



GREENPEACE

COMMENTS ON THE DRAFT PARCOM
RECOMMENDATIONS CONCERNING BAT FOR THE
MANUFACTURE OF VINYL CHLORIDE MONOMER AND
ON THE MANUFACTURE OF SUSPENSION PVC FROM
VINYL CHLORIDE MONOMER

Prepared for the Meeting of the Programmes and Measures
Committee (PRAM)

15 - 19 April 1996
Berne, Switzerland

Greenpeace International

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1 INTRODUCTION

1.1 This document provides comments on the Draft PARCOM Recommendations Concerning Best Available Techniques for the Manufacture of Vinyl Chloride Monomer as presented to PRAM in document PRAM 96/4/7-E Annex 1. In addition it also considers the Draft PARCOM Recommendations Concerning Best Available Techniques for the Manufacture of Suspension-PVC from Vinyl Chloride Monomer as presented in Document PRAM 96/4/8-E.

1.2 While Greenpeace International acknowledges the efforts made in defining BAT for the PVC industry, it nonetheless has considerable concerns as to what extent these recommendations will actually reduce discharges of toxic, persistent and bioaccumulative organohalogens to marine waters in the PARCOM area, specifically bearing in mind the 1995 Action Plan of the Oslo and Paris Commissions.

1.3 Greenpeace International finds it appropriate and indeed necessary to consider the recommendations in the context of contemporary commitments, policy and objectives. In this regard Greenpeace International recalls the agreements reached at the Fourth North Sea Ministerial Conference which committed signatories to reduce the discharge of hazardous substances to levels close to zero within 25 years (para 17, North Sea Conference Declaration, 1995). In addition, Greenpeace International recalls the OSPAR commitment first made in 1992 at ministerial level to ELIMINATE persistent toxic substances, in particular organohalogen inputs through SUBSTITUTION.

1.4 Further, Greenpeace also notes that various national and regional governments have taken initiatives to regulate the use of PVC as a finished product and believes that these trends need to be taken into account when regulating the industry. In addressing an holistic, full lifecycle analysis approach for the PVC industry, one conclusion is inescapable: toxic inputs in the manufacturing stage result in toxic releases to the environment during the manufacture, use and/or disposal stages.

1.5 Accordingly, Greenpeace International argues that the measures proposed in the draft PARCOM recommendations for the PVC industrial sector do not go far enough to ensure that existing commitments will be met. In particular, while emissions may be reduced if these recommendations are implemented, they will not be reduced to close to zero. Greenpeace maintains,

as others do, that the manufacture, use and disposal of PVC is simply incompatible with existing OSPAR commitments, and sustainable development.

1.6 The recommendations themselves include no emission values which can be either theoretically or practically achieved through the application of the BAT approaches recommended. There is wide variation in emissions from specific plants, hence numerical standards - and timelines with the aim of eliminating inputs - need to be derived and enforced through the Commission.

1.7 Accordingly Greenpeace International argues that the Best Available Techniques consistent with obligations of signatory states is that based upon substitution and elimination of PVC uses in order to eliminate emissions from the use and disposal phases of the life cycle.

1.8 As a minimum, Greenpeace believes that the oxychlorination process should be rapidly phased out since this aspect of EDC production is arguably both the most polluting and also the most difficult aspect upon which to exert effective emission controls.

2 SCOPE OF RECOMMENDATIONS Document 96/4/7-E Annex 1

2.1 The recommendations do not apply to three critical aspects of the life cycle of PVC. Although these are addressed by the provisions of other draft recommendations applicable to relevant industrial sectors, Greenpeace nonetheless considers that an holistic accounting would enable the PVC sector to be placed in the correct context in relation to the production of chlorine and ethylene. As an illustration, approximately 35% of the total chlorine produced in Europe is used in the manufacture of PVC. The predominant process used is the amalgam process which emits significant quantities of mercury. An equivalent proportion of such emissions is therefore directly attributable to PVC production.

2.2 Similarly, a proportion of the emissions of PAHs and other hydrocarbons from ethylene cracking plants are directly attributable to PVC manufacture. Moreover, the considerable energy consumption in the manufacture of PVC is not taken into account.

