Act

BRIEF FOR PETITIONER

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IN THE
United States Court of Appeals
FOR THE SECOND CIRCUIT

No. 74-2284

THE SOCIETY OF THE PLASTICS INDUSTRY, INC.,
Petitioner,

v.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION,
UNITED STATES DEPARTMENT OF LABOR;
PETER J. BRENNAN, SECRETARY, DEPARTMENT OF LABOR;
AND JOHN STENDER, ASSISTANT SECRETARY
FOR OCCUPATIONAL SAFETY AND HEALTH.
Respondents,

FIRESTONE PLASTICS COMPANY, A DIVISION OF
THE FIRESTONE TIRE & RUBBER COMPANY,
Intervenor,

INDUSTRIAL UNION DEPARTMENT, AFL-CIO
Intervenor.

On Petition for Review of an Order of the
Occupational Safety and Health Administration,
United States Department of Labor

BRIEF FOR PETITIONER

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PRELIMINARY STATEMENT

This is a Petition for Review of the Vinyl Chloride Regulation, 29 C.F.R. § 1910.93q, promulgated by the Secretary of Labor on October 4, 1974. The Secretary of Labor's opinions and a general statement of his reasons for the requirements he would impose on the vinyl chloride industry are set out with the Standard at 39 Fed. Reg. 35890 *et seq.* (October 4, 1974).

The Petitioner, The Society of the Plastics Industry, Inc. (SPI), is the major national trade association for the plastics industry. The Society is composed of 1400 members and 50 operating units including producers of the plastics raw materials or resins and of the various modifiers and adjuvants used, plastics machinery and mold builders, and those known as processors, converters or fabricators who turn plastic resins into finished components or products. The Society's membership represents over 95 percent of the plastics materials and machinery produced in the United States and about 75 percent of the processing volume.

In the United States today, there are 13 vinyl chloride monomer (VCM) producing plants and 36 plants which polymerize the monomer into polyvinyl chloride (PVC) resin. Twenty-two companies representing over 99 percent of VCM and PVC capacity are active members of the Society's VCM and PVC Producers Committee.

The members of the VCM and PVC Producers Committee include: Air Products and Chemicals Inc., B. F. Goodrich Chemical Company, Borden Chemical Company, Continental Oil Company, Diamond Shamrock Chemical Company, Dow Chemical USA, Ethyl Corporation, Firestone Plastics Company, General Tire & Rubber Company, The Goodyear Tire & Rubber Company, Great American Chemical Co., Hooker Chemical & Plastics Corp., ICI North America Ltd., Olin Corporation, Pantasote Company of New York, PPG Industries, Shell Chemical, Stauffer

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Chemical Company, Tenneco Chemicals Inc., Union Carbide Corporation and Uniroyal Chemical.

In addition, at least 600 of the Society's fabricator and processor members are active in converting PVC into component or end products. The Society's concern with PVC, thus, begins with the manufacture of VCM and carries forward through the polymerization into PVC, and the various fabrication and conversion processes (i.e., calendaring, blow molding, extrusion, injection molding, and subsequent finishing operations).

The Society was officially requested to involve itself on behalf of its members in all aspects of the VCM and PVC regulatory situation by its VCM and PVC Producers Committee. Accordingly, it appeared and presented evidence on its behalf at the informal Occupational Safety and Health Administration (OSHA) Hearings conducted June 25 through June 28, 1974 and July 8 through July 11, 1974, submitted written Comments on the Proposed Permanent Standard; the Draft and Final Environmental Impact Statements; and the study by Foster D. Snell Co., Inc. commissioned by OSHA. Similarly, the Society has been duly authorized by its members to present the industry's case to this Court.

STATEMENT OF THE ISSUES PRESENTED

1. Whether the promulgation of the Vinyl Chloride Standard was based on determinations by the Secretary of Labor which are unsupported by substantial evidence in the record.
2. Whether, speaking from the technological and economic points of view, the Vinyl Chloride Standard can be complied with by the regulated industry.
3. Whether the Vinyl Chloride Standard is so vague and uncertain in its terms that enforcement of it will violate the requirements for due process under the Fifth Amendment to the U.S. Constitution.

4. Whether the labeling and sign requirements of the Vinyl Chloride Standard fail to comply with the requirements of the Occupational Safety and Health Act of 1970 and are, therefore, unlawful.

STATEMENT OF THE CASE

The ultimate purpose of this Petition for Review by The Society of the Plastics Industry, Inc. (SPI) *et al.* is to obtain full reconsideration, within the bounds of the appropriate statute, of the standard for occupational exposure to vinyl chloride recently promulgated by the Department of Labor's Occupational Safety and Health Administration (OSHA).¹

In the production of polyvinyl-chloride, vinyl chloride monomer (VCM)² is combined with other substances and polymerized into polyvinyl chloride (PVC). The resultant PVC resin is then subjected to further processing into semi-finished or finished products. The uses of polyvinyl chloride are numerous and can best be grouped into five general end-use applications including building and construction; motor vehicles; home furnishings, household goods and apparel; specialty products, primarily consumer goods such as packaging; and miscellaneous products, including hard and soft-ware for medical, agricultural and industrial applications.

Polyvinyl chloride is among the oldest of the major plastic materials. The first commercial plant to make polyvinyl chloride resin in the United States was constructed in 1939.

The production of polyvinyl chloride has now grown to the point where its use is almost incomparably ubiquitous;

¹ 29 C.F.R. § 1910.93q; 39 Fed. Reg. 35890, *et seq.*

² Vinyl chloride is a gaseous chemical under ambient conditions. In manufacturing operations, it is refrigerated, under pressure and handled as a liquid. In the context of this proceeding, vinyl chloride is a raw material, more specifically a monomer, used in the manufacture of the polymer, polyvinyl chloride, the second most widely used plastic material.

few industries can be found which do not employ equipment, parts, furnishings or the like where PVC is not an integral "ingredient." In 1973, there was an estimated world-wide output of 18 billion pounds and a United States output of 4.6 billion pounds.

In response to information made available to OSHA by the National Institute for Occupational Safety and Health (NIOSH) in January of 1974 that the B. F. Goodrich Chemical Company had reported the deaths of several employees from a rare form of liver cancer called angiosarcoma, OSHA conducted a fact-finding hearing on the possible hazards involved in the manufacture and end-use of both vinyl chloride and polyvinyl chloride. Subsequently, OSHA was informed of deaths from angiosarcoma among workers employed by the Firestone Plastics Company, The Goodyear Tire & Rubber Company, and the Union Carbide Corporation.

The human deaths from this form of liver cancer and information adduced at the fact-finding hearing about the possibility of inducing the same disease in laboratory animals, particularly data presented by Professor Cesare Maltoni of Bologna, Italy, led OSHA to conclude that the inhalation of vinyl chloride is carcinogenic for humans and must be considered carcinogenic for man at the same level as for animals.³

By publication of an Emergency Temporary Standard on April 5, 1974 OSHA lowered its limitations on vinyl chloride exposure from a ceiling of 500 parts per million (ppm) to a ceiling of 50 ppm.⁴

Having received additional animal data from Industrial Bio-Test Laboratories of Northbrook, Illinois indicating that angiosarcoma could be induced in test animals at 50 ppm, on May 10, 1974 OSHA proposed a permanent occu-

³ 39 Fed. Reg. 12342, *et seq.* (Emergency Temporary Standard).

⁴ 29 C.F.R. § 1910.93q(b); 39 Fed. Reg. 12343.

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pational exposure standard for vinyl chloride at a "no detectable" level which was defined as not detectable with a sampling and analytical method capable of measuring concentrations of 1 ppm.⁵

In the explanatory statement accompanying the OSHA Proposed Permanent Standard, it was made quite clear that—in keeping with the general policies of the Agency, and the legislative intent of the Occupational Safety and Health Act of 1970 (OSH Act) (both of which place great emphasis on imposing the burden of providing safe work places on employers, not employees)⁶—the Secretary's intention here was to require or permit the use of respirators as nothing more than a stop-gap or supplementary measure.

The following statement by the Secretary certainly bespeaks recognition therein that the wearing of respirators is a nearly intolerable burden on employees and can present significant health hazards so that any standard which would require the full-time use of respirators would have to be considered an extreme measure:

"Accordingly, it is proposed to require the institution of engineering controls and of workpractice methods as soon as feasible, and to require the use of respirators pending the institution of such controls, to supplement such controls where they are insufficient to reduce concentrations of vinyl chloride below the detectable level, in specified work situations, and in cases of emergency."⁷

⁵ 29 C.F.R. § 1910.93q(a), (c); 39 Fed. Reg. 16897 (Proposed Permanent Standard).

⁶ The general duty clause of the OSH Act, which sets the tone of the whole statute, explicitly states "[e]ach employer shall furnish . . . a place of employment . . . free from recognized hazards. . . ." OSH Act § 6(a)(1); 29 U.S.C. § 654(a)(1). What is more, the Senate Report stated "[e]mployers have primary control of the work environment and should insure that it is safe and healthful." Sen. Rep. No. 91-1282, 91st Cong. 2d Sess. (1970); 3 U.S. Code Cong. & Admin. News 5186 (1970).

⁷ 39 Fed. Reg. 16897.

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If further proof were needed that it was never the intention of the Department of Labor to resolve the vinyl chloride monomer problem by requiring full-time use of respiratory equipment, such proof is to be found in the explanatory statement made by the Secretary when the Permanent Standard here under attack was published. In the portion of the statement of conclusions based on the record enunciated by the Secretary, it was stated as follows:

"We would agree that respirators have many drawbacks; the proposal did not contemplate them as a final solution."⁸

After publication of the Proposed Permanent Standard, a record was developed with regard to a number of facts and related issues raised by the proposal. Purportedly basing his conclusions upon the facts in this record, the Secretary of Labor promulgated the permanent occupational exposure standard for vinyl chloride now before this Court for review.⁹

Specifically, the Standard sets permissible exposure limits for occupational exposure to VCM and requires employers to meet these exposure limits.

The evidence adduced in the Record shows that the exposure limitations are both technologically beyond the compliance capabilities of the industry and that human experience data shows such low levels are not required to protect industry employees. Where the feasible engineering and work practice controls are not sufficient to reduce exposure to these permissible levels, the Standard specifies that particular types of respirator equipment must be supplied to employees to supplement engineering and work practice controls designed to reduce occupational exposure to VCM.

⁸ 39 Fed. Reg. 35894.

⁹ 29 C.F.R. § 1910.93q; 39 Fed. Reg. 35890, *et seq.*

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Thus, unfortunately, while it is clear that the original proposal did not contemplate the use of respirators on a full-time basis and neither the government nor industry had any reason to believe that OSHA might adopt a standard which would have the effect of requiring full-time use of respirators, the final Standard will have precisely this effect. This is because the only evidence of record demonstrates the infeasibility of any Vinyl monomer or polyvinyl chloride resin company reaching the permissible exposure standard; thus, full-time respirator use is actually what is being mandated, in effect, although the Secretary may be unable or unwilling to recognize this fact.

It might be noted in passing that, had the Secretary recognized that the practical effect of the imposition of the Standard would be to require inordinate and concededly hazardous overuse of respirators, there might have been adequate notice given in this respect, and the government might have produced testimony to justify its position that full-time use of respirators is feasible and will not create greater hazards for employees than that to which they are now subjected. As it is, all of the testimony in the Record including that of the government's expert witness is to the effect that full-time use of respirators is not feasible, and might well present a greater hazard to employees than the type of very limited exposure to vinyl chloride monomer industry has advocated.

Moreover, the various types of respirators prescribed in the Standard were neither designed for, nor are they practical for use over long periods of time. As a practical matter, the operation of a chemical plant is not feasible if employees are encumbered by respiratory protective equipment.

Furthermore, because of inherent respirator limitations, detailed in the Record, many employees cannot use this equipment because of current health conditions or problems that would be caused by long-term respirator use.

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Additionally, the required respiratory equipment is not available in sufficient supply. Without respirators to "supplement" engineering and other controls, the industry will not be able to operate under the new Standard. A "Petition for Stay of Effective Date of Standard" filed with OSHA on November 5, 1974 contains more detailed information in this respect.¹⁰

The scope and application of the Standard cover all three segments of the industry *and secondary service-type industries as well*.

The Standard, as written, would result in its application to fabricators, processors, the transportation industry, warehousing and the like. Actually, for "downstream operations," in almost all cases the danger of exposure to VCM is remote because they do not use vinyl chloride monomer, *per se*; they use or handle only the polymeric resin which contains some low levels of *residual* VCM. Nevertheless, at every location where VCM or PVC is manufactured, reacted, packaged, repackaged, stored, handled or used *and* where employees may be exposed to more than 0.5 ppm of VCM, the employer must monitor individual employee exposure.

The Standard also mandates labeling for regulated areas and all containers of VCM or PVC. The central feature of the required labeling is the term "cancer-suspect agent." The Standard does not require the type of "information labeling" generally prescribed in similar situations, e.g. as with asbestos, now governed by a separate OSHA Standard.

The Secretary apparently did not consider the impact this Standard would have on the country's economy as a

¹⁰ Since this Petition was filed after designation of the Record to this Court, a copy of the Petition and its appendices are included in this Brief as Appendix B.

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whole in his decision making process. Evidence was presented to show that if the industry were closed down, enormous displacements both in terms of jobs and national economics, would occur.

SUMMARY OF THE ARGUMENT

The Occupational Safety and Health Administration of the United States Department of Labor promulgated an occupational exposure standard for vinyl chloride which would severely restrict the permissible employee exposure to vinyl chloride by setting, in effect, a "no detectable" limitation on exposure. It is now clear that the only way this limitation can be achieved would be by requiring the continuous use of respirators in most vinyl chloride monomer and polyvinyl chloride resin plants and by placing other unwarranted and intolerable burdens on the monomer and resin manufacturers and their employees. The Secretary's principal basis for taking such extreme action was an essentially arbitrary "policy judgment" that the Standard, as written, is necessary, though reaching the exposure limitations is, for all practical purposes, conceded to be infeasible with present or foreseeable engineering practices or technology. Moreover, in making the judgment the Secretary does not forthrightly concede that the Department is effectively mandating the full time use of respirators; on the contrary, it appears that this effect is not what was intended at all. It therefore appears that the adverse effects of full time respirator use were probably weighed seriously only by industry.

In making his determinations on the health issues in the case, the Secretary repeatedly characterized the evidence in the Record as "uncertain," using this wholly negative contention to justify taking an inordinately severe position. In short, the Secretary used an alleged evidentiary void to justify a decision without a factual basis upon a reading of the Record as a whole.

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The Standard for judicial review of an Occupational Safety and Health Act Standard is the "substantial evidence" test. *Associated Industries of New York State, Inc. v. United States Dep't of Labor*, 487 F.2d 342 (2d Cir. 1973). The Secretary not only lacked evidence for his determinations on the need for and feasibility of the exposure levels adopted, and important aspects of the respirators and monitoring systems requirements, but there was an abundance of evidence of Record militating in favor of almost completely contrary conclusions. An examination of the evidence does not show that a virtual "no detectable" exposure level is either achievable or necessary to protect workers; that the polyvinyl chloride fabricators, transporters and warehousemen need to be regulated; or that the presently prescribed exposure levels and respiratory protection requirements can be achieved technologically, or provided in a timely fashion.

Feasibility of achievement, both technological and economic, is an indispensable statutory consideration for the Secretary in Occupational Safety and Health rule making. OSH Act § 6(b)(5); 29 U.S.C. § 655(b)(5), *Industrial Union Dep't, AFL-CIO v. Hodgson*, 499 F.2d 467 (D.C. Cir. 1974). The Secretary is prohibited from promulgating a standard which will have the effect of removing employers from business by saddling them with unattainable or vague standards which a Record shows are technologically impossible to meet; obviously, if one cannot foresee any certainty of achieving a goal set by the Secretary but is required to continue expenditures with or without reasonable hope of success, as is the case here, the Standard is not technologically feasible within any rule of reason.

