

Tenneco Chemicals

A Tenneco Company



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July 28, 1977

Emission Standards and Engineering Division
Environmental Protection Agency
Research Triangle Park
North Carolina 27711

Attention of Mr. Don R. Goodwin

Dear Sir:

This is submitted on behalf of Tenneco Chemicals, Inc. in response to the request for comments on the proposed amendments to the vinyl chloride emission standard promulgated by the Environmental Protection Agency (EPA) on October 21, 1976. The proposed amendments were published in the Federal Register, Vol. 42, No. 106, Thursday, June 2, 1977, p. 28154 ff.

Tenneco Chemicals, Inc. participated in a full and open exchange of information with the Environmental Protection Agency during the proceedings which led to the development of the current standard for vinyl chloride emissions published in the Federal Register, Vol. 41, No. 205, Thursday, October 21, 1976, p.4650 ff.

We believe the agency made, during those proceedings, a thorough study of all available health effect data and all applicable control technology. All interested parties had an opportunity to participate in the proceedings. Accordingly, we believe the current standard reflected the agency's best judgment after weighing all the facts available to it at that time. No new facts have been presented subsequent to the promulgation of the standard which would lead to a different conclusion.

While there may be portions of the current standard which we do not believe are necessary, it is the standard which the industry must adhere to and Tenneco Chemicals, Inc. has been working in good faith towards bringing its production facilities into compliance with that standard.

In marked contrast to the steps leading up to the proposal of the present standard, the proposed amendments, published on June 2, 1977, were drafted in an entirely different manner. No new health effect information has been presented for the record at any point in this proceeding, including the public meeting of July 19, 1977. No effort has been made to determine if the proposed standard is technically achievable. In short, the agency's action has been completely arbitrary.

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APPENDIX I
TO TENNECO CHEMICALS, INC.

STATEMENT

JULY 28, 1977

This Appendix contains three sets of material, one for each of the three Tenneco Chemicals, Inc. PVC plants located at Burlington, N.J., Flemington, N.J., and Pasadena, Texas.

Each set consists of:

1. A 7.5 minute series U.S. Geological Survey topographical map covering an area approximately 10 miles square with the plant location clearly marked and concentric circles drawn at 1/2 mile, 1, 2, 3, 4, and 5 mile distances around the center of the plant.
2. Two overlays for each map showing computer-generated isopleths based on annual average vinyl chloride concentrations in the air resulting from emissions subject to control under Sec. 61.64. Overlays designated B2, F2, and P2 represent the concentrations resulting from emissions controlled to 10 parts per million in compliance with the current regulation at the Burlington, Flemington and Pasadena locations, respectively. Overlays B3, F3 and P3 respectively, represent conditions resulting at these same sites when emissions are controlled to 5 parts per million.

A comparison of B3 with B2, F3 with F2, and P3 with P2 shows the lack of any significant improvement resulting from the reduction in vinyl chloride levels in the vent streams from 10 ppm as required by the proposed regulation to the proposed new level of 5 ppm.

Ambient air concentrations were determined by Mr. James C. Preston, Manager of Industrial Automation, Tenneco Inc., using Normal Gaussian Plume Dispersion Modelling.

It is not our intention to dwell on the legal aspects of the proposed amendments which are being commented on separately by the Society of the Plastics Industry on behalf of its member companies including Tenneco Chemicals, Inc. Instead, we wish to comment on certain details of the proposed standard which we view with serious concern. There are sections which are unclear as to their meaning and which for that reason may present serious difficulties to both the industry in its efforts to comply with the regulation, and the agency in its enforcement activity. We will limit our comments at this time to those sections pertaining to polyvinyl chloride manufacturing where we have a major interest. We will not comment on those sections concerning ethylene dichloride or vinyl chloride manufacturing plants because Tenneco Chemicals does not produce either of these latter materials.

Section 61.64: Emission Standards for Polyvinyl Chloride Plants in subparagraphs (a) through (d) propose to reduce the concentration of vinyl chloride in emissions from various streams from 10 ppm to 5 ppm. The reduction in the quantity of vinyl chloride due to this change is trivial, and there would be no benefit to the surrounding environment. Differences of this magnitude cannot even be detected outside the plants.