2.3 Greenpeace therefore continues to argue that a more holistic consideration of the sector is required in order to fully weigh the contribution of the industry to deleterious environmental effects.

3 COMMENTS ON PROGRAMMES AND MEASURES Document 96/4/7-E Annex 1

3.1 Overall, the Programmes and Measures proposed appear to be largely a prescription for maintaining the status quo. The formulated recommendations are weak and allow for a considerable element of subjectivity to be introduced in the evaluation of their effectiveness. A major shortcoming is that they do not incorporate the numerical values specified as achievable in Document POINT 94/8/1-E (Section 6). These could serve as basic gauges of environmental performance over the industry as a whole. Failure to acknowledge these limits fatally compromises the utility of the proposed Recommendations.

3.2 Specifically, "equally effective measures" are not identified in relation to those actually proposed. Unless such measures are identified, there is a considerable risk that these will represent the lowest common denominator of measures available.

3.3 Similarly, it is recognised that the use of air in the oxychlorination process contributes the bulk of the waste gas flow due to its nitrogen content. The recommendations provide for the use of air "in some specific cases". Unless these specific cases are defined, there is the risk that these uses will be the rule rather than the exception.

3.4 The lack of specification of appropriate catalysts is an important omission. The copper catalysts commonly used mean that conditions in a standard oxychlorination reactor are ideal for the formation of chlorinated dibenzo-p-dioxins and dibenzofurans. Other catalysts should therefore be specified and a numerical value derived for allowable by-product formation per tonne of EDC/VCM produced. This would provide a yardstick against which future improvements could be gauged. Similarly, the recommendations appear to ignore the potential benefits of using fluidised bed reactors.

3.5 Moreover, in the Document Point 94/8/1-E it was recognised that several options for plant design could achieve the elimination of the oxychlorination step altogether. The draft recommendations should therefore include a recommendation that the industry should seek the elimination of the oxychlorination step as an urgent priority.

3.6 The effectiveness of measure c) cannot be properly assessed without some indication of emissions under normal as opposed to abnormal conditions where relief vents are operated. Hence, the recommendations should include maximum emission limit figures for normal operations. By the same token, recommendations should also be made for the retention, storage and suitable treatment of all emissions resulting from abnormal operations.

3.7 The recommendation of incinerators as a process emission control device does not represent the Best Available Techniques. The recommendations should recognise that alternative technologies exist for the destruction of chemical waste materials which essentially are capable of operating in a closed configuration with total control over emissions. Such techniques may be readily applicable to process off gas treatment, as well as light and heavy ends.

3.8 Recommendations d, e, f, g, h, i & j represent simple, basic good housekeeping measures which can be achieved readily through normal maintenance and routine replacement programmes. A restricted time frame should be prescribed for these measures to be implemented as part of normal upgrade and reconditioning procedures. In addition, measure i) should be defined by numerical limits upon the content of the aqueous effluents. These should be set at close to zero as indexed by analysis using GC/ECD or a more sensitive analytical technique.

3.9 In relation to measure j), the best available techniques is undoubtedly refrigerated reflux condensers. The incineration options should be ruled out.

3.10 Neither incineration, nor landfill represent the best available techniques in the case of sludge, EDC tars or cokes. Alternative, closed systems are available which allow total control over process effluents. Moreover, the recommendation does not establish what represents significant content of organohalogens, nor the target organohalogens for evaluative analysis, nor the techniques through which this should be established. The recommendation, therefore, in common with others requiring definition of numerical limits to be enforceable, is completely inadequate as an instrument of environmental protection or improvement of environmental performance.

4 OVERVIEW

4.1 The Draft Recommendations on the manufacture of vinyl chloride appear to represent the lowest common denominator of possible environmental controls upon the industry. They represent a basic assemblage of end-of-pipe technologies rather than any progressive move towards environmentally sound technology in line with existing policy and commitments.