The Secretary also failed in his obligation to promulgate a standard which men of reasonable intelligence could understand. Since many provisions of the Standard are so inartfully drawn that a reasonable man cannot know

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what they mean in terms of practical application, the Standard should be declared void as vague and unenforceable.

As a final requirement to be placed on those who would be controlled by the Vinyl Chloride Standard, the Secretary set out labeling requirements. Over objections and ignoring entirely the constructive alternative proposals of SPI and others, the Secretary would require labeling which focuses only on the name of the product, vinyl chloride, and the words "Cancer Suspect Agent."¹¹ The mandate of Congress in enacting the Act was to require instructive labeling which would provide information on how to deal with the hazard and prevent injury. OSH Act § 6(b)(7); 29 U.S.C. § 655(b)(7). In this aspect, also, the Secretary exceeded the scope of his statutory authority, abused his discretion, and, thus, promulgated an unlawful standard.

The Secretary also stepped beyond the bounds of his authority by extending his labeling requirements to all containers of VCM, i.e., even containers of VCM in interstate transportation would be subject to his labeling. The Secretary's authority to regulate occupational safety and health does not include areas where other Federal agencies have established standards, OSH Act § 4(b)(1); 29 U.S.C. § 653(b)(1), and the Department of Transportation has already set labeling standards for the transportation of vinyl chloride.¹² Thus, the Standard is unlawful insofar as it purports to directly affect the labeling of VCM containers in transportation.

¹¹ 29 C.F.R. § 1910.93q(1); 39 Fed. Reg. 35898.

¹² 49 C.F.R. §§ 172.5, 173.400, .402, .404, .407.

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ARGUMENT

I

TO BE SUSTAINED IN THE PROMULGATION OF A STANDARD SUCH AS THE ONE HERE IN ISSUE, THE SECRETARY OF LABOR MUST DEVELOP A RECORD, CAREFULLY ELUCIDATE FINDINGS BASED ON THE RECORD, AND REACH CONCLUSIONS THAT RESULT IN A STANDARD WHICH IS FEASIBLE; HIS FAILURE TO MEET THESE BASIC REQUIREMENTS IN THIS CASE MAKE THE PROMULGATION OF THE STANDARD UNLAWFUL AND INVALID.

Before a standard for occupational safety and health may be promulgated by the Secretary of Labor a specific rule making procedure must be followed¹³ and "[t]he determinations of the Secretary shall be conclusive [only] if supported by substantial evidence in the record considered as a whole." OSH Act § 6(b) and (f); 29 U.S.C. § 655(b) and (f); and 29 C.F.R. § 1911.18(b) (emphasis added).

In promulgating Occupational Safety and Health Regulations, "substantial evidence" has been held to be the appropriate standard for review of the Secretary of Labor's action even when it results from an informal rule making procedure. *Associated Industries, supra*, at 342.¹⁴ Thus, the Courts have recognized that Congress expected the Secretary to exercise his rule making power on the basis of "substantial evidence" contained in the record; the law does not contemplate the making of critical de-

¹³ This procedure includes notice, development of a record including an informal factual hearing if requested, and, if the Standard is adopted, incorporation in the rule making notice of a concise general statement of its basis and purpose.

¹⁴ For the application of the "substantial evidence" rule to other forms of adjudicative determinations by the Occupational Safety and Health Administration, see, *Florida Peach Growers Association Inc. v. United States Dep't of Labor*, 489 F.2d 120 (5th Cir. 1974) and *National Realty & Construction Co. Inc. v. Occupational Safety and Health Review Commission*, 489 F.2d 1257 (4th Cir. 1973).

cisions based on administrative fiat or unfounded "beliefs" as to what industry might be able to accomplish.

The term "substantial evidence" has been defined succinctly as "... *such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.*" *Universal Camera Corp. v. NLRB*, 340 U.S. 474, 477 (1951); *Associated Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938) (emphasis added). It "must do more than create a suspicion of the existence of the fact to be established ... it must be enough to justify, if the trial were to a jury, a refusal to direct a verdict when the conclusion sought to be drawn from it is one of fact for the jury." *Universal Camera, supra*, at 477; *NLRB v. Columbian Enameling & Stamping Co.*, 306 U.S. 292, 300 (1938). The test, therefore, is not one of simply finding something, however isolated, in the record to support the agency's determination. An examination of the whole record is necessary to see if the agency has met its evidentiary burden of bringing reliable and determinative facts to light, thereby enabling it to make responsible decisions. Clearly this is what Congress had in mind since it was and is well recognized that OSHA's actions can affect the lives and jobs of millions of people—this case is an excellent example of how much can be at stake.¹⁵

In promulgating Occupational Safety and Health Standards, the Secretary is mandated by the statute to make his determinations on the "best available evidence" so that his decisions will withstand scrutiny under the

¹⁵ Joint Appendix (hereinafter referred to as: "JA") 2589 and 2617; The report of A.D. Little, Inc., an economic impact analysis of the effect of a "no detectable" exposure limit on the VCM and PVC industries, indicated that a shut down of all PVC resin plants in the United States and unavailability of PVC resin could result in a loss of 1.7-2.2 million jobs. A report by General Motors Corporation indicates severe reductions in VCM production would directly affect 45,000 GM employees and that the ripple effect, that is, GM-related layoffs alone, could reach 1.8 million workers. JA 2359.

substantial evidence test. Standards must be developed based on research, demonstrations, experiments and other appropriate information and, along with employee safety and health, the considerations to be weighed must also include the latest available scientific data, the feasibility of the Standard, and the experience gained under all health and safety laws. OSH Act § 6(b)(5); 29 U.S.C. § 655(b)(5).

Such a critical inquiry into the evidentiary basis for the Standard promulgated by the Secretary is one Congress determined the Courts must undertake to provide an effective check on his performance of the exceptionally broad regulatory duties delegated to him under the statute. Absent such a review, there would be no way to bar arbitrary use of the Occupational Safety and Health Administration's virtually plenipotentiary powers over industry and its employees.

Section 6(b)(5) of the OSH Act states that "[t]he Secretary shall set the Standard which most adequately assures, *to the extent feasible*, on the basis of the *best available evidence*, that no employee will suffer material impairment of health or functional capacity" 29 U.S.C. § 655(b)(5) (emphasis added).

Senator Javits, who authored the amendment which inserted the phrase "to the extent feasible" in the OSH Act, explained its meaning as follows:

"As a result of this amendment the Secretary in setting standards, is expressly required to consider feasibility of proposed standards. This is an improvement over the Daniels bill, which might be interpreted to require absolute health and safety in all cases regardless of feasibility, and the Administration bill, which contains no criteria for standards at all."

Sen. Rep. No. 91-1282, 91st Cong. 2d Sess. (1970); 3 U.S. Code Cong. & Admin. News 5222 (1970).

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The statutory language has been interpreted to mean that the Secretary cannot "... [put] employers out of business—either by requiring protective devices unavailable under existing technology or by making financial viability generally impossible." *I.U.D. v. Hodgson, supra*, at 467. Thus, the feasibility requirement can have two aspects—one technological and the other economic.

It is clear that the regulated industry's ability to achieve feasibly a given requirement is a primary matter for consideration by the Secretary which cannot be ignored. Thus, if employers are unable to comply with a standard because of a lack of existing technology or an exorbitant cost which would drive them from the market, that standard is unlawful because it contravenes the dictates of the statute.

Petitioners submit that this Court's examination of the Standard for occupational exposure to vinyl chloride and the bases on which it was finally promulgated will reveal that the Secretary did not reach the critical conclusions he has enunciated on the basis of the best available evidence taken from the record as a whole. Likewise it is submitted that the Secretary did not make rational findings or conclusions on the major technological feasibility or employee health issues hereinafter discussed and, hence, has promulgated a standard which is unlawful and invalid.

II

THE RECORD BEING DEVOID OF A SCINTILLA OF EVIDENCE TO SUPPORT THE TECHNOLOGICAL FEASIBILITY OF ACHIEVING THE EXPOSURE LIMITS IN THE VINYL CHLORIDE STANDARD, THE REAL EFFECT OF ADOPTION OF THE STANDARD WILL BE TO COMPEL FULL-TIME USE OF RESPIRATORY PROTECTION BY THE WORK FORCE; THE ONLY EVIDENCE OF RECORD INDICATES THAT THIS RESULT WILL MAKE SAFE PLANT OPERATION TECHNOLOGICALLY INFEASIBLE AND BE DETRIMENTAL TO EMPLOYEE HEALTH.

In promulgating a standard dealing with toxic materials or harmful physical agents, the Secretary is required to set a standard which, *to the extent feasible*, most adequately assures no employee will suffer impaired health or functional capacity. OSH Act § 6(b)(5); 29 U.S.C. § 655 (b)(5) (emphasis added). Feasibility in this sense must take into account the technological possibilities of achieving compliance with a standard as well as any adverse impact on employee welfare that adoption of a standard might have. *I.U.D. v. Hodgson, supra*, at 477-78.¹⁶

In the course of the fact finding process, the Secretary recognized the evidentiary importance of the feasibility issue and directed that a special technological and economic feasibility study be conducted by Foster D. Snell, Inc. to determine the technological and economic feasibility of compliance with the original Proposed Permanent Standard and several other exposure levels intermediate between the proposed "no detectable" and the Emergency

¹⁶ Daniel P. Boyd, Ph.D., Director of OSHA Office of Standards Development, defined feasibility in exactly the same terms during the June hearings:

"Some commentators have asked what 'feasible' means. Within the terms of this proposal, feasibility refers to both technological and economic considerations. On the one hand, does the technology exist that would allow the employer to achieve compliance and, on the other, what are the costs associated with the application of these technologies. It is both proper and necessary that we consider these matters in our deliberations." JA 178.

Temporaaary Standard limit of 50 ppm as a ceiling exposure.¹⁷

With both the OSHA-commissioned Snell report and a plethora of industry evidence before him, all clearly indicating that compliance with a 1 ppm level is not technologically feasible, the Secretary nevertheless concluded:

"We also believe that PVC and VC establishments will, in time, be able to attain that level [1 ppm time weighted average (TWA)] through engineering controls, and that fabricators can do so in the immediate future."¹⁸

The Secretary candidly recognized "... that many employers covered by the Standard cannot currently achieve compliance with permissible exposure limits solely by the use of feasible engineering and work practice controls," and "... agree[d] that the PVC establishments will not be able to attain a 1 ppm TWA level for all job classifications in the near future."¹⁹

It is respectfully submitted that in discussing the Snell Report alone, the Secretary summarized the evidence as showing that a 1 ppm standard for exposure to vinyl chloride cannot be feasibly attained, contrary to his "belief," by noting:

"... the Snell study on technological feasibility concluded that a 1 ppm ceiling is not feasible for the VC and PVC industries with present technology, but that the VC industry could currently attain lower exposure levels than the PVC industry."²⁰

Ample evidence that compliance with a "no detectable" level, i.e. a level around 0-1 ppm, is technologically in-

¹⁷ 39 Fed. Reg. 30844 and 39 Fed. Reg. 35890.

¹⁸ 39 Fed. Reg. 35892.

¹⁹ 39 Fed. Reg. 35892-93.

²⁰ 39 Fed. Reg. 35892.

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feasible to achieve had already been introduced into the Record by industry spokesmen²¹ before the Snell Report confirmed that a time weighted average (TWA) level around 10 ppm for the VCM industry and around 25 ppm for the PVC industry was the lowest exposure level feasible with presently available technology.²² This evidence has yet to be contradicted by even a scintilla of probative data leading to any other possible conclusion regarding realistically feasible exposure levels.²³

From the foregoing, it cannot be said that the evidence in the Record is uncertain or unclear as to whether industry can feasibly reduce occupational exposure to VCM to the 0-1 ppm range. The OSHA consultant, Snell, and industry spokesmen must be considered as having provided the best available evidence on technological compliance since their input was based on actual engineering calculations and voluminous expert opinion which is essentially uncontradicted on the Record. Nevertheless, the Secretary made his subjective determination supported only by a statement that it is his "belief" that industry, with the development of new technology, engineering and work

²¹ See, e.g., the statement of Anton Vittone of the B. F. Goodrich Company speaking for the Petitioner, SPI, JA 560, Joseph Fath, Tenneco Chemicals, JA 745, Richard Fleming, Air Products, JA 932-33, Karl Oelfke, Dow Chemical, USA, JA 1034-35, Harry E. Connors, Diamond Shamrock, JA 1318-19, John L. Nelson, B. F. Goodrich, JA 1381, Martin J. Kleinfeld, Uniroyal, JA 1576, and Todd C. Walker, Firestone Plastics, JA 1668. Accord, Borden, Goodyear, Hooker, Pantasote, Stauffer, and Union Carbide. JA 2342, 2300, 2285, 2701, 2371 and 2422, respectively.

²² "Economic Impact Studies of the Effects of Proposed OSHA Standards For Vinyl Chloride," a report done by Foster D. Snell, Inc. under OSHA Contract No. L/A 74167 (hereinafter referred to as the "Snell Report") JA 3683.

²³ As the Secretary did point out, however, the labor unions and the Health Research Group, neither of which had conducted any studies or professed expertise of any relevant type, "suggested" that a 1 ppm ceiling level is attainable. 30 Fed. Reg. 35892.

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practices, will continue to make "great strides in reducing exposure levels."²⁴

The inescapable fact is that there is no probative evidence to support the Secretary's determinations as to the technological feasibility of achieving compliance with the permissible exposure levels. The evidence clearly demonstrates that the Standard is simply beyond the compliance capabilities of the industry. Thus, the Secretary's decision on the permissible exposure limits lacks substantial evidentiary support in the Record, is unlawful, and should be declared invalid.

The net effect of the Secretary's action in adopting the instant Standard will be to require that virtually all of the work force in a vinyl chloride or polyvinyl chloride plant be equipped with and actually use respiratory protective equipment on essentially a full-time basis. As indicated in the Statement of the Case, it is clear that the Secretary never intended this result. Yet, the Record facts in the case lead inexorably to the conclusion that the Secretary's

²⁴ 39 Fed. Reg. 35892. The Secretary's confidence that industry can eventually reach the exposure levels he would require is sheer speculation in its worst form. The decision itself is contrary to all known facts and saddles those who suffer the brunt of the conjecture with the personal and economic cost of the Secretary's error. By speculating that his Standard can eventually be reached, the Secretary has put the VCM and PVC industry on a treadmill to oblivion with a continuous cycle of money for new engineering controls, new plans to attempt to further reduce exposure, more money for different—not necessarily better—engineering controls to attempt to further reduce exposure, *ad infinitum*. It should also be noted that the Secretary's opinion vacillates on the facts in issue. Specifically, he states that he "believes" that "in time" the industry can achieve compliance with the permitted levels (39 Fed. Reg. 35892) but that he is "... presently unable to determine when it will be feasible for most establishments to reduce exposure levels to the permissible level," (39 Fed. Reg. 35894) "[n]or is it clear to what extent exposures can be feasibly reduced." (39 Fed. Reg. 35892). Yet industry will be expected to spend untold sums and search indefinitely to satisfy the Secretary's unfounded confidence that it can locate something akin to the Fountain of Youth.

permissible exposure limit concept is so clearly unachievable by industry that the only practical way to comply with the law will be by supplying respiratory equipment to every employee in a VCM and PVC plant. Moreover, it is likely that many of the workers will have to wear the respirators full-time immediately after January 1, 1975.²⁵

The Secretary expressed the hope that other methods of protection could be found and failed to address the real issue: Is it feasible to operate a plant at all if full-time use of respirators is a prerequisite? The Secretary's allusion to the "many drawbacks" associated with the use of respirators does not begin to satisfy that requirement in the Department's own regulation which directs that a Standard be accompanied by a statement which "... will show the significant issues which have been faced, and will articulate the rationale for their solution."²⁶ The Secretary's failure to provide anything more by way of explanation in a similar situation caused this Court to vacate another OSHA standard, saying "... we must insist on something more than an *ipse dixit*, now sought to be supported by references by [government] counsel" *Associated Industries, supra*, at 354. See also, *Automotive Parts & Accessories Association v. Boyd*, 407 F.2d 330, 338 (D.C. Cir. 1968).

