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UNITED STATES ENVIRONMENTAL PROTECTION
REGION V

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SUBJECT

Vinyl Chloride NESHAP Review

RECEIVED
ENVIRONMENTAL PROTECTION
AGENCY

FROM:

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Air Compliance Branch
Air Management Division

OCT 17 1984

TO:

James C. Berry, Acting Chief
Chemicals and Petroleum Branch (MD-13)
Emission Standards and Engineering DivisionCENTRAL DOCKET
SECTION

My staff has evaluated the review document (EPA-450/3-82-003) and "Chapter 6" that you sent to Bruce Varner on February 25, 1983. We believe that the need to set vinyl chloride (VC) emission standards for polyvinyl chloride (PVC) fabricators merits further investigation and possible inclusion in Chapter 6. On Page 6-3, the review document states that the PVC industry has established a 10 ppm VC limit in dried resins. However, on Page 4-58, it states that two bulk resin plants have 150-250 ppm in the dried resin. The BF Goodrich, Avon Lake, Ohio plant ships latex solution meeting a customer specification of 50 ppm wet basis (100 ppm dry basis). Thus there could be significant VC emissions from PVC compounders and fabricators handling bulk and latex resins.

The review document is comprehensive and well written. We offer the following comments for your consideration:

° Page 2-6. Section 61.69(b)(1) also requires submittal of the information required under Section 61.10.

° Page 3-12. The dispersion process has no centrifuge, but may include a concentrator.

° Page 3-14. Steps 6, 7 and 8 are regulated (by resin residual standards).

° Page 3-17. 0.13 cubic feet is a gallon of gas.

° Page 3-18. Somewhere in the document it would be helpful to list which standards only apply to equipment "in vinyl chloride service". These appear to be Section 61.64(a)(3) and (c), and Section 61.65(a), (b)(1) through (b)(5), (b)(7) and (b)(8).

° Page 3-32. Reactor emissions are also subject to Sections 61.64(a)(3) and 61.65(a).

° Page 4-7. A distinction should be made between secondary controls that operate in tandem with primary controls, and backup controls that operate only when primary controls are inoperative.

° Page 4-8. The residence time for the 540°C (1000°F) test should be stated.

° Page 4-23. Latex reactors have fewer relief valve discharges because initiator and monomer are continuously added during polymerization (see Page 3-22).

° Page 4-28. At a January 17, 1983, meeting, General Tire informed us that alpha methyl styrene (AMS) shortstop temporarily stops polymerization by tying up reaction sites. When it is used up, reaction continues. By contrast, isoprene kills the catalyst, preventing any further reaction.

° Page 4-32. Heat transfer is a function of coolant flowrate as well as temperature. Chilled water may be less effective than cooling tower water if the latter can be supplied to the reactor jacket at a much higher flowrate.

° Page 4-78. Collectively, fugitive emissions constitute the largest VC emission source at a PVC plant meeting the NESHAP. The response time for repairing leaks is a important element of the plan of action, and a major determinant of fugitive emissions. The vinyl chloride standard does not specify a response time. Region V believes a leak can and should be repaired in 5 days, unless the equipment is in continuous service and a spare is unavailable. However, the volatile organic guideline document for polymer and resin manufacturing specifies a 15-day response time. The proposed benzene fugitive emission NESHAP specifies repair in 15 days, and an initial attempt within 5 days of detection.

° Page 4-81. There needs to be a discussion of how VC gets emitted to the atmosphere as a result of opening the reactor. Usually an elephant trunk hose is placed in the reactor after it is opened, and a fan discharges the VC-laden gas to atmosphere through a stack on top of the polymerization building. This helps keep the VC concentration in the building below OSHA limits.

° Pages 4-81 and 4-87. The calculation option for reactor opening loss is an alternative test method, not a test waiver. Operating parameters are measured in lieu of emissions. Test waivers are granted in the case of a combined reactor opening - resin residual standard as described on Page 4-86.

° Page 5-5. The relief valve and reactor manual vent valve discharge standards should require the engineering calculation of the magnitude, not just a description of the method of calculation. This is particularly important if the quantity discharged becomes the basis for determining the level of compliance or the action to be taken by the source or the regulatory agency. Sources have been reluctant to supply the calculation. Frequently, the calculational formula(s) can only approximate actual conditions. The calculation may use data that the source considers confidential. When furnished, the calculation is occasionally in error.

° Page 7-7. The vinyl chloride NESHAP had not been delegated to any states in Region V that contain subject VC sources when the review document was completed in February 1982. The vinyl chloride NESHAP was delegated to Michigan on March 29, 1982, to Ohio on August 9, 1982, and to Illinois effective September 18, 1982.

° Page 7-8. Borden Chemical is under the impression that VC losses from the dryers at suspension and dispersion resin plants meeting the resin residual standards, are equivalent to the 10 ppm standard for exhaust gases. If this is true, South Coast Air Quality Management District Rule 1005.1 does not require that dryer exhaust be vented to the primary control device, and Rule 1005.1 achieves no reduction in VC emissions from this major source beyond that already achieved by NESHAP. However, Rule 1005.1 may significantly reduce fugitive emissions from leaks.

If you have any questions on these comments, please contact Mr. Varner at FTS 353-2088.

cc: Richard Biondi
Compliance Monitoring Branch
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