Tenneco Chemicals has calculated the reduction in pounds of vinyl chloride per hour emitted from each of its three plants resulting from this proposed change, and by dispersion modelling (based on EPA published techniques) has projected the average vinyl chloride concentration in the ambient air within a 5-mile radius of each plant. Pasadena, Texas is a very large facility which produces only homopolymer suspension resins. Burlington, New Jersey produces both homopolymer and copolymer suspension resins, and dispersion resins. Flemington, New Jersey produces only copolymer resin.

These data are presented in Table I.

TABLE I

Plant	Annual Capacity Lbs. Resin X 1000	Lbs. Vinyl Chloride Per Hour From Sources Subject to Sec. 61.64 (a) - (d)			Decrease in Average Vinyl Chloride Concentration in Ambient Air Within a 5-mile radius in parts per billion
		At 10 ppm	At 5 ppm	Decrease	
Pasadena, TX	480,000	.04	.02	.02	.0011
Burlington, NJ	150,000	.02	.01	.01	.0001
Flemington, NJ	70,000	.02	.01	.01	.0009

In order to graphically illustrate the lack of significant impact of the proposed change on the levels of vinyl chloride in the ambient air, computer-generated isopleth plots of vinyl chloride levels within a 5-mile radius of each of the three Tenneco Chemicals, Inc. plants for conditions of 10 ppm and 5 ppm vinyl chloride in vent streams are attached as Appendix I.

It is clear from this data that there is no statistical difference between the VCM levels at 10 ppm and at 5 ppm. Moreover, no difference between the two levels can be detected with monitoring equipment. Considering the minute incremental reduction in emissions to the air, there will be no net gain in benefit to the environment resulting from this section of the proposed standard.

Section 61.64 (e) (ii) (a) & (b): This portion of the regulation proposes reducing the allowable limit for residual vinyl chloride in resin in stripped slurries from the current 2000 ppm for dispersion resins and 400 ppm for suspension resins to 500 ppm and 100 ppm respectively, or reductions of 75%, for new resins in existing facilities. Although these limits apply only to newly developed resins, they have a serious potential impact on existing plant.

The current limits represent the end result of an extensive investigation as to what could be accomplished with the technology available at the time of the investigation, and with technology which could be reasonably expected to be developed in the near term future. The proposed limits published approximately seven (7) months later are entirely arbitrary.

In fact, the proposed regulation states that "EPA believes that for some resins, companies have already developed stripping technology which would meet the proposed amendment." (Emphasis supplied.) Note that this is a belief, but no substantive information has been offered to support this. Further, EPA explicitly acknowledges that technology for accomplishing its proposed limits may not be available. The agency states that: "For other resins, the proposed standard would require additional improvement in stripping technology." The agency also states that: "If stripping technology has not been developed to the extent necessary to meet the proposed amendment for a particular resin, the manufacturer would have the option of developing the technology or not producing the resin." This statement assumes that technology can be forced to accomplish a desired end-goal. This assumption is simply not realistic and must be rejected. This assumption cannot be a justification for promulgation of a standard in the absence of supporting technology.

This proposed reduction in allowable limits seems to have been made with a very superficial understanding of the factors involved in stripping resin. Both resin characteristics and equipment characteristics must be able to meet the necessary criteria in order to reach the desired end result.

Reduced to its most simple terms, stripping a resin to a predetermined limit requires application of a combination of temperature, pressure, and time factors to a resin that must be capable of withstanding those conditions. Certain types of resin, particularly dispersion resins, simply will not withstand the rigorous treatment required to strip them to the limits in the proposed amendments without destroying the properties which make them commercially valuable. To our knowledge, there is no technology available which will enable all dispersion resins to meet the 2000 ppm current standard, to say nothing of a 500 ppm limit for newer resins in this category.

The proposed standard for suspension resins does not differentiate between homopolymer (that is totally polyvinyl chloride resins) and copolymers of vinyl chloride and vinyl acetate. Homopolymers are inherently easier to strip and more stable than the copolymers. The proposed 100 ppm limit is feasible for most homopolymer resins if properly designed equipment has been installed. The same cannot be said at this time for all copolymer resins. Technology simply does not exist to accomplish this result and, at present, it is uncertain that such technology can be developed. We believe a distinction should be made between these two types of suspension resins in any amended standard which requires stripping suspension resins below 400 ppm residual monomer.