The evidence of record lends no support to the view that such operation would be feasible or safe, even assuming an adequate work force, eligible and willing to function in respirators, can be secured. Indeed, the Record

²⁵ For example, one witness testified that, if the Proposed Permanent Standard were effectuated, "[w]e would have to place all operational and support personnel at our PVC manufacturing sites in respirators all of the time" (emphasis added). JA 821.

²⁶ 29 C.F.R. § 1911.18(b).

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compels the opposite conclusion, i.e. that such operation is infeasible.²⁷

Once it is recognized that the Secretary's decision on the permissible exposure limitations makes extensive use of respiratory equipment a practical necessity, regardless of what the Secretary might have intended or now hopes or "believes," much greater attention must be given to the testimony in the Record indicating that very real dangers of an immediate nature are necessary concomitants to the use of such equipment.²⁸ Firstly, respirators can, in and of themselves, create safety hazard in work areas because of their bulk and, in some cases, the inherent nature of the equipment particularly where it is of the air line variety.²⁹ Actually, all of the evidence indicates clearly that the use of respiratory equipment gives rise to serious health and safety considerations which might well be viewed as presenting more acute problems and warranting greater concern than exposure to very low levels of air contaminants.

²⁷ In addition to the fact that the full-time use of respirators violates good industrial hygiene practices, more than intermittent use is impractical because new and unnecessary safety problems are created, the work force tires from increased breathing effort and exertion expended in carrying air tanks or coils of air hose, and, typically, the employees tend to become "accident prone," and otherwise inefficient as a result of fatigue. JA 285, 293, 538, 722 F-G, 741, 822, 848-50, 964-65, and 1331-33.

²⁸ The testimony of Hyatt (JA 283 through 312), Soule (JA 722-G) and Dr. Tomashefski (JA 524 through 535) indicates that supplied air respiratory protection devices—that is, both self contained and air line types—are designed for and should be used only in situations that are immediately hazardous or very hazardous to life, respectively, and that neither is appropriate for routine or day-to-day use.

²⁹ The specific safety hazards referred to by the expert witnesses are: as to the devices themselves—air contamination, device malfunction (e.g. failure or disconnection), and air source malfunction (e.g. shutdown); as to the use of the devices—tripping and falling over air lines, air line tangling (especially if line is of great length), kinking and shutting off air, mobility restriction, restricted sight (including fogging of the eyepieces), restricted hearing, and restricted voice communications. JA 312, 527, 528, 552, 715, 716, 740 and 794.

That the use of respiratory equipment can lead directly to severe injury is almost self-evident. This is particularly true where such equipment must be employed in complex industrial manufacturing establishments. As a representative of Tenneco pointed out during the course of the OSHA Hearing, workers burdened with bulky breathing equipment or trailing long hoses can find themselves in serious jeopardy in a vinyl chloride facility which, typically, is "a multi-story operation [with] many catwalks or narrow passageways, stairwells, [and] moving machinery."³⁰ Tenneco's representative had reason for being particularly impressed with the hazards involved for he was aware that his company had had at least one employee fatality which occurred when a worker wearing breathing apparatus connected to a lengthy air hose fell from a ladder due to the cumbersome nature of the respiratory equipment.³¹

Considerable industry testimony demonstrates that full-time use of respirators is impractical. All testimony on this topic indicated that respiratory protection devices were designed for short term use, that is, 15 to 60 minutes.³² Even the government's witness in this area, Mr. Edwin C. Hyatt, a recognized expert in the field, testified that no one could work in a respirator effectively for long periods of time.³³ Mr. Hyatt very forcefully noted that "[a]t best, any of these devices are [sic] an instrument of torture."³⁴

³⁰ JA 847-48.

³¹ *Id.*

³² See testimony of Edwin C. Hyatt (JA 298-303); Joseph A. Tomashefski, M.D. (JA 535-E and 539); Roger A. Strassburg, Ph.D. (JA 722-H); Paul Lobo, Ph.D. (JA 793); and Karl Oelfke (JA 1112).

³³ JA 298.

³⁴ JA 303.

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In addition to the Hyatt testimony, the other evidence of record leaves no doubt but that a serious and properly directed evaluation of the risk-benefit ratio between respiratory protection and very low level vinyl chloride monomer exposure (e.g., the 10 ppm TWA, 25 ppm maximum recommended by the Snell Report) should have been undertaken by the Secretary prior to the setting of an arbitrarily derived exposure limitation which would have the effect of mandating full-time use of respiratory protection. Were this done, at least the Court would be in a position to know that the Secretary had consciously balanced the admonitions given by experts such as Drs. Tomashefski and Soule against the taking of an action which would require, as a practical matter, the use of respiratory protection on a full-time basis. Dr. Tomashefski pointed out, for example, that even with respect to those who can wear respiratory protection, it being understood that somewhere in the neighborhood of 32% of the work population should not wear such equipment under any circumstances because of chronic obstructive pulmonary disease,³⁵ those who are forced to wear respirators will have difficulty because of "increased resistance to breathing, decreased efficiency of function, poor fit, leakage, false security, allergic reactions, irritation from perspiration and other particulate depositions, rebreathing, head space ventilation, poor vision, fogging of eye pieces, speech, psychological and contamination problems."³⁶

The difficulties with respiratory equipment highlighted by Dr. Tomashefski and the other experts in this field are known to have led to serious accidents, particularly in industries where fire and explosion are the most common concerns. For example, an incident at a Diamond Sham-

³⁵ JA 532.

³⁶ JA 534. Roger W. Strassburg, Ph.D., added the following to Dr. Tomashefski's list: headaches, inflamed facial glands, edema of the scalp, drying of the eyes and general skin irritation. JA 724-27.

rock PVC plant in Texas was widely reported in 1970. When a valve gasket failed, an operator immediately observed the potential hazard and loudly ordered all in sight to evacuate. Seconds later there was indeed a fire and explosion which led to the death of one worker and severe injury to several others. Had either the vision, the hearing, or the capability for verbal communication of the operator been impaired because of the use of respiratory equipment, or had the mobility of the workers compelled to evacuate been impeded, many more lives would certainly have been lost.

Such incidents leave no doubt but that the virtual full-time wearing of respiratory protection which the Secretary's action has now made a necessity can present serious threats to health and safety. Despite this fact, the Secretary, still relying on his "belief" that respirators may not be required indefinitely, dismisses the subject with the cursory observation that the use of respiratory protection will only be "... inconvenient, may require additional personnel, interfere with production, or may require extensive retraining of employees and restructuring of work practices."³⁷ Nothing is said about the employees that may have to be laid off or might become chronically ill because the full-time use of respirators will have been made mandatory as a practical matter.

The point here is that the Secretary's decision does not give any assurance that the evidence of Record was weighed in the correct factual context. While the Secretary may have said that careful consideration was given to the inconvenience involved in respirator usage, the decision does not reflect recognition that the usage might need to be constant so that health and operational feasibility considerations needed to be weighed with this prospect in mind.

Finally, the Secretary ignored the fact that it will be wholly impossible for industry to obtain a sufficient supply

³⁷ 39 Fed. Reg. 35894.

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of the respiratory equipment now required if the Standard is allowed to become effective on January 1, 1975. A full explanation of this problem was presented to OSHA in the "Petition for Stay of Effective Date of Standard" referred to in the Statement of the Case in this brief. (A copy of the Petition is included herein as Appendix B.)

By way of a brief recap of the said Petition, the main point is that because of the great demand and an inadequate supply, it is physically impossible for the VCM and PVC industries to equip themselves with an adequate number of approved respiratory protection devices by January 1, 1975. In fact, not only is the designated equipment not available in sufficient supply, many of the devices specified for use have not as yet and will not be approved by January 1, 1975; they may never be approved. Even if these approvals were in hand, a sufficient supply of the respiratory equipment required could not be made available to the industry in sufficient time for it to comply with the Standard by its present effective date.⁸⁸

With the breadth of the application of the Standard encompassing fabricators, compounders, the transportation industry, and warehousing as well as the VCM and PVC manufacturers, the demand by industry at large for respiratory protective devices must be expected to escalate. Additionally, it is also certain that some parties regulated by the Standard, especially small firms, will not be able to afford to equip their employees with the required respiratory protective devices.⁸⁹

In summary, it is respectfully submitted, that despite the unrealistic and unfounded optimism expressed by the Secretary regarding anticipated engineering achievements, the net effect of the Permanent Standard will be to require full-time use of respiratory equipment by the industry's

⁸⁸ Appendix B and attachments thereto.

⁸⁹ *Id.*

work force. It is further submitted that the Secretary's failure to evaluate adequately either the feasibility of operations under these conditions, the availability of the respiratory equipment needed, or the impact on the health (or availability) of employees that full-time use of respirators would entail, warrants reversal and reevaluation of the Secretary's action in adopting the Vinyl Chloride Standard.

III

THE RECORD AS A WHOLE DOES NOT CONTAIN SUBSTANTIAL EVIDENCE TO JUSTIFY APPLICATION OF THE STANDARD TO FABRICATORS OR PROCESSORS OF PVC RESIN, MANY OF WHICH WOULD FIND IT ECONOMICALLY INFEASIBLE TO COMPLY.

As to its scope, the Standard would apply to the manufacture, reaction, packaging, repacking, storage, handling or use of VCM or PVC and regulates access to areas where VCM concentrations are in excess of the permissible exposure limits.⁴⁰

In explaining the scope of the Standard, the Secretary points out that the industry is divided into three segments which include VCM production, PVC or polymer production, and fabrication. As to the fabrication of PVC, the Secretary points out that a variety of techniques are used to form a finished product and that this portion of the industry accounts for the vast majority of employees whose employers range in size from those with a few employees to more sophisticated firms with larger work forces.⁴¹

Responding to an industry suggestion that PVC fabricators, processors and the like be exempt from the Standard inasmuch as they are already regulated by the more applicable clean air standards,⁴² and, further, because their

⁴⁰ 29 C.F.R. § 1910.93q(a)(2) and (e); 39 Fed. Reg. 35896.

⁴¹ 39 Fed. Reg. 35890.

⁴² 29 C.F.R. § 1910.93.

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exposure to VCM was known to be minute and controllable by existing engineering and work practice controls, the Secretary responded that it would be imprudent to grant a blanket exemption for fabricators because the Record evidence shows that at least some employees in that segment of the industry may be exposed in excess of the 1 ppm permissible exposure level.⁴³

The evidence of the Record shows that the fabricators and processors do not use VCM. They use only PVC resin and are, thus, in an inherently less susceptible position with regard to exposure. In fabricating and processing plants, the only potential exposure is from low levels of *residual* VCM present in the PVC.⁴⁴ Because of this, PVC fabricators and processors have very low levels of exposure in their operations. In almost every case reported, the occupational exposure was less than 1 ppm.⁴⁵

In addition to already inherently low exposure levels controllable by known engineering and work practices, this Standard confronts PVC fabricators and processors with a very serious economic feasibility problem. This segment

⁴³ 39 Fed. Reg. 35892. Acknowledging that most, if not all, fabricators currently have levels of 1 ppm over an 8 hour period or are capable of reaching the permitted exposure levels through known engineering controls in the immediate future, the Secretary nevertheless would include fabricators in this Standard and require them to conduct at least initial monitoring. 39 Fed. Reg. 35892-93.

⁴⁴ By means of explanation, when vinyl chloride is converted to polyvinyl chloride a very small portion of the vinyl chloride, that is, generally less than 0.1 percent remains unreacted in the polyvinyl chloride.

⁴⁵ Although many individual companies presented evidence that their fabrication operations had exposure levels below 1 ppm, the most comprehensive presentation on occupational exposure to VCM in this segment of the industry was presented in a block by five witnesses testifying for SPI, Messrs. Molinini, Beebe, Smith, Becker and Weaver. JA 4102 through 4176. In short, these reports, covering in excess of 70 plants where actual monitoring for VCM had been conducted in the very short time available, demonstrated that less than 10 workers had exposures for any time period above 1 ppm. Nonetheless, in each case listed, *average exposure was less than 1 ppm, i.e., less than 1 ppm for an 8 hour TWA.*

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of the industry is, in large part, composed of many smaller firms with few employees that, from a purely economic point of view, could not afford the costs of compliance with the Standard. The general increase in raw materials costs (an unavoidable result of this Standard), and the costs of monitoring, respiratory protection, medical surveillance and record keeping all militate against the likelihood that the bulk of this segment of the industry would be able to survive economically.⁴⁶

Also germane is the fact that no confirmed cases of carcinogenicity related to VCM have been found in PVC fabrication and processing operations.

Thus, the Secretary's decision to extend the scope of the Standard to polyvinyl chloride fabricators and processors is not founded on substantial evidence in the Record to show that it is economically feasible for this segment of the industry to achieve compliance with the Standard or that fabrication and processing operations are in any way similar to or have exposures of the same nature as existing vinyl chloride and polyvinyl chloride manufacturing operations, nor that any hazard exists in this segment of the industry. In short, there is no evidence of a need to regulate these areas.

The Standard's scope also extends to cover the storage, handling and transportation of PVC.⁴⁷ There is no evidence in the Record whatsoever to demonstrate that any hazard exists in ship, truck or rail transportation, ware-

⁴⁶ For example, on the one issue of the non-availability of PVC resin at a reasonable cost, the evidence is clear that PVC belting (used, e.g., as conveyor belting in coal mines), slush molded boots and a variety of other footwear, medical equipment, especially surgical tubing and blood bags, and joint sealing compound for airport runways, bridges and highways, among other items could no longer be produced and, since replacement materials are non-existent or scarce, these industries would, at the very least, suffer economic disaster if not close down completely. JA 387, 515, 1351, 1642 and 2075.

⁴⁷ 29 C.F.R. § 1910.93q(a)(2) and (e); 39 Fed. Reg. 35896.

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housing or other handling of PVC. Despite the fact that no hazard has been shown or even alleged, the Standard as written puts a direct and undue burden on the secondary industries that service the VCM and PVC manufacturers by providing transportation and storage.

In other regulations promulgated by OSHA, materials containing small amounts of a carcinogenic material are exempted from the application of regulations governing exposure to them. Specifically, in the regulations governing exposure to the "14 carcinogens" the regulations do not apply to trans-shipment of those materials in sealed containers nor do the regulations apply to liquid or solid mixtures containing less than from 1.0 to 0.1% of the carcinogenic substances.⁴⁸

In viewing the suggestions by industry that VCM should be regulated in a manner comparable to the "14 carcinogens", the Secretary responded that the cases are not comparable. It is true that the cases of VCM and the "14 carcinogens" are not precisely comparable; the "14 carcinogens" are materials that range from between 100 to 1000 times the carcinogenic potential of VCM.⁴⁹

In this area, too, it is clear that the Secretary's decision was not based on substantial evidence in the Record; his views are also at variance with experience gained in establishing the Standards for the "14 carcinogens." This all bespeaks the type of arbitrary and capricious decision making which characterizes the instant case. More important, these failings, like those previously discussed demonstrate the necessity and propriety for remanding this matter to the Department of Labor with clear instructions to it to base its VCM Standard on facts supported by substantial evidence, feasibility and relevant precedents.

⁴⁸ 29 C.F.R. §§ 1910.93c through 1910.93p.

⁴⁹ JA 3975-76.

IV

THE VINYL CHLORIDE STANDARD IS SO VAGUE AND INDEFINITE THAT IT VIOLATES THE CONSTITUTIONAL RIGHT TO DUE PROCESS AND FAILS TO COMPLY WITH THE REQUIREMENTS OF THE ACT

As noted above, the Vinyl Chloride Standard is couched in the alternative: either an employer must reduce vinyl chloride exposure to the permissible exposure limits of 1 ppm and 5 ppm or, in the alternative, the employer must provide respiratory protective equipment *and* at the same time reduce exposures to the greatest extent feasible as soon as feasible. This part of the Standard, 29 C.F.R. § 1910.93q(f)(2), provides:

"Wherever *feasible* engineering and work practice controls which can be instituted immediately are not sufficient to reduce exposures to at or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest *practicable* level, and shall be supplemented by respiratory protection in accordance with paragraph (g) of this section. A program shall be established and implemented to reduce exposures to at or below the permissible exposure limit, or to the greatest extent *feasible*, solely by means of engineering and work practice controls, as soon as *feasible*" (emphasis added).