4.2 Even as end-of-pipe measures, the Recommendations fail by virtue of the fact that no numerical limits are specified either as absolute values or in terms of emissions per tonne of EDC/VCM produced. According to Document POINT 94/8/1-E, emission factors appear to be well established for the industry, although fugitive emissions appear to be uncertain. Hence, it should be possible to derive common emission factors based upon the application of the recommended techniques. Indeed, such values were suggested in Appendix 1 of Document POINT 94/8/1-E.

4.3 The derivation of numerical values is important not only in establishing what is achievable but also to establish progress. As the recommendations stand, Contracting Parties will need only to report the degree to which the recommendations have been adopted, not the extent to which they have resulted in any tangible improvements. As the Recommendations stand, they signify no advance over the EC Directive 90/415/EEC of July 17 1990 and indeed on this basis represent a retrograde step.

4.4 The starting point for evaluation should be the lowest emission factors currently achieved over the whole industry, taking into consideration aggregate emissions to air, water, sludges and soils.

4.5 The production and use of PVC itself represents a significant introduction of a persistent organohalogen compound into the environment which through accidental or deliberate destruction by processes involving combustion or pyrolysis can introduce significant quantities of other organohalogens which are also toxic and liable to bioaccumulate in the environment. This important aspect needs to be taken into account in regulating the industry.

5 SCOPE OF RECOMMENDATIONS Document 96/4/8-E Annex 1

5.1 The scope of the draft recommendation is based on the recognition that the vinyl chloride industry has the potential to release significant amounts of organohalogenes to the environment. The Draft Recommendations exclude consideration of PVC use and disposal. Not only is PVC an organohalogen in its own right but can in the use and disposal phases result in the emission of significant quantities of other organohalogenes as outlined in 4.5 above.

5.2 The Document POINT 94/8/1-E notes that although emulsion PVC accounts for a lesser proportion of PVC manufacture, proportional emissions are greater. The scope of the Recommendations should therefore include both manufacturing processes.

6 COMMENTS ON PROGRAMMES AND MEASURES Document 96/4/8-E Annex 1

6.1 Vinyl chloride monomer is a proven carcinogen, hence all steps should be taken to reduce emissions to the environment to zero.

6.2 The measures as listed do not have any numerical standards attached. Hence, as with the programmes and measures outlined for EDC/VCM production no standard exists against which to assess current environmental performance or to assess future improvements.

6.3 In common with the measures outlined in Sections 2-4 above, the Recommendations simply recognise end-of-pipe techniques rather than the commitment towards progressive solutions of environmental problems already adopted.

7 SUMMARY

7.1 The comments contained in this paper are offered in the spirit of constructive input to the work of PRAM. Although highly critical of the draft recommendations concerning the PVC industry, the criticism is based on objective assessment, and is in no way meant to be disrespectful of the efforts of OSPAR Commission, subsidiary bodies or individual States.

7.2 It is an unfortunate conclusion that the recommendations under consideration do not reflect BAT (Best Available Techniques). Indeed, they are little more than LCDT (Lowest Common Denominator Techniques). Greenpeace International repeatedly raised concerns over five years ago that BAT as addressed by OSPAR could have the potential for virtually meaningless or ineffective measures which do not constitute the "BEST" techniques available. The draft PVC recommendations support this assertion.

7.3 The adopted OSPAR commitments and policy to eliminate hazardous substances through substitution is well established and commendable. However, the proposed measures to address the environmental problems associated with the manufacture, use and disposal of PVC do NOT reflect,

and indeed are in conflict with these commitments. In this regard the draft recommendations become part of the problem, rather than the solution.

7.4 Greenpeace International urges the adoption of meaningful, effective measures in line with the aim of eliminating persistent toxic inputs to the marine environment through the practice of substitution with alternative raw material, products, and technologies. Obviously the PVC WG was - probably due to time constraints - not able to take this paramount policy objective into account. PRAM should thus amend the PVC Recommendations accordingly and provide industry with clear direction. In the interim, pending the achievement of elimination commitments, stringent numerical standards toward the aim of zero-discharge are essential. The host of persistent toxic substances associated with the manufacture of PVC, as well as the host of toxic components in the PVC product itself, render this environmental problem a classic example for which product substitution is necessary.

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