Category: 31 – Beyond Set I and II CTG

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: December 30, 1981

SUBJECT: Appendant for "Summary of Technical Information for Selected Volatile Organic Compound Source Categories" (EPA-450/3-81-007)

FROM: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

TO: Chief, Air Programs Branch, Regions I-X

Attached is a copy of a letter dated October 19, 1981 from Mr. M. R. Rhoad, Managing Director, International Institute of Synthetic Rubber Producers, Inc., requesting that certain information reflecting industry's point of view on styrene-butadiene co-polymer latex emissions control be included in the document "Summary of Technical Information for Selected Volatile Organic Compound Source Categories," (EPA-450/3-81-007).

In the spirit of objectivity, we have indicated to this industry group that we would forward their letter to the recipients of the EPA summary document. However, this does not signify the contents necessarily reflect the views and policy of EPA. It is included only for information purposes to be considered by State or local agencies developing regulations applicable to this stationary source industrial category.

Please distribute a copy of the attached letter to any other recipients of the above-noted document.

Should you have any questions on this matter, please contact the Technical Guidance Section (Brock Nicholson, FTS 629-5516).

Attachment

Attachment

INTERNATIONAL
INSTITUTE OF
SYNTHETIC RUBBER
PRODUCERS, INC.

October 19, 1981

Mr. Don. R. Goodwin, Director
Emission Standards & Engineering Division
Office of Air Quality Planning & Standards
U. S. ENVIRONMENTAL PROTECTION AGENCY
Research Triangle Park, North Carolina 27711

Subject: USEPA's Technical Support Document on VOC Emission from Styrene-Butadiene Co-Polymer Latex Production

Reference: USEPA's "Summary of Technical Information for Selected Volatile Organic Compound Source Categories: (EPA-450/3-81-007. May 1981, Chapter 19 - Styrene, Butadiene Co-Polymer Latex)

Dear Mr. Goodwin:

We would like to express our appreciation to you for your consideration in addressing the concerns of our member companies, and we believe that your decision not to issue a CTG on this subject is proper from both a technical and economic viewpoint.

However, we are concerned over the condensed version of the old CTG document that was inserted in the above referenced document. Although the document does not carry the legal significance of the CTG, it becomes a formal, public, technical document.

The document itself states in the abstract that even though "this document should not be accorded the status of a Control Techniques Guideline (CTG) Document, this document may, however, serve in providing basic information on the various processes and emission points, and as such, may be a starting point for a state or local agency in considering VOC control on a given industry."

Our proven experience over the years in dealing with states has been that many states tend to accept the EPA documents as infallible sources of technical facts. since they do not have the means to conduct an industry-wide assessment. Since we believe the proposed document contains some statements which we consider misleading and which can possibly lead to misinterpretation, it is highly probable that it will present problems for some of our companies in the future in dealing with state agencies.

Attached is a summary of some of the major problems and deficiencies in the document, and we believe that they demonstrate the reasons for our concerns. We hope that you recognize our problems, and we seek your assistance in

finding a remedy for this item before it becomes an actual problem.

I. Blend Tank Emissions

It is technically and economically unreasonable and unsafe to consider the controls on this item.

A. Even using the document's numbers, there are only three (3) Mg/yr of emissions, or only 1.3% of the total VOC involved. This represents an actual emission for a model size plant of about 18 lbs/day. Actual data obtained from our member companies on a confidential basis (fig. 1) indicates that they are high by a factor of 3 to 100 or more. This would mean that the actual emissions are truly insignificant.

B. To reduce this insignificant level of emissions, it would result in the generation of the following level of pollutants (based on oil firing and 50% heat recovery): hydrocarbons - .01 Mg/yr; NOx - .45 Mg/yr; SO2 - 2.3 Mg/yr (without a scrubber)

(Note oil must be considered rather than natural gas since natural gas availability and cost is questionable in the future.)

C. It would require a large and costly network of large ducts to connect blend tanks which are located in diverse locations around the plant.

D. It would be a safety problem if this large network of ducts and tanks were tied into a Butadiene-rich stream of varying pressures and fluctuating volumes from the monomer recovery area.

II. Monomer Recovery Area

Although there may be significant quantities of VOC released after the polymerization reaction is complete, the document greatly over-simplifies and distorts the picture of the magnitude of the problem in many cases and what is the proper way of controlling the resultant emissions, even if it is deemed necessary.

First, there are many types of latices whose degree of polymerization may vary significantly, thus resulting in varying levels of emissions. Additionally, some systems may have kerosene type recovery systems tied in to recover Butadiene and these result in significant reductions in emissions. As can be seen from Figure 1, there is a wide range of emissions from the six (6) plants that were evaluated. The emissions of all these plants, except one, are greatly below that given in the document.

III. Incineration

A. Where further emission reductions in the recovery area are required, flares should be considered rather than incinerators.

Flare systems have been used extensively in many similar applications. Omission of flares from this document causes much concern, because it suggests that they are not an acceptable control measure. We are concerned that the EPA appears to be limiting recognition of cost effective control technologies by ignoring flare systems. We contend that flares can be equally effective from both cost and performance viewpoints as thermal incineration, which has been arbitrarily chosen as the control device for SBR emulsion, latex plant VOC emissions. No control device is without drawbacks and limitations, thermal incineration included. As one company has already shown, fluctuations and loading presents a real problem with operations of incinerators. With the flare, a high surge of gas could result in a brief period of low efficiency. Whereas, with an incinerator it could mean an explosion and an extended period of low efficiency.

B. The assumption made by the document that only a small amount of fuel would be required for 50% heat recovery and that no fuel would be required for 70% heat recovery is incorrect. As was emphasized earlier, in most cases, the quantity of emissions used in the document are unrealistically high. Additionally, materials that are emitted are not on a steady state basis, but rather on a surging basis that would require for safety reasons a significant amount of fuel oil on a regular basis. In actual practice, then supplementary fuel will always be required.

In summarizing our objections to the publication of the proposed document, we wish to restate our firm belief that the necessity to control VOC emissions from styrene-butadiene copolymer latex plants is highly questionable. If controls are indeed judged necessary, they should be determined and implemented on a site by site basis.

We would respectfully request that these comments be sent along with the proposed document to the various state agencies so that the industry's point of view on this subject can be considered along with EPA's recommendations.

Yours very truly,

M. J. Rhoad
Managing Director

MJR:yh

Attachment

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Figure I

Plant Site	A	B	C [1]	D	E	F	EPA Model
Source and Type of Emission							
Monomer Recovery Area:							
Butadiene (Mg/yr)	9.6	1.2	238	14	9	15	224
Styrene (Mg/yr)	7.0	0	2.5	14.5	26	43	4
Blend Tank Area:							
Styrene (Mg/yr)	0.03	0.03	0.4	1.1	0	0	3
Total (Mg/yr)	16.63	1.23	240.9	32.6	35	58	231

[1] Gross emissions from the process before entering a control device (flare).