Since the permissible limit is unattainable, as a practical matter the only standard applicable to employers for the foreseeable future is the second alternative, to provide respiratory equipment and to reduce exposures to the lowest "practicable" level by "feasible" engineering and work practice controls. In direct contrast with the specific and objective criteria established for compliance with the permissible limit, this portion of the Standard is so vague and indefinite as to be violative of the Due Process Clause of the Fifth Amendment to the United States Constitution and the specific requirement contained in § 6(b)(5) of the Act, 29 U.S.C. § 655(b)(5), that, whenever practicable, health and safety standards "... shall be expressed in terms of

objective criteria . . ." The ambiguity inherent in this part of the Standard provides absolutely no guidance to employers and will necessarily result in confusion and uncertainty, not only with respect to the "feasible" methods which are required to comply with the Standard, but also with respect to the exposure levels sought to be achieved, for such levels are expressed only in terms of what may be the "lowest practicable" levels attainable.

The due process guarantees of the Fifth and Fourteenth Amendments void all governmental attempts to regulate conduct where, as here, substantial penalties may be imposed for failure to comply with regulations, OSH Act § 17; 29 U.S.C. § 666, which are so vague and indefinite as to leave the regulated parties uncertain as to the conduct prohibited, or which leave judicial and administrative officers free to determine, without any definitely fixed standards, what is prohibited and what is not. *Giaccio v. Pennsylvania*, 382 U.S. 399 (1966); *Kraus & Bros. v. United States*, 327 U.S. 614 (1946); *United States v. L. Cohen Grocery Co.*, 255 U.S. 71 (1921). The objectivity requirement of § 6(b)(5) of this Act, 29 U.S.C. § 655(b)(5), was obviously designed to insure that any standards promulgated pursuant to the Act observe the well established principle that any statute or administrative regulation

" . . . which either forbids or requires the doing of an act in terms so vague that men of common intelligence must necessarily guess at its meaning and differ as to its application, violates the first essential of due process of law." *Connally v. General Construction Co.*, 269 U.S. 385, 391 (1926); *Kraus & Bros. v. United States*, *supra*.

In addition, if arbitrary and discriminatory enforcement of administrative regulations is to be prevented, regulations must provide explicit standards for those who apply them. A vague regulation impermissibly delegates basic policy matters to those responsible for its enforcement for resolution on an *ad hoc* and subjective basis with the attendant dangers of arbitrary and discriminatory applica-

tion. *Giaccio v. Pennsylvania, supra*.⁵⁰ By insisting on objective criteria whenever practicable, § 6(b)(5) of the Act has the dual purpose of insuring that the Secretary observes the dictates of fundamental due process as well as requiring that the Secretary "... take reasonable steps to enable the [Courts] to carry out the task [of meaningful judicial review] that Congress has imposed upon them." *Associated Industries, supra*, at 354.

Despite these clear and well-established Constitutional and statutory requirements, the Secretary has promulgated a Standard which fails to meet the basic clarity and specificity requirements in two vital areas. First of all, the Standard contains absolutely no discernible criteria for an employer to use in determining what engineering controls and work practices required to be implemented are "feasible." Determination of "feasibility" is clearly a difficult matter, involving as it does a balancing of many complex factors, including, among others, worker safety, technological capability and economic cost. *I.U.D. v. Hodgson, supra*, at 477-78. Yet, this Standard does not in any way inform employers, employees, OSHA or the Courts how this balance is to be struck in any particular case.

Secondly, the Standard also fails to set forth in definite terms the objective sought to be achieved through the implementation of whatever "engineering controls and work practices may be feasible." The exposure levels for which

⁵⁰ Where First Amendment freedoms are not involved, a due process challenge of this kind is generally made by a convicted party and is usually limited to a review "on its face." See, *Ashton v. Kentucky*, 384 U.S. 195 (1966); *United States v. National Dairy Products Corp.*, 372 U.S. 29 (1963); *Stromberg v. California*, 283 U.S. 359 (1931). The "Standard for Exposure to Vinyl Chloride" is presented to this Court for review under the authority of § 6(f) of the Occupational Safety and Health Act, 29 U.S.C. § 655(f). Therefore, the distinction between First Amendment and non-First Amendment cases is not relevant here. The Standard is here for review "on its face" pursuant to statutory authority to challenge "the validity of such standard."

employers must strive in the absence of the ability to achieve the permissible limits are totally indeterminate and undefined, and an employer will never know that he has failed to reduce exposure levels in his plants to the "lowest practicable" levels until he is cited for violating the Standard. To confirm the lack of required objectivity in this portion of the Standard, the Court need only look to the Secretary's statement that "... any estimate as to the lowest feasible level attainable must necessarily involve subjective judgment."⁵¹

Thus, the Standard is deficient in that it does not provide any ascertainable and objective criteria by which an employer can determine if the engineering controls and work practices he has instituted are sufficient to comply with the Standard, or that the resulting exposure levels are the "lowest practicable" levels required by the Standard. In short, unless an employer has reduced vinyl chloride exposure to the admittedly unattainable "permissible exposure limit" (1 ppm-5 ppm), he can have no assurance that he is not in violation of the Standard, no matter how strenuous his efforts to comply. The Secretary has admitted this, since he also concedes in the preamble to the Standard that it is not clear "... to what extent exposures can be feasibly reduced."⁵²

⁵¹ 39 Fed. Reg. 35892.

⁵² 39 Fed. Reg. 35892. Other examples of the type of ambiguity that is bound to lead to enforcement difficulty are the provisions in §§ 1910.93q(e) and (g) of the Standard. It is difficult to believe that the Secretary intended the results these sections could bring into play.

Under § 1910.93q(e)(2) "authorized personnel" are those persons with a duty requiring them to enter a "regulated area," i.e. one where VCM concentrations exceed the permissible limit, and specific authorization from their employers to do so. In addition, entry is limited for purposes of life rescue when the atmospheric concentration of VCM is unknown or in excess of 36,000 ppm. 29 C.F.R. § 1910.93q(g)(5).

These two requirements, individually and in combination, effectively prevent emergency repairs.

In the instance where an emergency, such as a broken valve or ruptured pipe, occurs, anyone who is not specifically authorized to enter or who has

Under similar circumstances, the Court of Appeals for the Sixth Circuit, in *Chrysler Corp. v. Dep't of Transportation*, 472 F.2d 659 (6th Cir. 1972), struck down a motor vehicle safety standard involving airbags as an alternative to passive restraints in automobiles. The manufacturers there challenged the air bag standard because the test procedure and the test device specified for measuring compliance with the standard were not sufficiently objective. The specification to be met there was set forth in objective terms, but there were several technical ambiguities as to the permissible flexibility in certain portions of the test procedure. In vacating the standard the Court of Appeals rejected the use of subjective judgment, the very basis on which the Secretary proposes to proceed here, saying, at 675:

"In the absence of objectively defined performance requirements and test procedures, a manufacturer has no assurance that his own test results will be duplicated in tests conducted by the Agency. Accordingly, such objective criteria are absolutely necessary so that 'the question of whether there is compliance with the standard can be answered by objective measurement and *without recourse to any subjective determination.*'" (Emphasis added.)

A similar deficiency in a stationary source standard governing emissions from cement plants promulgated by the Environmental Protection Agency was sufficient to require reconsideration of the standard by the Agency in *Portland Cement Association v. Ruckelshaus*, 486 F.2d 375, 400-01 (D.C. Cir. 1973). The standard in question provided that

no duty to conduct emergency repairs is prohibited from entering and cannot take quick action to repair the damage.

In the same instance, if the concentration of VCM is unknown or in excess of 36,000 ppm, authorized personnel may enter the area *only* for purposes of life rescue. They can help persons to escape but cannot take any preventive measures whatsoever. Again, quick action cannot be taken to repair the damage or otherwise reduce the hazard of fire or explosion. Thus, a greater hazard than currently exists is created by the Standard's regulated area access and entry restrictions. This is patently ridiculous.

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particulate matter discharged from a kiln must not exceed "... 10 percent opacity, except that where the presence of uncombined water is the only reason for failure to meet the requirements for this subparagraph. . . ." The Court refused to approve the standard because inspectors were unable to determine with any reasonable degree of accuracy whether any particular level of emissions met the standard.

Not only will the inherent vagueness of the Vinyl Chloride Standard leave employers in the dark as to what is expected of them, but the Standard invites arbitrary and discriminatory enforcement on an *ad hoc* basis by the OSHA officers charged with determining compliance. As presently framed, the Standard will require those charged with responsibility for its enforcement to exercise extraordinary efforts to avoid contradictory enforcement since these officials have no more guidance on the application of the Standard than do employers. In effect, the Secretary has impermissibly delegated his responsibility to promulgate standards to the discretion of individual compliance officers scattered throughout the United States.

Finally, the Secretary has acknowledged that any estimate as to the lowest exposure levels attainable "... must necessarily involve subjective judgment."⁵³ The failure of the Standard to specify any criteria upon which such judgments might be based will prevent any meaningful judicial review of citations for violations of the Standard. The Standard must, therefore, be set aside and the case remanded to the Secretary to take such actions as may be necessary to enable employers and reviewing courts alike "... to carry out the task that Congress has imposed on them." *Associated Industries, supra*, at 354.

⁵³ 39 Fed. Reg. 35892.

THE VINYL CHLORIDE LABELING REQUIREMENTS
FAIL TO COMPLY WITH THE REQUIREMENTS OF
THE OCCUPATIONAL SAFETY AND HEALTH ACT
AND ARE, THEREFORE, UNLAWFUL

A. The Secretary Exceeded His Statutory Authority in That
the Labeling Which Would Be Required by the Standard
Does Not Adequately Inform Employees as Required by
the Occupational Safety and Health Act

The Occupational Safety and Health Act of 1970 indicates that any standard promulgated by the Secretary of Labor in the area of employee safety and health shall prescribe the use of labels, as necessary, to insure that employees are apprised of all hazards to which they are exposed, all relevant symptoms, the appropriate emergency treatment, and the proper conditions and precautions of safe use or exposure. OSH Act § 6(b)(7); 29 U.S.C. § 655(b)(7). The purpose of safety and health labeling is, therefore, instructive and requires responsible, affirmative information about the actual danger and the methods of treatment and prevention. Here, the Secretary would require only an identification of the chemical, "vinyl chloride," and inclusion of the words "Cancer-Suspect Agent."⁵⁴ This type of labeling will not practically inform those working with VCM of the danger, the methods of work hazard prevention, or the treatment for any possible hazard that may arise. The scare word "cancer" passes no constructive information to the worker, tells an employee nothing about what the real danger is, how he may be injured, or what he should do to prevent injury.

On the purpose of labeling, the House Committee Report stated:

"Basically, the worker needs to have adequate advance knowledge of hazards in order to protect himself from damaging exposures. He needs proper protective equipment and the information necessary to treat

⁵⁴ 29 C.F.R. § 1910.93(1); 39 Fed. Reg. 35898.

emergencies if they arise. He should not be economically coerced into a hazardous job. Since inadvertent exposure to unknown products or processes often causes severe and immediate reactions, the exposed worker must know what type of exposure he has suffered in order to use proper treatment. The worker especially needs this information in cases of toxic substances which have delayed or latent ill effects."

H. Rep. No. 91-1291, 91st Cong., 2 Sess. 29 (1970).

The Occupational Safety and Health Act specifically instructs the Secretary to consider "... experience gained from this and other health and safety laws." OSH Act § 6(b)(5); 29 U.S.C. § 655(b)(5).

A review of the standards dealing with another carcinogen, asbestos fibers, indicates that the Secretary has not followed his own previous experience. In dealing with asbestos fibers, he did properly inform the employees of the actual danger and how to prevent health hazards. The labeling specifications for asbestos fibers are:

"Caution—Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause
Serious Bodily Harm."⁵⁵

These asbestos labeling standards were challenged by the unions which proposed including the words "danger" or "warning" and making reference to particular health problems, such as cancer or asbestosis. The government argued, and the Court agreed, the language selected by the Secretary was proper. *I.U.D. v. Hodgson, supra*, at 484.

It is on this basis that the plastics industry proposed alternative labeling in this case.⁵⁶ The following is a

⁵⁵ 29 C.F.R. § 1910.93a(g)(2).

⁵⁶ While it is true that the "14 carcinogens" (29 C.F.R. 1910.93c through 1910.93p) are required to employ cancer-type labeling for other than mixtures containing only low levels of the substances, this case is more analogous to that of asbestos, the "14 carcinogens" being substances that are from 100 to 1000 times more carcinogenic than vinyl chloride. JA 3975-76.

comparison of the labeling prescribed in the Standard and the industry proposal.

(1) Entrances to regulated areas:

Industry Proposal

VINYL CHLORIDE VAPOR HAZARD
USE ASSIGNED PROTECTIVE EQUIPMENT WHEN ALARM
SIGNAL IS ACTIVATED
WHEN SIGNAL IS ACTIVATED, DO NOT REMAIN IN
ALARM AREA UNLESS YOUR WORK REQUIRES IT
BREATHING EXCESSIVE QUANTITIES OF VINYL CHLORIDE VAPOR
MAY BE HAZARDOUS TO YOUR HEALTH
AUTHORIZED PERSONNEL ONLY

Secretary's Standard

CANCER-SUSPECT AGENT AREA
AUTHORIZED PERSONNEL ONLY

(2) Areas containing hazardous operations:

Industry Proposal

VINYL CHLORIDE VAPOR IN THIS AREA
PROTECTIVE CLOTHING AND
RESPIRATORS REQUIRED
AUTHORIZED PERSONNEL ONLY

Secretary's Standard

CANCER-SUSPECT AGENT IN THIS AREA
PROTECTIVE EQUIPMENT REQUIRED
AUTHORIZED PERSONNEL ONLY

(3) Containers of PVC resin waste from reactors:

Industry Proposal

VINYL CHLORIDE CONTAMINATED MATERIAL
MAY BE HAZARDOUS TO YOUR HEALTH
DISPOSE OF OR DECONTAMINATE USING ADEQUATE
VENTILATION OR PROTECTIVE EQUIPMENT

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Secretary's Standard

Contaminated with
VINYL CHLORIDE CANCER-SUSPECT AGENT

(4) Containers of PVC:

Industry Proposal

POLYVINYL CHLORIDE

CAUTION

CONTAINS VINYL CHLORIDE

AVOID BREATHING VAPOR OR DUST

CLOSED CONTAINERS OF POLYVINYL CHLORIDE MAY CONTAIN

VAPOR LEVELS OF VINYL CHLORIDE WHICH MAY

BE HAZARDOUS TO YOUR HEALTH

OPEN ONLY IN WELL-VENTILATED AREAS OR

WEAR RESPIRATORY PROTECTION

Secretary's Standard

POLYVINYL CHLORIDE (or Trade Name)

CONTAINS

VINYL CHLORIDE

VINYL CHLORIDE IS A CANCER-SUSPECT AGENT

(5) Containers of Vinyl Chloride:

Industry Proposal

VINYL CHLORIDE

DANGER

EXTREMELY FLAMMABLE GAS UNDER PRESSURE

AVOID CONTACT WITH LIQUID OR VAPOR UNLESS FULLY

PROTECTED BY AUTHORIZED EQUIPMENT

IN THE EVENT OF ACUTE EXPOSURE SEEK MEDICAL

ASSISTANCE IMMEDIATELY

Secretary's Standard

VINYL CHLORIDE

EXTREMELY FLAMMABLE GAS UNDER PRESSURE

CANCER-SUSPECT AGENT

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A comparison of the type of labeling the industry recommended with the simplistic "scare headline" type prescribed in the Secretary's Standard must inevitably lead to the conclusion that the former might aid an employee to deal with a hazard, while the latter would be of no help at all. It is, therefore, respectfully submitted that the labeling provisions in the Standard do not comport with either the spirit or express provisions in the enabling Statute, will accomplish only great mischief without concomitant benefit to the work force, and should, therefore, be declared invalid and unlawful.