The proposed standard could lead to a two-level standard for similar resins in the same production facility; i.e. 400 ppm for "old" suspension resins and 100 ppm for "newly developed" resins. This would present a great deal of difficulty to the producers in attempting to comply and to the agency in attempting to enforce the standard.

The key question is: "What is a new resin?" No meaningful definition is given in the proposed regulation. It was pointed out to the agency in various meetings prior to the adoption of the present regulation that there is no uniform, industry-wide classification beyond very broad systems classifying resins by molecular weight ranges and gross properties. The industry frequently must custom tailor resins to meet its customers' performance requirements. A company may offer several variants of a resin under a single designation to different customers. With this background, one may well ask if it is likely that a completely "new resin" will ever be produced.

Day to day variations in plant operating conditions and raw material quality require almost constant minor variation in formulations to use more or less catalyst, chain transfer agents, suspending agents, activators or short stoppers in order to produce uniform end products. For the same reasons, and also because of economic or commercial reasons, different materials with the same or slightly different performance characteristics may be substituted. Again, the question is "Does each minor change in formula constitute a "new resin?" If so, new resins are produced daily.

EPA must provide an unambiguous definition of "new resin" before the industry can offer useful comments.

Section 61.75: This section proposes an "off set" policy for application to expansion of existing sources and construction of new sources and sets an arbitrary spacing between facilities. This proposal is totally unreasonable, inequitable, and would have serious adverse economic consequences.

In our judgement, the proposed "off-set" policy is unclear as to whether both point sources and fugitive emissions are to be included when considering off set requirements.

At the very least, EPA should clarify this policy. If an off-set policy must be written into the regulation, fugitive emissions should not be included for the following reasons:

1. Throughout past rule making proceedings, EPA has recognized the impossibility of measuring fugitive emissions precisely or even establishing quantitative limits (as it has done with point sources). How can the fugitive emissions be included in an off-set requirement when they cannot be measured?
2. It would virtually prohibit expansion of existing PVC plants or placement of new PVC plants adjacent to existing VCM facilities. This would bar incremental capacity increase to existing plants, lead to only the construction of very large new plants and would create a chaotic supply-demand situation in the industry.
3. It would lead to the development of new grass roots facilities as the only possible alternative to expansion at existing sites. We estimate that development of grass roots facilities would increase capital costs by 30% over the cost for providing the same capacity by incremental expansion at an existing site.
4. It would result in the forced closing of small PVC plants - not because they cannot meet the emission limits but because they are too small to be economically viable. They could not be expanded because they would have inconsequential emissions to "trade off."

Why was 8 km chosen rather than 5 or 10? Any of these are arbitrary and would not be a good guide to the impact on ambient air quality unless plant size and other site-specific factors such as terrain, meteorology, and climatic conditions are also considered.

Under this proposed regulation two 500-million pound per year PVC plants could be built 8.1 km apart but two 150-million pound per year plants (having proportionately lower VCM emissions) could not be spaced 7.9 km apart. Surely this would not produce an improvement in ambient air quality!

Clusters of plants tend to develop for economic reasons close to monomer sources where monomer can be delivered by pipeline. Characteristically, these are in highly industrialized zones with limited community exposure. Pipeline delivery of monomer is in itself an effective emission control yet the off-set policy would reduce the delivery of monomer by pipeline.

Tenneco Chemicals appreciates the opportunity of presenting these comments for consideration, and as it has in the past, we are prepared to cooperate fully with EPA in arriving at a realistic standard that recognizes the necessity to protect the ambient air quality but is also consistent with the ability of the industry to meet the promulgated standard in an economically viable fashion. We believe the existing standard accomplishes these objectives and we strongly urge the agency to abandon its proposal to amend this standard.

Yours very truly,

TENNECO CHEMICALS, INC.

Roy T. Gottesman
Director
Environment and Regulatory
Affairs Department

RTG:BP