B. The Secretary Exceeded His Statutory Authority And Illegally Usurped That of Another Federal Department By Adopting the Labeling Provisions in the Standard.

In addition to the basic defect discussed above, in promulgating the labeling requirements for vinyl chloride, the Secretary also failed to observe another important statutory limitation on the scope of his authority. Under the terms of the Act, the Secretary is explicitly precluded from exercising power to govern working conditions of employees over which other federal agencies exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health. OSH Act § 4(b)(1); 29 U.S.C. § 653(b)(1).

In its report, the Senate Labor Committee highlighted this statutory limitation as follows:

"... [I]t does not modify other Federal laws prescribing safety and health standards. The bill does not authorize the Secretary of Labor to assert authority under this bill over particular working conditions regarding which another federal agency exercises statutory authority to prescribe or enforce standards affecting occupational safety and health."

Sen. Rep. No. 91-1282, 91st Cong. 2d Sess. (1970);
3 U.S. Code Cong. & Admin. News 5199 (1970).

The labeling requirements in the Standard under review here would control labeling on all containers of vinyl chloride⁵⁷ and, thereby, apply to the transportation of VCM in interstate commerce. The Secretary would require either the label:

Vinyl Chloride
Extremely Flammable Gas Under Pressure
Cancer-Suspect Agent

or a label in accordance with the Department of Transportation (DOT) Regulations, 49 C.F.R. § 173.400, *et seq.*, and the addition of the words "Cancer-Suspect Agent."⁵⁸

The Secretary has clearly extended his Standard to the area of transportation labeling for VCM while recognizing that the field is occupied by DOT. In fact, DOT has been expressly authorized by Congress to formulate regulations for the safe transportation of hazardous materials, DOT Act; 49 U.S.C. § 1655(e)(4), and has extensive regulations for the labeling of VCM in transportation at 49 C.F.R. §§ 172.5, 173.402(3), .404 and .407. If the Secretary of Labor is permitted to superimpose his Department's labeling preferences or desires wherever and whenever he chooses, this could adversely affect and disrupt the entire regulatory scheme of DOT in the standards it sets for hazardous substances in transportation.

In exceeding his statutory authority to act only in non-regulated areas, and in infringing on already existing labeling for VCM, the Secretary has promulgated an unlawful Standard in 29 C.F.R. § 1910.93q(1). Thus, the labeling requirements for VCM in containers must be held unlawful along with the other provisions heretofore discussed.

⁵⁷ 29 C.F.R. § 1910.93q(a)(3) and (1)(5); 39 Fed. Reg. 35896-98.

⁵⁸ 29 C.F.R. § 1910.93q(1)(5); 39 Fed. Reg. 35898.

VI

CONCLUSION

In consideration of the Secretary of Labor's failure to promulgate a Standard based on the substantial evidence present in the Record, his failure to promulgate a technologically or economically feasible Standard, his failure to provide a sufficiently clear statement of proscribed conduct to inform those regulated of what they must do to comply, and his failure to provide for proper labeling, it is hereby urged that 29 C.F.R. § 1910.93q be declared inoperative as unlawful and invalid, and that this matter be remanded to the Department of Labor for further proceedings leading to action which would comport with the statutory requirements.

Respectfully submitted,

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APPENDIX

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APPENDIX A

STATUTES AND REGULATIONS •

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Constitution of the United States, Amendment 5

AMENDMENT V—CAPITAL CRIMES; DOUBLE
JEOPARDY; SELF-INCRIMINATION; DUE PROC-
ESS; JUST COMPENSATION FOR PROPERTY

No person shall be held to answer for a capital, or other-
wise infamous crime, unless on a presentment or indict-
ment of a Grand Jury, except in cases arising in the land
or naval forces, or in the Militia, when in actual service in
time of War or public danger; nor shall any person be
subject for the same offence to be twice put in jeopardy
of life or limb; nor shall be compelled in any criminal case
to be a witness against himself, nor be deprived of life,
liberty, or property, without due process of law; nor shall
private property be taken for public use, without just com-
pensation.

* Pertinent portions of the Federal Register and 29 C.F.R. § 1910.93q, et
seq. cited in this brief are contained in the Joint Appendix.

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Occupational Safety and Health Act

29 U.S.C. § 653

§ 653. Geographic applicability; judicial enforcement; applicability to existing standards; report to Congress on duplication and coordination of Federal laws; workmen's compensation law or common law or statutory rights, duties, or liabilities of employers and employees unaffected.

(b) (1) Nothing in this chapter shall apply to working conditions of employees with respect to which other Federal agencies, and State agencies acting under section 2021 of Title 42, exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.

29 U.S.C. § 654

§ 654. Duties of employers and employees

(a) Each employer—

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

29 U.S.C. § 655

§ 655. Standards—Promulgation by Secretary of national consensus standards and established Federal standards; time for promulgation; conflicting standards.

*Procedure for promulgation, modification, or revocation
of standards*

(b) The Secretary may by rule promulgate, modify, or revoke any occupational safety or health standard in the following manner:

(5) The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this

subsection, shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life. Development of standards under this subsection shall be based upon research, demonstrations, experiments, and such other information as may be appropriate. In addition to the attainment of the highest degree of health and safety protection for the employee, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experience gained under this and other health and safety laws. Whenever practicable, the standard promulgated shall be expressed in terms of objective criteria and of the performance desired.

(7) Any standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure. Where appropriate, such standards shall also prescribe suitable protective equipment and control or technological procedures to be used in connection with such hazards and shall provide for monitoring or measuring employee exposure at such locations and intervals, and in such manner as may be necessary for the protection of employees. In addition, where appropriate, any such standard shall prescribe the type and frequency of medical examinations or other tests which shall be made available, by the employer or at his cost, to employees exposed to such hazards in order to most effectively determine whether the health of such employees is adversely affected by such exposure. In the event such medical examinations are in the nature of research, as determined by the Secretary of Health, Edu-

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cation, and Welfare, such examinations may be furnished at the expense of the Secretary of Health, Education, and Welfare. The results of such examinations or tests shall be furnished only to the Secretary or the Secretary of Health, Education, and Welfare, and, at the request of the employee, to his physician. The Secretary, in consultation with the Secretary of Health, Education, and Welfare, may by rule promulgated pursuant to section 553 of Title 5, make appropriate modifications in the foregoing requirements relating to the use of labels or other forms of warning, monitoring or measuring, and medical examinations, as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard.

Judicial review

(f) Any person who may be adversely affected by a standard issued under this section may at any time prior to the sixtieth day after such standard is promulgated file a petition challenging the validity of such standard with the United States court of appeals for the circuit wherein such person resides or has his principal place of business, for a judicial review of such standard. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary. The filing of such petition shall not, unless otherwise ordered by the court, operate as a stay of the standard. The determination of the Secretary shall be conclusive if supported by substantial evidence in the record considered as a whole.

29 U.S.C. § 666

§ 666. Civil and criminal penalties.

(a) Any employer who willfully or repeatedly violates the requirements of section 654 of this title, any standard, rule, or order promulgated pursuant to section 655 of this title, or regulations prescribed pursuant to this chapter,

may be assessed a civil penalty of not more than \$10,000 for each violation.

(b) Any employer who has received a citation for a serious violation of the requirements of section 654 of this title, of any standard, rule, or order promulgated pursuant to section 655 of this title, or of any regulations prescribed pursuant to this chapter, shall be assessed a civil penalty of up to \$1,000 for each such violation.

(c) Any employer who has received a citation for a violation of the requirements of section 654 of this title, of any standard, rule, or order promulgated pursuant to section 655 of this title, or of regulations prescribed pursuant to this chapter, and such violation is specifically determined not to be of a serious nature, may be assessed a civil penalty of up to \$1,000 for each such violation.

(d) Any employer who fails to correct a violation for which a citation has been issued under section 658(a) of this title within the period permitted for its correction (which period shall not begin to run until the date of the final order of the Commission in the case of any review proceeding under section 659 of this title initiated by the employer in good faith and not solely for delay or avoidance of penalties), may be assessed a civil penalty of not more than \$1,000 for each day during which such failure or violation continues.

(e) Any employer who willfully violates any standard, rule, or order promulgated pursuant to section 655 of this title, or of any regulations prescribed pursuant to this chapter, and that violation caused death to any employee, shall, upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than six months, or by both; except that if the conviction is for a violation committed after a first conviction of such person, punishment shall be by a fine of not more than \$20,000 or by imprisonment for not more than one year, or by both.

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(f) Any person who gives advance notice of any inspection to be conducted under this chapter, without authority from the Secretary or his designees, shall, upon conviction, be punished by a fine of not more than \$1,000 or by imprisonment for not more than six months, or by both.

(g) Whoever knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to this chapter shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six months, or by both.

(h) Any employer who violates any of the posting requirements, as prescribed under the provisions of this chapter, shall be assessed a civil penalty of up to \$1,000 for each violation.

(i) The Commission shall have authority to assess all civil penalties provided in this section, giving due consideration to the appropriateness of the penalty with respect to the size of the business of the employer being charged, the gravity of the violation, the good faith of the employer, and the history of previous violations.

(j) For purposes of this section, a serious violation shall be deemed to exist in a place of employment if there is a substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment unless the employer did not, and could not with the exercise of reasonable diligence, know of the presence of the violation.

(k) Civil penalties owed under this chapter shall be paid to the Secretary for deposit into the Treasury of the United States and shall accrue to the United States and may be recovered in a civil action in the name of the United States brought in the United States district court for the district

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where the violation is alleged to have occurred or where the employer has its principal office.

49 U.S.C. § 1655 DEPARTMENT OF TRANSPORTATION ACT

§ 1655. Transfer of functions—Powers and duties of the Secretary of Commerce and other offices and officers of the Department of Commerce relating to highways, ground transportation generally, aircraft, pilotage, and traffic and highway safety generally.

Interstate Commerce Commission; functions, powers, and duties relating to safety appliances and equipment on railroad engines and cars, protection of employees and travelers, hours of service, medals for heroism, explosives and other dangerous articles, standard time zones and daylight saving time; safety of operation and equipment.

(e) There are hereby transferred to and vested in the Secretary all functions, powers, and duties of the Interstate Commerce Commission, and of the Chairman, members, officers, and offices thereof, under—

(4) the following provisions of law relating generally to explosives and other dangerous articles: Sections 831-835 of Title 18.

Code of Federal Regulations

SUBPART G—OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL

29 C.F.R. § 1910.93 Air contaminants.

An employee's exposure to any material listed in table G-1, G-2, or G-3 of this section shall be limited in accordance with the requirements of the following paragraphs of this section.

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(a) Table G-1:

(1) *Materials with names preceded by "C"—Ceiling Values.* An employee's exposure to any material in table G-1, the name of which is preceded by a "C" (e.g., C Boron trifluoride), shall at no time exceed the ceiling value given for that material in the table.

(2) *Other materials—8-hour time weighted averages.* An employee's exposure to any material in table G-1, the name of which is not preceded by "C", in any 8-hour work shift of a 40-hour work week, shall not exceed the 8-hour time weighted average given for that material in the table.

(b) Table G-2:

(1) *8-hour time weighted averages.* An employee's exposure to any material listed in table G-2, in any 8-hour work shift of a 40-hour work week, shall not exceed the 8-hour time weighted average limit given for that material in the table.

(2) *Acceptable ceiling concentrations.* An employee's exposure to a material listed in table G-2 shall not exceed at any time during an 8-hour shift the acceptable ceiling concentration limit given for the material in the table, except for a time period, and up to a concentration not exceeding the maximum duration and concentration allowed in the column under "acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift".

(3) *Example.* During an 8-hour work shift, an employee may be exposed to a concentration of Benzene above 25 p.p.m. (but never above 50 p.p.m.) only for a maximum period of 10 minutes. Such exposure must be compensated by exposures to concentrations less than 10 p.p.m. so that the cumulative exposure for the entire 8-hour work shift does not exceed a weighted average of 10 p.p.m.

(c) Table G-3: An employee's exposure to any material listed in table G-3, in any 8-hour work shift of a 40-hour work week, shall not exceed the 8-hour time weighted average limit given for that material in the table.

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(d) Computation formulae:

(1)(i) The cumulative exposure for an 8-hour work shift shall be computed as follows:

$$E = \frac{C_a T_a + C_b T_b + \dots C_n T_n}{8}$$

where:

E is the equivalent exposure for the working shift.

C is the concentration during any period of time T where the concentration remains constant.

T is the duration in hours of the exposure at the concentration C .

The value of E shall not exceed the 8-hour time weighted average limit in table G-1, G-2, or G-3 for the material involved.

(ii) To illustrate the formula prescribed in subdivision (i) of this subparagraph, note that isoamyl acetate has an 8-hour time weighted average limit of 100 p.p.m. (table G-1). Assume that an employee is subject to the following exposure:

Two hours exposure at 150 p.p.m.

Two hours exposure at 75 p.p.m.

Four hours exposure at 50 p.p.m.

Substituting this information in the formula, we have

$$\frac{2 \times 150 + 2 \times 75 + 4 \times 50}{8} = 81.25 \text{ p.p.m.}$$

Since 81.25 p.p.m. is less than 100 p.p.m., the 8-hour time weighted average limit, the exposure is acceptable.

(2) (i) In case of a mixture of air contaminants an employer shall compute the equivalent exposure as follows:

$$E_m = \frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots \frac{C_n}{L_n}$$

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Where:

E_m is the equivalent exposure for the mixture.

C is the concentration of a particular contaminant.

L is the exposure limit for that contaminant, from table G-1, G-2, or G-3.

The value of E_m shall not exceed unity (1).

(ii) To illustrate the formula prescribed in subdivision (i) of this subparagraph consider the following exposures:

Material	Actual concentration of 8-hour exposure	8-hour time weighted average exposure limit
Acetone (Table G-1)	500 p.p.m.	1,000 p.p.m.
2-Butanone (Table G-1)	45 p.p.m.	200 p.p.m.
Toluene (Table G-2)	40 p.p.m.	200 p.p.m.

Substituting in the formula, we have:

$$E_m = \frac{500}{1,000} + \frac{45}{200} + \frac{40}{200}$$

$$E_m = 0.500 + 0.225 + 0.200$$

$$E_m = 0.925$$

Since E_m is less than unity (1), the exposure combination is within acceptable limits.

(e) To achieve compliance with paragraph (a) through (d) of this section, administrative or engineering controls must first be determined and implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or any other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this section. Any equipment and/or technical measures used for this purpose must be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with § 1910.134.

TABLE G-1

Substance	p.p.m.*	mg./M ¹
Acetaldehyde.....	200	200
Acetic acid.....	10	25
Acetic anhydride.....	5	20
Acetone.....	1,000	2,400
Acetonitrile.....	40	70
Acetylene dichloride, see 1, 2-Dichloroethylene.....		
Acetylene tetrabromide.....	1	14
Acrolein.....	0.1	0.25
Acrylamide—Skin.....		0.3
Acrylonitrile—Skin.....	20	45
Aldrin—Skin.....		0.25
Allyl alcohol—Skin.....	2	5
Allyl chloride.....	1	5
**C Allyl glycidyl ether (AGE).....	10	45
Allyl propyl disulfide.....	2	12
2-Aminoethanol, see Ethanolamine.....		
2-Aminopyridine.....	0.5	2
**Ammonia.....	80	25
Ammonium sulfamate (Am-mate).....		15
n-Amyl acetate.....	100	525
sec-Amyl acetate.....	125	650
Aniline—Skin.....	5	19
Anilidine (o, p-isomers)—Skin.....		0.5
Antimony and compounds (as Sb).....		0.5
ANTU (alpha naphthyl thiourea).....		0.5
Arsenic and compounds (as As).....		0.5
Arsine.....	0.05	0.2
Asiaphos-methyl—Skin.....		0.2
Barium (soluble compounds).....		0.5
p-Benzquinone, see Quinone.....		
Benzoyl peroxide.....	1	5
Benzyl chloride.....	1	5
Biphenyl, see Diphenyl.....		
Bisphenol A, see Diglycidyl ether.....		
Boron oxide.....	1	15
C Boron trifluoride.....	1	5
Bromine.....	0.1	0.7
Bromoform—Skin.....	0.5	5
Butadiene (1, 3-butadiene).....	1,000	2,300
Butanethiol, see Butyl mercaptan.....		
2-Butanone.....	200	500
2-Butoxy ethanol (Butyl Cellosolve)—Skin.....	20	240
Butyl acetate (n-butyl acetate).....	150	710
sec-Butyl acetate.....	200	850
tert-Butyl acetate.....	200	850
Butyl alcohol.....	100	200
sec-Butyl alcohol.....	150	440
tert-Butyl alcohol.....	200	300
O Butylamine—Skin.....	5	15
C tert-Butyl chromate (as CrO ₃)—Skin.....		0.1
n-Butyl glycidyl ether (BGE).....	50	270
*Butyl mercaptan.....	10	25
p-tert-Butyltoluene.....	20	80
Calcium arsenate.....	1	5
Calcium oxide.....	2	5
**Camphor.....	2	5
Carbaryl (Sevin ®).....		5

TABLE G-1—Continued

Substance	p.p.m.*	mg./M ¹
Carbon black.....		1.5
Carbon dioxide.....	5,000	5,000
Carbon monoxide.....	50	25
Chlordane—Skin.....		0.5
Chlorinated camphene—Skin.....		0.5
Chlorinated diphenyl oxide.....		0.5
*Chlorine.....	1	2
Chlorine dioxide.....	0.1	0.2
C Chlorine trifluoride.....	0.1	0.4
C Chloroacetaldehyde.....	1	3
o-Chloroacetophenone (phenacylchloride).....	0.05	0.3
Chlorobenzene (monochlorobenzene).....	75	350
o-Chlorobenzylidene malonanitrile (OCBM).....	0.05	0.4
Chlorobromomethane.....	200	1,050
2-Chloro-1,3-butadiene, see Chloroprene.....		
Chlorodiphenyl (42 percent Chlorine)—Skin.....		1
Chlorodiphenyl (54 percent Chlorine)—Skin.....		0.5
1-Chloro-2,3-epoxypropane, see Epichlorohydrin.....		
2-Chloroethanol, see Ethylene chlorohydrin.....		
Chloroethylene, see Vinyl chloride.....		
C Chloroform (trichloromethane).....	50	250
1-Chloro-1-nitropropane.....	20	100
Chloropicrin.....	0.1	0.7
Chloroprene (2-chloro-1,3-butadiene)—Skin.....	25	90
Chromium, sol. chromic, chromous salts as Cr.....		0.5
Metal and insol. salts.....		1
Coal tar pitch volatiles (benzene soluble fraction) anthracene, BaP, phenanthrene, acridine, chrysene, pyrene.....		0.2
Cobalt, metal fume and dust.....		0.1
Copper fume.....		0.1
Dusts and Mists.....		1
Cotton dust (raw).....		15
Crag® herbicide.....		22
Cresol (all isomers)—Skin.....	5	5
Crotonaldehyde.....	2	5
Cumene—Skin.....	50	245
Cyanide (as CN)—Skin.....		5
Cyclohexane.....	200	1,050
Cyclohexanol.....	50	200
Cyclohexanone.....	50	200
Cyclohexene.....	200	1,015
Cyclopentadiene.....	75	200
2, 4-D.....		10
DDT—Skin.....		1
DDVP, see Dichlorvos.....		
Decaborane—Skin.....	0.05	0.3
Demeton®—Skin.....		0.1
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone).....	50	240
1,2-diaminoethane, see Ethylenediamine.....		
Diametobane.....	0.2	0.4
Diborane.....	0.1	0.1

See footnotes at end of table.

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TABLE G-1—Continued

Substance	p.p.m.	mg./M ¹
Dibutylphthalate		5
O-o-Dichlorobenzene	50	300
p-Dichlorobenzene	75	430
Dichlorodifluoromethane	1,000	4,000
1,3-Dichloro-4,4-dimethylhydantoin		0.2
1,1-Dichloroethane	100	400
1,2-Dichloroethylene	200	700
C Dichloroethyl ether—Skin	15	90
Dichloromethane, see Methylenechloride		
Dichloromono fluoromethane	1,000	4,300
C 1,1-Dichloro-1-nitroethane	10	60
1,2-Dichloropropane, see Propylenedichloride		
Dichlorotetrafluoroethane	1,000	7,000
Dichlorvos (DDVP)—Skin		1
Dieldrin—Skin		0.25
Diethylamine	25	75
Diethylamino ethane—Skin	10	45
Diethylether, see Ethyl ether		
Difluorodibromomethane	100	800
C Diglycidyl ether (DGE)	0.5	2.5
Dihydroxybenzene, see Hydroquinone		
Dibutyl ketone	50	300
Dibutylamine—Skin	5	30
Dimethoxybenzene, see Methyl		
Dimethyl acetamide—Skin	10	35
Dimethylamine	10	15
Dimethylaminobenzene, see Xylidene		
Dimethylaniline (N-dimethylaniline)—Skin	5	25
Dimethylbenzene, see Xylene		
Dimethyl 1,3-dibromo-2,2-dichloroethyl phosphate, (Dibrom)		1
Dimethylformamide—Skin	10	30
2,4-Dimethylheptanone, see Diisobutyl ketone		
1,1-Dimethylhydrazine—Skin	0.5	1
Dimethylphthalate		5
Dimethylsulfate—Skin	1	5
Dinitrobenzene (all isomers)—Skin		1
Dinitro-o-cresol—Skin		0.2
Dinitrotoluene—Skin		1.5
Dioxane (Diethylene dioxide)—Skin	100	300
Diphenyl	0.2	1
Diphenylmethane diisocyanate (see Methylene bisphenyl isocyanate (MDI))		
Dipropylene glycol methyl ether—Skin	100	600
Di-sec-octyl phthalate (Di-2-ethylhexylphthalate)		5
Endrin—Skin		0.1
Epichlorohydrin—Skin	5	15
EPN—Skin		0.5
1,3-Epoxypropane, see Propyleneoxide		

TABLE G-1—Continued

Substance	p.p.m.	mg./M ¹
2,3-Epoxy-1-propanol, see Glycidol		
Ethanethiol, see Ethylmercaptan		
Ethanamine	3	6
2-Ethoxyethanol—Skin	300	700
2-Ethoxyethyl acetate (Cellosolve acetate)—Skin	100	540
Ethyl acetate	400	1,400
Ethyl acrylate—Skin	25	100
Ethyl alcohol (ethanol)	1,000	1,900
Ethylamine	10	15
Ethyl sec-amyl ketone (2-methyl-3-heptanone)	25	130
Ethyl benzene	100	435
Ethyl bromide	300	800
Ethyl butyl ketone (2-Heptanone)	50	230
Ethyl chloride	1,000	2,000
Ethyl ether	400	1,300
Ethyl formate	100	300
C Ethyl mercaptan	10	25
Ethyl silicate	100	500
Ethylene chlorohydrin—Skin	5	15
Ethylene diamine	10	25
Ethylene dibromide, see 1,2-Dibromoethane		
Ethylene dichloride, see 1,2-Dichloroethane		
C Ethylene glycol dimethyl and/or Nitroglycerin—Skin	0.2	1
Ethylene glycol monomethyl ether acetate, see Methyl cellosolve acetate		
Ethyleneimine—Skin	0.5	1
Ethylene oxide	50	50
Ethylidene chloride, see 1,1-Dichloroethane		
N-Ethylmorpholine—Skin	20	50
Ferbam		15
Ferrocyanide dust		1
Fluoride (as F)		2.5
Fluorine	0.1	0.2
Fluorotrichloromethane	1,000	4,000
Formic acid	5	5
Furfural—Skin	5	20
Furfuryl alcohol	50	200
Glycidol (2,3-Epoxy-1-propanol)	20	180
Glycol monomethyl ether, see 2-Ethoxyethanol		
Guthion (S), see Asinphos-methyl		
Haftium		0.5
Heptachlor—Skin		0.5
Heptane (n-heptane)	500	2,000
Hexachloroethane—Skin	1	10
Hexachloronaphthalene—Skin		0.2
Hexane (n-hexane)	500	1,800
2-Hexanone	100	410
Hexone (Methyl isobutyl ketone)	100	410
sec-Hexyl acetate	50	300
Hydrazine—Skin	1	1.5
Hydrogen bromide	2	10

See footnotes at end of table.

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TABLE G-1—Continued

Substance	p.p.m.*	mg./M ^b
C Hydrogen chloride.....	5	7
Hydrogen cyanide—Skin.....	10	11
Hydrogen peroxide (30%).....	1	1.4
Hydrogen selenide.....	0.05	0.2
Hydroquinone.....	1	1
Iodine.....	0.1	10
Iron oxide (fume).....	100	825
Isamyl acetate.....	100	360
Isamyl alcohol.....	150	700
Isobutyl acetate.....	100	200
Isobutyl alcohol.....	25	140
Isophorone.....	250	960
Isopropyl acetate.....	400	960
Isopropyl alcohol.....	5	12
Isopropylamine.....	500	2,100
Isopropyl ether.....	50	240
Isopropyl glycidyl ether (IGE).....	0.5	0.9
Ketene.....	0.15	0.5
Lead arsenate.....	0.025	0.025
Lindane—Skin.....	1,000	1,900
Lithium hydride.....	15	15
L.P.G. (liquid petroleum gas).....	15	1
Magnesium oxide fume.....	0.25	5
Malathion—Skin.....	25	100
Maleic anhydride.....	10	12
C Manganese.....	100	444
Methyl acetate.....	20	80
Methanethiol, see Methyl mercaptan.....	15	
Methoxychlor.....	15	
2-Methoxyethanol, see Methyl cellosolve.....		
Methyl acetate.....	200	610
Methyl acetylene (propyne).....	1,000	1,680
Methyl acetylene-propadiene mixture (MAFP).....	1,000	1,800
Methyl acrylate—Skin.....	10	35
Methylal (dimethoxymethane).....	1,000	1,100
Methyl alcohol (methanol).....	200	200
Methylamine.....	10	12
Methyl amyl alcohol, see Methyl isobutyl carbinol.....		
Methyl (n-amyl) ketone (3-Heptanone).....	100	444
C Methyl bromide—Skin.....	20	80
Methyl butyl ketone, see 2-Heptanone.....		
Methyl cellosolve—Skin.....	25	120
Methyl cellosolve acetate—Skin.....	250	1,900
Methyl chloroform.....	800	2,400
Methylcyclohexane.....	100	470
Methylcyclohexanol.....	100	460
o-Methylcyclohexanone—Skin.....	100	460
Methyl ethyl ketone (MEK), see 2-Butanone.....		
Methyl formate.....	100	360
Methyl iodide—Skin.....	5	25
Methyl isobutyl carbinol—Skin.....	25	100
Methyl isobutyl ketone, see Hexane.....		
Methyl isocyanate—Skin.....	0.02	0.05
C Methyl mercaptan.....	10	30
Methyl methacrylate.....	100	410
Methyl propyl ketone, see 2-Pentanone.....		

TABLE G-1—Continued

Substance	p.p.m.*	mg./M ^b
C Methyl styrene.....	100	480
C Methylene bisphenyl isocyanate (MDI).....	0.02	0.2
Molybdenum.....	5	5
Soluble compounds.....	15	15
Insoluble compounds.....	5	5
Monomethyl aniline—Skin.....	0.2	0.24
C Monomethyl hydrazine.....	20	70
Naphthol—Skin.....	100	400
Naphtha (coal tar).....	10	50
Naphthalene.....	0.001	0.007
Nickel carbonyl.....	1	1
Nickel, metal and soluble compds. as Ni.....	0.5	0.5
Nicotine—Skin.....	2	2
Nitric acid.....	25	30
Nitric oxide.....	1	1
p-Nitroaniline—Skin.....	1	1
Nitrobenzene—Skin.....	1	1
p-Nitrochlorobenzene—Skin.....	100	310
Nitroethane.....	5	5
Nitrogen dioxide.....	10	20
Nitrogen trifluoride.....	0.2	2
Nitroglycerin—Skin.....	100	250
Nitromethane.....	25	90
1-Nitropropane.....	25	90
2-Nitropropane.....	5	30
Nitrotoluene—Skin.....	0.1	0.1
Nitrotrichloromethane, see Chloroform.....		
Octachloronaphthalene—Skin.....	800	2,350
Octane.....	5	5
Oil mist, mineral.....	0.002	0.002
Osmium tetroxide.....	1	1
Oxalic acid.....	0.05	0.1
Oxygen difluoride.....	0.1	0.2
Ozone.....	0.05	0.05
Paraquat—Skin.....	0.11	0.11
Parathion—Skin.....	0.005	0.01
Pentaborane.....	0.5	0.5
Pentachloronaphthalene—Skin.....	1,000	2,650
Pentachlorophenol—Skin.....	200	700
2-Pentanone.....	0.1	0.8
Perchloromethyl mercaptan.....	3	13.4
Perchloro fluoride.....	800	2,000
Petroleum distillates (naphtha).....	5	19
Phenol—Skin.....	1	0.1
p-Phenylene diamine—Skin.....	1	7
Phenyl ether (vapor).....	1	7
Phenyl ether-biphenyl mixture (vapor).....	1	7
Phenylethylene, see Styrene.....		
Phenyl glycidyl ether (PGE).....	10	60
Phenylhydrazine—Skin.....	5	22
Phosdrin (Alevinphos ®) — Skin.....	0.1	0.1
Phosgene (carbonyl chloride).....	0.1	0.4
Phosphine.....	0.3	0.4
Phosphoric acid.....	1	1
Phosphorus (yellow).....	0.1	0.1
Phosphorus pentachloride.....	1	1
Phosphorus pentasulfide.....	1	1
Phosphorus trichloride.....	0.5	3
Phthalic anhydride.....	2	12

See footnotes at end of table.

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TABLE G-1—Continued

Substance	p.p.m.*	mg./lit.*
Picric acid—Skin		0.1
Pivalol (2-Pivalyl-1,3-indandione)		0.1
Platinum (Soluble salts) as Pt		0.002
Propargyl alcohol—Skin	1	
Propane	1,000	1,800
n-Propyl acetate	200	840
Propyl alcohol	200	800
n-Propyl nitrate	25	110
Propylene dichloride	75	350
Propylene imine—Skin	2	5
Propylene oxide	100	240
Propyne, see Methylacetylene		
Pyrethrum		5
Pyridine	5	15
Quinone	0.1	0.4
RDX—Skin		1.5
Rhodium, Metal fume and dusts, as Rh		0.1
Soluble salts		0.001
Rotnel		10
Rotenone (commercial)		5
Selenium compounds (as Se)		0.2
Selenium hexafluoride	0.05	0.4
Silver, metal and soluble compounds		0.01
Sodium fluoracetate (100%)—Skin		0.05
Sodium hydride		2
Stibine	0.1	0.5
*Standard solvent	500	2,050
Styrene		0.15
Sulfur dioxide	5	15
Sulfur hexafluoride	1,000	6,000
Sulfuric acid		1
Sulfur monochloride	1	5
Sulfur pentasulfide	0.025	0.25
Sulfuryl fluoride	5	20
Systox, see Demeton		
2,4,5T		10
Tantalum		5
TEDY—Skin		0.2
Tellurium		0.1
Tellurium hexafluoride	0.02	0.2
TEPP—Skin		0.05
C Terphenyls	1	9
1,1,1,2-Tetrachloro-2,2-difluoroethane	500	4,170
1,1,2,2-Tetrachloro-1,2-difluoroethane	500	4,170
1,1,2,2-Tetrachloroethane—Skin	5	25
Tetrachloroethylene, see Perchloroethylene		
Tetrachloromethane, see Carbon tetrachloride		
Tetrachloronaphthalene—Skin		2
Tetraethyl lead (as Pb)—Skin		0.075
Tetrahydrofuran	200	500
Tetramethyl lead (as Pb)—Skin		0.07
Tetramethyl succinonitrile—Skin	0.5	2
Tetranitromethane	1	5

TABLE G-1—Continued

Substance	p.p.m.*	mg./lit.*
Tetryl (2,4,6-trinitrophenyl-methylintramine)—Skin		1.5
Thallium (soluble compounds)—Skin as Tl		0.1
Thiram		5
Tin (inorganic compds, except oxides)		2
Tin (organic compds)		0.1
C Toluene-2,4-dicyanate	0.02	0.15
o-Toluidine—Skin	5	22
Toxaphene, see Chlorinated camphene		
Tributyl phosphate		5
1,1,1-Trichloroethane, see Methyl chloroform		
1,1,2-Trichloroethane—Skin	10	45
Titaniumdioxide		15
Trichloromethane, see Chloroform		
Trichloronaphthalene—Skin		5
1,2,2-Trichloropropane	50	200
1,1,2-Trichloro 1,2,2-trifluoroethane	1,000	7,600
Triethylamine	25	100
Trifluoromonomethane	1,000	4,100
2,4,6-Trinitrophenol, see Picric acid		
2,4,6-Trinitrophenylmethyl-nitramine, see Tetryl		
Trinitrotoluene—Skin		1.5
Tricthocresyl phosphate		0.1
Triphenyl phosphate		3
Terpentine	100	500
Uranium (soluble compounds)		0.05
Uranium (insoluble compounds)		0.25
C Vanadium:		
V ₂ O ₅ dust		0.5
V ₂ O ₅ fume		0.1
Vinyl benzene, see Styrene		
Vinylcyanide, see Acrylonitrile		
Vinyl toluene	100	500
Warfarin		0.1
Xylene (xylo)	100	425
Xyldine—Skin	5	25
Yttrium		1
Zinc chloride fume		1
Zinc oxide fume		5
Zirconium compounds (as Zr)		5

*1970 Addition:

* Parts of vapor or gas per million parts of contaminated air by volume at 25° C. and 760 mm. Hg pressure.
 * Approximate milligrams of particulate per cubic meter of air.

(No footnote "c" is used to avoid confusion with ceiling value notations.)

* An atmospheric concentration of not more than 0.02 p.p.m., or personal protection may be necessary to avoid headache.

* As sampled by method that does not collect vapor.
 / For control of general room air, biologic monitoring is essential for personnel control.

GENC 009704

TABLE G-2

Material	8-hour time weighted average	Acceptable ceiling concentration	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift.	
			Concentration	Maximum duration
Benzene (Z37.4-1969)	10 p.p.m.	25 p.p.m.	50 p.p.m.	10 minutes.
Beryllium and beryllium compounds (Z37.29-1970).	2 $\mu\text{g./M}^3$	5 $\mu\text{g./M}^3$	25 $\mu\text{g./M}^3$	30 minutes.
Cadmium fume (Z37.5-1970)	0.1 mg./M ³	3 mg./M ³		
Cadmium dust (Z37.5-1970)	0.2 mg./M ³	0.6 mg./M ³		
Carbon disulfide (Z37.3-1968)	20 p.p.m.	30 p.p.m.	100 p.p.m.	Do.
Carbon tetrachloride (Z37.17-1967)	10 p.p.m.	25 p.p.m.	200 p.p.m.	5 minutes in any 4 hours.
Ethylene dibromide (Z37.31-1970)	20 p.p.m.	30 p.p.m.	50 p.p.m.	5 minutes.
Ethylene dichloride (Z37.21-1969)	50 p.p.m.	100 p.p.m.	200 p.p.m.	5 minutes in any 3 hours.
Formaldehyde (Z37.16-1967)	3 p.p.m.	5 p.p.m.	10 p.p.m.	30 minutes.
Hydrogen fluoride (Z37.28-1969)	do			
Fluoride as dust (Z37.28-1969)	2.5 mg./M ³			
Lead and its inorganic compounds (Z37.11-1969)	0. mg/M ³			

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Table continued on next page

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TABLE G-2 (Continued)

Material	8-hour time weighted average	Acceptable ceiling concentration	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift	
			Concentration	Maximum duration
Methyl chloride (Z37.18-1969)	100 p.p.m.	200 p.p.m.	300 p.p.m.	5 minutes in any 3 hours.
Methylene chloride (Z37.3-1969)	500 p.p.m.	1,000 p.p.m.	2,000 p.p.m.	5 minutes in any 2 hours.
Organo (alkyl) mercury (Z37.30-1969)	0.01 mg./M ³	0.04 mg./M ³		
Styrene (Z37.15-1969)	100 p.p.m.	200 p.p.m.	600 p.p.m.	5 minutes in any 3 hours.
Trichloroethylene (Z37.10-1967)	do	do	300 p.p.m.	5 minutes in any 2 hours.
Tetrachloroethylene (Z37.22-1967)	do	do	do	5 minutes in any 3 hours.
Toluene (Z37.12-1967)	200 p.p.m.	300 p.p.m.	500 p.p.m.	10 minutes.
Hydrogen sulfide (Z37.2-1966)		20 p.p.m.	50 p.p.m.	10 minutes once only if no other measurable exposure occurs.
Mercury (Z37.8-1971)		1 mg./10M ³		
Chronic acid and chromates (Z37.7-1971)		do*		

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GENC 009706

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Federal Register, Vol. 39, No. 125—Thursday, June 27, 1974

29 C.F.R. § 1910.93a Asbestos.

(g) *Caution signs and labels.* (1) *Caution signs.* (i) *Posting.*

(2) *Caution labels—(i) Labeling.* Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder, or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section will be released.

(ii) *Label specifications.* The caution labels required by subdivision (i) of this subparagraph shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION

Contains Asbestos Fibers

Avoid Creating Dust

Breathing Asbestos Dust May Cause
Serious Bodily Harm

29 C.F.R. § 1910.93c 4-Nitrobiphenyl.

(a) *Scope and application.* (1) This section applies to any area in which 4-Nitrobiphenyl, Chemical Abstracts Service Registry Number 92933 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

GENC 009707

(2) This section shall not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of 4-Nitrobiphenyl.

29 C.F.R. § 1910.93d alpha-Naphthylamine.

(a) *Scope and application.* (1) This section applies to any area in which alpha-Naphthylamine, Chemical Abstracts Service Registry Number 134327 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 1.0 percent by weight or volume of alpha-Naphthylamine.

29 C.F.R. § 1910.93e 4,4'-Methylene bis(2-chloroaniline).

(a) *Scope and application.* (1) This section applies to any area in which 4,4'-Methylene bis(2-chloroaniline), Chemical Abstracts Service Registry Number 101144 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 1.0 percent by weight or volume of 4,4'-Methylene bis(2-chloroaniline).

29 C.F.R. § 1910.93f Methyl chloromethyl ether.

(a) *Scope and application.* (1) This section applies to any area in which methyl chloromethyl ether, Chemical Abstracts Service Registry Number 107302 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of methyl chloromethyl ether.

29 C.F.R. § 1910.93g 3,3'-Dichlorobenzidine (and its salts).

(a) *Scope and application.* (1) This section applies to any area in which 3,3'-Dichlorobenzidine (or its salts), Chemical Abstracts Service Registry Number 91941 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers except for the labeling requirements under paragraphs (e) (2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 1 percent by weight or volume of 3,3'-Dichlorobenzidine (or its salts).

29 C.F.R. § 1910.93h bis-Chloromethyl ether.

(a) *Scope and application.* (1) This section applies to any area in which bis-chloromethyl ether, Chemical Abstracts Service Registry Number 542881 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e) (2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of bis-chloromethyl ether.

29 C.F.R. § 1910.93i beta-Naphthylamine.

(a) *Scope and application.* (1) This section applies to any area in which beta-Naphthylamine, Chemical Abstracts Service Registry Number 91598 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e) (2), (3), and (4) of this section.

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(2) This section shall not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of beta-Naphthylamine.

(3) This section will not apply to operations involving the destructive distillation of carbonaceous materials, such as occurs in coke ovens.

29 C.F.R. § 1910.93i Benzidine.

(a) *Scope and application.* (1) This section applies to any area in which Benzidine, Chemical Abstracts Service Registry Number 92875 is manufactured, processed repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume in Benzidine.

29 C.F.R. § 1910.93k 4-Aminodiphenyl.

(a) *Scope and application.* (1) This section applies to any area in which 4-Aminodiphenyl, Chemical Abstracts Service Registry Number 92671 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of 4-Aminodiphenyl.

29 C.F.R. § 1910.93l Ethyleneimine.

(a) *Scope and application.* (1) This section applies to any area in which Ethyleneimine, Chemical Abstracts Service Registry Number 151564 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply

to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 1.0 percent by weight or volume of Ethyleneimine.

29 C.F.R. § 1910.93m beta-Propiolactone.

(a) *Scope and application.* (1) This section applies to any area in which beta-Propiolactone, Chemical Abstracts Service Registry Number 57578 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3) and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 1.0 percent by weight or volume of beta-Propiolactone.

29 C.F.R. § 1910.93n 2-Acetylaminofluorene.

(a) *Scope and application.* (1) This section applies to any area in which the Acetylaminofluorene, Chemical Abstracts Service Registry Number 53963 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing more than 1.0 percent by weight or volume of 2-Acetylaminofluorene.

29 C.F.R. § 1910.93o 4-Dimethylaminoazobenzene.

(a) *Scope and application.* (1) This section applies to any area in which 4-Dimethylaminoazobenzene, Chemical Abstracts Service Registry Number 60117 is manufactured, processed, repackaged, released, handled, or stored, but

shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 1.0 percent by weight or volume of 4-Dimethylaminoazobenzene.

29 C.F.R. § 1910.93p N-Nitrosodimethylamine.

(a) *Scope and application.* (1) This section applies to any area in which N-Nitrosodimethylamine, Chemical Abstracts Service Registry Number 62759 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e)(2)(3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 1.0% by weight or volume of N-Nitrosodimethylamine.

29 C.F.R. § 1910.18 Decision.

(b) Any rule or standard adopted under paragraph (a) of this section shall incorporate a concise general statement of its basis and purpose. The statement is not required to include specific and detailed findings and conclusions of the kind customarily associated with formal proceedings. However, the statement will show the significant issues which have been faced, and will articulate the rationale for their solution.

TITLE 49—TRANSPORTATION

49 C.F.R. § 172.5 List of hazardous materials.

(a) For explanation of signs and abbreviations see § 172.4.

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TITLE 49—TRANSPORTATION

49 C.F.R. § 172.5 List of hazardous materials.

(a) For explanation of signs and abbreviations see § 172.4.

Article	Classed as	Exemptions and packing (see sec.)	Label required if not exempt	Maximum quantity in 1 outside container by rail express
Vinyl chloride	F.C.G.	173.306, 173.304, 173.314, 173.315	F.G.	300 pounds.
Vinylidene chloride, inhibited	F.L.	173.118, 173.119	F.L.	10 gallons.
Vinyl fluoride inhibited	F.C.G.	173.306, 173.304, 173.314, 173.315.	F.G.	300 pounds.
Vinyl methyl ether, inhibited	F.C.G.	173.306, 173.304, 173.314	F.G.	20 pounds.
Vinyl trichlorosilane	F.L.	No exemption, 173.135	F.L.	10 gallons.
War heads. <i>See</i> Explosive projectiles.				
Waste paper, wet	F.S.	No exemption, 173.186	F.S.	Not accepted.
Waste textile, wet	F.S.	No exemption, 173.211	F.S.	Not accepted.
Waste wool, wet	F.S.	No exemption, 173.213	F.S.	Not accepted.
*Water treatment compound, liquid.	Cor	173.244, 173.249	Corrosive	10 gallons.
*Weed killing compounds, liquid.				
<i>See</i> *Compounds, tree or weed killing, liquid.				
Wet hair. <i>See</i> Hair, wet				
Wet nitrocellulose, colloided, granular or flake—20 percent alcohol or solvent; or block—25 percent alcohol.	F.L.	173.118, 173.127	F.L.	25 pounds.
Wet nitrocellulose, colloided, granular or flake—20 percent water.	F.S.	173.153, 173.184	F.S.	100 pounds.
Wet nitrocellulose—30 percent alcohol or solvent.	F.L.	173.118, 173.127	F.L.	25 pounds.
Wet nitrocellulose—20 percent water	F.S.	173.153, 173.184	F.S.	100 pounds.
Wet nitrocellulose flakes—20 percent alcohol or solvent.	F.L.	173.118, 173.127	F.L.	25 pounds.
Wet nitroguanidine—20 percent water.	F.S.	173.153, 173.184	F.S.	100 pounds.
Wet nitrostarch—20 percent water	F.S.	173.153, 173.184	F.S.	100 pounds.
Wet nitrostarch—30 percent alcohol or solvent	F.L.	173.118, 173.127	F.L.	25 pounds.
Wet paper stock. <i>See</i> Paper stock, wet.				
Wet rags. <i>See</i> Rags, wet.				
Wet textile waste. <i>See</i> Waste textile, wet.				

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TITLE 49—TRANSPORTATION

49 C.F.R. § 173.402 Labeling hazardous materials.

(a) Except as otherwise provided in this part, no person may offer for transportation a package containing a hazardous material unless that package is conspicuously labeled in accordance with the following:

(3) For a flammable compressed gas, a "Flammable gas" label as described in § 173.407.

49 C.F.R. § 173.404 Labels.

(a) Shippers must furnish and attach the labels prescribed for their packages. Labels should be applied to that part of the package bearing consignee's name and address.

(b) Labels must not be applied to a package containing only material which is not subject to Parts 170-189 of this subchapter or which is exempted therefrom. However, this paragraph does not prohibit the use of labels required for purposes of import or export shipments or required by 14 CFR 103.13 of the Federal Aviation Regulations on packages destined for transportation by air.

(c) Shippers must not use labels which by their size, shape, and color, may readily be confused with the standard caution labels prescribed in this part.

(d) Except as otherwise provided in this part, each label must be diamond shape with each side at least 4 inches long and have a solid line border at least 3.5 inches long on each side. The specifications for colors in Appendix A to this part should be followed for the colors prescribed in §§ 173.405 through 173.422.

(e) Form identification information (including name of supplier) may be printed on a label, in type not larger than 10 point, if it is placed outside of the solid line border of the label.

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(f) For import shipments only, labels affixed to packages in another country having the same size, symbols, and color as prescribed in these regulations are authorized in place of the labels prescribed herein. They may contain inscriptions required by the country of origin.

(g) A label may be over stamped or overprinted with the appropriate hazard class numeral as listed in § 172.4 of this subchapter. The number should be black, at least 0.25 inch in height, and must be located in the bottom corner of the label.

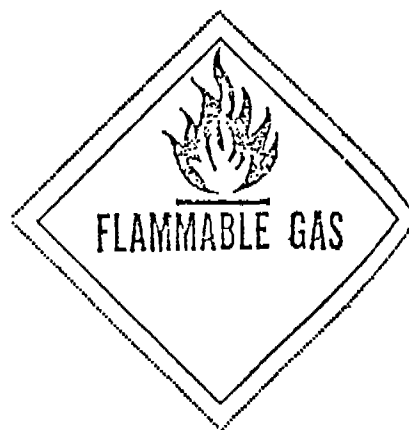
Note: The display of the class number on labels is required by some foreign governments.

(h) Labels required by the regulations immediately prior to January 1, 1974, may be used until January 1, 1975. This provision does not apply to the required use of labels for explosives.

[29 F.R. 18767, Dec. 29, 1964, as amended by Amdt. 173-70, 38 FR 5310, Feb. 27, 1973]

49 C.F.R. § 173.407 Flammable gas label.

(a) Each "Flammable gas" label except for size and color must be shown:



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(1) In addition to the requirements of § 173.404, each label must be red, with the inscription, border, and symbol black.

[Amdt. 173-70, 38 FR 5311, Feb. 27, 1973]

NOTE: The amendments appearing at 37 FR 5947, March 23, 1972 were designated effective December 31, 1972. At 38 FR 12807, May 15, 1973, the effective date was postponed to December 31, 1973.

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APPENDIX B

UNITED STATES DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATIONTitle 29, Code of Federal Regulations, § 1910.93q,
Vinyl chloride.

In the Matter of:

PERMANENT OCCUPATIONAL SAFETY AND HEALTH STANDARD
FOR EXPOSURE TO VINYL CHLORIDEPETITION FOR STAY OF EFFECTIVE
DATE OF STANDARD

The Society of the Plastics Industry, Inc. (SPI),¹ by its attorneys, hereby petitions the Assistant Secretary of Labor for Occupational Safety and Health to stay the recently promulgated standard for occupational exposure to vinyl chloride, 29 C.F.R. § 1910.93q (39 Fed. Reg. 35890, October 4, 1974).

The primary ground for requesting this relief is, as set out in more detail in the attached Affidavit of Jerome H. Heckman, Esq., that the respiratory protection requirements of the standard are beyond the compliance capabilities of the industry. Firstly, the permitted equipment is not available in sufficient supply now nor will it be on January 1, 1975 or in the immediate future. Secondly, not only is much of the respiratory protective equipment speci-

¹ The Society of the Plastics Industry, Inc. is a corporation organized under the Not-for-Profit Corporation Law of the State of New York. It is composed of approximately 1,400 member companies and individuals who supply raw materials; process or manufacture plastics or plastics products; engineer or construct molds or similar accessory equipment for the plastics industry; and engage in the manufacture of machinery used to make plastics products for material of all types. The Society is the major national trade association of the plastics industry; its membership is responsible for an estimated 75% of the total dollar volume of sales of plastics in this country. It is through the SPI Vinyl Chloride Monomer and Polyvinyl Chloride Resin Producers Committee, an operating unit of SPI, that the plastics industry has coordinated its participation in the rulemaking proceedings concerning occupational exposure to vinyl chloride. As such, therefore, the SPI has a direct interest in this matter in its capacity as designated representative of the affected employers.

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fied for use under the Standard not as yet approved for the specified uses, but, on the basis of the attached memoranda from the Acting Director of the NIOSH Office of Research and Standards Development to the Acting Director of NIOSH dated October 18, 1974 and from the Acting Director of NIOSH to the Director of the OSHA Office of Standards, it is anticipated that such yet to be approved respiratory protective equipment will not be approved by January 1, 1975. Thirdly, a sufficient supply of such equipment cannot, even with all appropriate approvals, be made available in sufficient time for the industry to comply with the standard by its present effective date.

Failure to grant the requested relief would force large segments of the vinyl chloride monomer and polyvinyl chloride resin industry to cease manufacturing operations after December 31, 1974.

WHEREFORE, IT IS RESPECTFULLY REQUESTED that the Secretary expeditiously grant the relief requested herein, to wit: stay the effective date of that portion of the standard due to become effective January 1, 1975; and continue the aforementioned stay in effect until such time as sufficient quantities of approved respiratory protective equipment are available to the industry, or until a court determines that compliance with the relevant portions of the standard is not required.

Respectfully submitted,

/s/ JEROME H. HECKMAN

Jerome H. Heckman

General Counsel

THE SOCIETY OF THE PLASTICS
INDUSTRY, INC.

Of Counsel:

KELLER AND HECKMAN

1150 17th Street, N.W.

Suite 1000

Washington, D. C. 20036

Telephone: (202) 296-2700

Date: November 5, 1974

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AFFIDAVIT

City of Washington }
 District of Columbia } ss:

I, Jerome H. Heckman, of Washington, D.C., attorney for The Society of the Plastics Industry, Inc. (SPI), being first duly sworn, do depose and say as follows:

1. I am an attorney at law, a partner in the Washington, D.C. law firm of Keller and Heckman and am General Counsel to The Society of the Plastics Industry, Inc. In that capacity, I have and continue to represent the Society and its members in matters with regard to the Department of Labor's Occupational Safety and Health Administration standard setting proceedings in the matter of occupational exposure to vinyl chloride.

2. I have reviewed the recently promulgated occupational exposure standard for vinyl chloride, 29 C.F.R. § 1910.93q, published in the Federal Register on Friday, October 4, 1974 at page 35890 *et seq.* Based on knowledge, information, and belief acquired by receiving information from companies in the industry, I further state that, with regard to the aforementioned standard for occupational exposure to vinyl chloride, it will be impossible for the affected industry to comply with the Standard, especially the section entitled "(g) Respiratory protection" thereof (29 C.F.R. 1910.93q(g)) and that, therefore, unless appropriate relief is granted, a substantial number of vinyl chloride and polyvinyl chloride manufacturers in the United States will have to cease manufacturing and production operations after December 31, 1974. Likewise, many processors, fabricators and others covered by the Standard and requiring respiratory protective equipment will have to cease operations after December 31, 1974.

3. The specific nature of the requirements in the Standard, that is, the fact that every employee in every segment of the industry exposed to concentrations of vinyl chloride in excess of the permissible levels of 1 part per million (ppm) averaged over any eight hour period and 5 ppm averaged over any period not exceeding 15 minutes must

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be supplied with an appropriate respiratory protective device as set out in the Standard, suggested that insufficient quantities of the prescribed respiratory protective equipment would be available in sufficient time to enable the industry to comply with the requirements of the Standard.

4. Following up on this, by telephone, we contacted individual VCM and PVC industry members covered by the Standard to determine the types and quantities of respiratory protective devices they would have to obtain in order to comply with the Standard's requirements. The specific figures requested and obtained covered equipment required, whether on order or not, which equipment would have to be obtained and installed or otherwise on hand in order to continue manufacturing operations on and after the effective date of the Standard, January 1, 1975.

5. Similarly, by telephone, we inquired directly of all known suppliers of the respiratory equipment listed in this Standard to ascertain whether these suppliers could, disregarding outstanding and unfilled orders, supply the necessary respiratory protective equipment to the industry by January 1, 1975.

6. Comparing gross available supply with gross demand, we have determined that, even under the best of circumstances and assuming the timely approval of eligible equipment specifically permitted under the Standard, the gross demand is considerably in excess of the supply for the equipment required.

7. The specifics of the supply and demand situations, as very conservatively projected from the data gathered, are as follows:¹

(a) For atmospheric concentrations of vinyl chloride that are unknown or above 3,600 ppm, the demand of

¹ The information in this survey was gathered by Counsel on a company confidential reporting basis so as to avoid any possibility of adverse antitrust considerations. Therefore, the detailed background data, affidavits and the like are not being made available herewith, it being assumed that the data and information reported herein can be easily verified by the Department of Labor and the Occupational Safety and Health Administration.

the vinyl chloride monomer and polyvinyl chloride resin manufacturers is for 429 of the prescribed units with 1,072 air bottles. Current available supply is 3,325 units and 6,000 refills. The lag time for supply of additional units is in the range of 30 to 60 months.

(b) For vinyl chloride concentrations not in excess of 3,600 ppm, there is a total demand of 3,186 complete units. The suppliers indicate that neither of the devices specified is available. As to the combination type C supplied air respiratory, pressure demand type, only a prototype model exists as of this time but it has not been approved by NIOSH and, even if it were, no estimates could be obtained as to when this device would be commercially available. As to the type C, supplied air respirator continuous flow type, the suppliers of this equipment have informed us that NIOSH has refused to authorize the currently available equipment for use by this industry because the continuous air flow rate is insufficient.

(c) For vinyl chloride concentrations not in excess of 100 ppm, the demand is for 614 devices of any permitted type. The suppliers report that this demand cannot be met. The demand type supplied air respirator supply picture is the same as that reported in subparagraph (b) above for the pressure demand type supplied air respirators. The same is true of the open circuit self-contained breathing apparatus discussed in subparagraph (a) above except that these devices permitted for less than 100 ppm are demand type rather than pressure demand type. One supplier informed us that an unknown quantity of demand type self-contained devices would become available at some unspecified time during the first half of 1975. As to the demand type supplied air respirators, commercially available devices of this nature are not currently NIOSH approved. However, if approval could be expeditiously obtained, approximately 500 units could be supplied by the first of the year with a lead time of eight months from the time of NIOSH approval and the filing of purchase orders for additional units.

(d) For vinyl chloride concentrations not in excess of 25 ppm, demand for either unit permitted is 5,478

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units with 108,397 refills. The suppliers report that the powered air purifying respirator with hood does not exist. Canister gas masks, not yet approved by NIOSH, are available. Approximately 3,000 units and an unknown number of replacement canisters are currently available with a potential canister replacement production of 30,000 units per month beginning after January 1, 1975.

(e) For vinyl chloride concentrations not in excess of 10 ppm, the demand for any permitted device is 2,940 units and 556,500 replacement cartridges as appropriate. The supply for the demand type supplied air respirators permitted is the same as reported in subparagraph (c) above. Chemical cartridge type respirators are available but have yet to be NIOSH approved. With NIOSH approval, suppliers indicate that 3,000 units and an unknown quantity of replacement cartridges are currently available and that potential replacement cartridge manufacture rates after January 1, 1975 are in the range of 200,000 units per month.

From the foregoing it is obvious that the demand for respiratory protective devices exceeds both current available supply and the supply were all NIOSH approvals granted. The industry requires approximately 12,650 respiratory protective devices on hand and operable by January 1, 1975 since a major portion of the respiratory protective devices on hand in industry are not of the type permitted in the new Standard and the Standard's very low permissible exposure limits combined with the very broad definition of regulated area has caused an expansion in the number of personnel who must be supplied with respiratory protective equipment. Other regulations and guidelines, both federal and state, will further increase the already high demand.

The available supply of respirators of all types is low because NIOSH approvals for certain types of equipment

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are lacking or have been withdrawn. Additionally, since the specific requirements of the Standard were not known until October 4, 1974, suppliers have not yet had an opportunity to plan and begin production of the appropriate equipment. In any case, total available supply at this time is 3,325 units. With NIOSH approval of all permitted systems listed in the Standard available supply would still only be 9,825 units.

In short, the current available supply is only 26% of current demand with optimum supply (expeditious NIOSH approvals) being only 78% of current demand. Without appropriate NIOSH approvals the industry is a minimum of 22% and a maximum of 74% short of the respiratory protective devices mandated by the Standard.

These figures have been developed solely from the demand existing in the vinyl chloride monomer and polyvinyl chloride resin segments of the industry. The potential of additional demand being created by processors, fabricators and other elements of the industry could not be calculated and factored into this survey. Nonetheless, it is patently obvious that any increase in demand from other segments of the industry will enlarge the gap between supply and demand.

In light of the foregoing facts we have concluded that, because the supply for respiratory protective devices is so short, there is no likelihood that, even given NIOSH approvals and the most equitable apportionment of the available supply, all the closely interrelated and interdependent segments of this industry could legally continue manufacturing operations after December 31, 1974. An interruption in the manufacturing abilities of raw materials suppliers, or the semi-finished products consumers and suppliers would have such a significant impact on the other elements of the industry that no portion of the industry, even if it were itself able to meet all requirements of the

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Standard, could continue in operation because either the raw materials supply or the markets would cease to function.

/s/ JEROME H. HECKMAN
Jerome H. Heckman
General Counsel
The Society of the Plastics
Industry, Inc.

KELLER AND HECKMAN
1150 17th Street, N.W.
Suite 1000
Washington, D. C. 20036
Telephone: (202) 296-2700

Subscribed and sworn to before me this 5th day of November, 1974.

JOSEPH E. KELLER
Notary Public

Seal: My Commission Expires Feb. 14, 1975

Received Oct. 23, 1974

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE

CENTER FOR DISEASE CONTROL

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

Date: October 21, 1974

To: Director, Office of Standards
Occupational Safety and Health Administration, DOL

From: Acting Director, NIOSH

SUBJECT: Vinyl Chloride Respirator Usage

NIOSH has reviewed the Occupational Safety and Health Standard for Exposure to Vinyl Chloride which appeared in the October 4, 1974, *Federal Register* (39 FR 35890).

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Particularly noted were those sections dealing with respirator usage, which allowed the use of air-purifying respirators under certain circumstances.

Unfortunately, as indicated in the enclosed memorandum, no respirators of a cannister or cartridge type that will protect the worker in non-emergency operations is currently available or likely to be this year.

Therefore, the NIOSH stand for protection in non-emergency situations must remain as stated in the Recommended Standard transmitted to OSHA on March 11, 1974:

"Until exposures to vinyl chloride are reduced below detectable levels, employees entering any regulated area shall be provided with and required to wear and use a full-face, supplied air respirator, of the continuous flow or pressure demand type in accordance with 1910.134."

/s/ EDWARD J. BAIER
Edward J. Baier

Enclosure

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

DATE: October 18, 1974

To: Edward J. Baier
Acting Director, NIOSH

From: Acting Director, Office of Research and Standards
Development

SUBJECT: Respirator Use Recommendations for Vinyl
Chloride

The current NIOSH respiratory protection recommendations, as expressed in the Recommended Standard for

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Occupational Exposure to Vinyl Chloride, calls for use of positive-pressure supplied air respirators where there is detectable exposure to vinyl chloride.

In preparing for the above recommendation, the NIOSH Engineering Branch in Cincinnati tested organic vapor canisters and cartridges for effectiveness against vinyl chloride. An Evaluation of Organic Vapor Respirator Cartridges and Canisters Against Vinyl Chloride, by David L. Smith and William S. Giesler (NIOSH Publication No. 75-111) describes these tests and supports the above recommendations.

On September 19, 1974, Mr. Grover Wrenn of CSHA, met with Messrs. Lynch, Gudeman, and Bryant of NIOSH, to discuss respiratory protection against vinyl chloride. Mr. Wrenn indicated then that OSHA was determined to permit use of powered air-purifying respirators and gas masks for vinyl chloride respiratory protection for routine and non-routine use, respectively.

OSHA, subsequently, revised these proposed use requirements and the Occupational Safety and Health Standard for Exposure to Vinyl Chloride which appeared in the October 4, 1974, *Federal Register* (39 FR 35890), contained the following general requirements:

1. Respirator use is voluntary.
2. MESA/NIOSH—approved respirators shall be used.
3. A respirator program shall be established and maintained.
4. The following respirators may be used.

Over 3,600 ppm	positive pressure SCBA
Not over 3,600 ppm	supplied air respirators (positive pressure)
Not over 100 ppm	supplied air respirators
Not over 25 ppm	powered air purifying respirator gas mask (4 hours service life up to 25 ppm)

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Not over 10 ppm

chemical cartridge respira-
tor (1 hour service life up to
10 ppm)

The above respirator use requirements in item 4 are based on expected performance criteria that would reduce the vinyl chloride concentration in the wearer's breathing to acceptable levels.

No canister or cartridge masks are currently available which meet NIOSH requirements nor are any expected to be approved during this year.

Consequently, the original recommendation by NIOSH is to be reiterated, i.e. employees entering any regulated area shall be provided with and required to wear and use a full-face, supplied air respirator, of the continuous flow or pressure, demand type in accordance with 1910.134.

In response to this publication, the NIOSH Engineering Branch has prepared test requirements for, and TCL is preparing to approve, canisters and cartridges meeting the following general performance requirements:

<u>Device</u>	<u>Test Concentration, ppm Vinyl Chloride</u>	<u>Service life, hours</u>
Canister	25	6
Air-purifying cartridge	10	2
Powered air- purifying cartridge	25	6

Each type of device shall be equipped with an end-of-service life indicator. The approved devices would bear labels requiring careful fitting to the respirator wearer and strict quality control of sorbent materials which would be required.

/s/ HERBERT E. CHRISTENSEN
Herbert E. Christensen, D.Sc.

Attachment

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