

Mobay



RECEIVED

JUN 18 1979

Mobay
Chemical Corporation

June 12, 1979

Penn Lincoln Parkway West
Pittsburgh, PA 15205
Telephone: 412/777-2000

Writer's Direct Dial Number

412-777-2221

Dr. D. A. Khun
Continental Oil Company
P. O. Box 2197
S. Greenway Plaza East
Houston, TX 77001

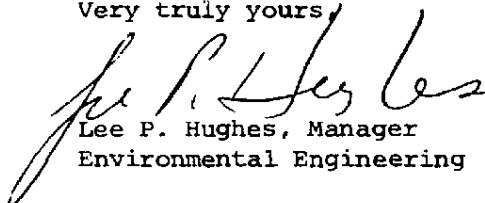
Dear Dr. Khun:

Please find attached a draft of the comments on linear alkylbenzene we discussed at our meeting of May 30.

Please have your specific comments on this draft returned to Mr. Hank Sauer at MCA Headquarters so he can forward the final comments to EPA.

Thanks for your help in this matter.

Very truly yours,


Lee P. Hughes, Manager
Environmental Engineering

/ikp

Attachment

CC: W. E. Reiter, w/o attachment
H. Sauer, w/o attachment

MCD 000011343

SAL 000020294

DRAFT

June 11, 1979

Mr. D. R. Patrick
Office of Air Quality Planning
and Standards
U. S. Environmental Protection Agency
Mail Drop 13
Emissions Standards and Engineering Division
Research Triangle Park
Durham, North Carolina 27711

Dear Mr. Patrick:

Enclosed herewith are our technical comments on the draft Emissions Control Options for the Synthetic Organic Chemicals Manufacturing Industry (EPA Contract NO. 68-02-2577) covering Linear Alkylbenzene.

The Chemical Manufacturers Association is a non-profit trade association having 191 United States company members representing more than 90 percent of the production capacity of basic industrial chemicals within this country. It's member companies operate about 1,500 plants in nearly every state.

We note that this draft report is a support document for use in possibly declaring the manufacture of Linear Alkylbenzene applicable to Section 112 of the Clean Air Act because of the usage of benzene in the manufacturing process. Therefore, we wish to meet with you and the contractors to ensure that our general comments are understood and used. Please get in touch with me or Mr. Lee P. Hughes, Mobay Chemical Corporation, Penn Lincoln Parkway, Pittsburgh, Pennsylvania 15205, telephone (412) 777-2221 to make arrangements for our special review teams to meet at an early convenient time.

Sincerely,

C. A. Gosline
Assistant Technical Director
Environmental Management

/cem

Enclosure

cc: Walter L. Barber
William M. Reiter

MCD 000011344

SAL 000020295

D R A F T

CHEMICAL MANUFACTURERS ASSOCIATION

General Comments

on

September 1978 Draft Report on Linear Alkylbenzene

Industry Description

In reviewing the Industry Description with LAB manufacturers, it was concluded that the basic description of the industry is correct as outlined. The value of 0.4 Pa (0.003 mm Hg) is not supported in the appendix and is felt to be in error. Either this value or later referred to vapor pressures, which are ten times this value, are incorrect.

Process Description

In general it was felt that the process descriptions, as outlined, appear to come from a textbook and do not represent actual industry practices. Specifically, for the chlorination process it was felt that the actual industry practice for handling the HCl recovery needs to be reviewed. The value of 5,000 g/Mg of LAB product that is said to be vented from the HCl absorber system is felt to be much higher than is actually experienced in many cases. In addition, Light Oil Stripping Operation for the chlorination process is not used in a majority of the plants currently operating by this process. It was also felt that usage of intermediate storage tankage is larger than that actually used by the industry.

Because of these above mentioned process differences as well as numerous other differences which will be outlined by the individual manufacturers in separate correspondence, it is felt that the overall process description does not properly reflect actual industry practices. These outlined differences will result in emission levels above those currently being experienced. To gain a better understanding of these differences, a section of this report should be devoted to detailing specific areas of the process description which are different from general industry practice. A proper estimate and comparison of the industrial processes can only be made in this way.

There are also major questions raised as to the wide range of emission levels which are cited for various operations. As examples:

<u>Source</u>	<u>Range of Emissions Cited,</u> <u>g/Mg LAB</u>
Benzene Stripping Column Vent	3 to 500
Vacuum Pump on Paraffin Stripping Column	3 to 1400
LAB Product Column Vacuum Pump	3 to 4000

The reasons given in the report for these wide ranges of emissions were design and operating conditions. If this is the actual case, then some more specific discussion should be included which would detail what design and operating condition differences can create such a wide range of emission levels.

MCD 000011345

SAL 000020296

Emissions

The description of the integrated model plant once again brings into question the contractor's approach to this problem. By utilizing the model plant approach, the estimation of the quantity of emissions actually being emitted is felt to be higher than actual practice. With this approach the control techniques that are currently being employed by industry are ignored. To arrive at a realistic estimation of current actual emissions, it is necessary to take into account the individual process differences which exist from plant-to-plant.

Some specific areas where it is felt additional study are needed are:

- (1) the estimation of emissions from the HCl absorber vent
- (2) the estimation of fugitive emissions
- (3) the estimation of secondary emissions.

The estimation of emissions from the HCl recovery vent is felt to be grossly overstated. As this represents well over half of the projected emissions from the chlorination process, its impact on the overall evaluation is evident. To gain more insight into emissions from this operation, we would specifically request that Hydrosience review a study conducted for Union Carbide Corporation by Scott Environmental.

The usage of values derived from a petroleum refinery study to estimate fugitive emission levels from an organic chemical manufacturing facility is strongly questioned. Using this method as applied to the total gross valve count at a facility neglects such important factors as VOC vapor pressure, VOC concentration in the streams and corrosive nature of the stream. The reason that the corrosive nature of the handled stream is such an important factor is that for streams of this characteristic extra care is already being taken to assure no leakage occurs. In discussions with manufacturers it was pointed out that a large number of the 2,000 cited valves are in corrosive service. Hence, these valves are presently being carefully watched. The other important point was the fact that many of these valves are in locations which do not always have contact with VOC. This is the case where the valve is being used as valving for a spare pump which is not in service. The number of valves used for calculating the fugitive emissions is questioned.

When counting the number of pumps shown on the chlorination plant model diagram, only 23 valves are represented. For the fugitive calculation a valve count of 65 was used. If spare pumps were estimated in the total count, then adjustments need to be made to the emission calculations. Pumps not in actual operating service should not experience any major fugitive emissions.

In the area of secondary emissions, the assumption that all of the VOC that leaves the plant with the wastewater goes to the atmosphere is a very bad assumption. Under current EPA requirements wastewaters must be subjected to treatment before discharge. Assuming that these currently required treatments do not remove any VOC and that all of it results in an emission, needs to be studied further.

SAL 000020297

MOB 000011346

Control Systems

V.A.1.a

Before the applicability of a carbon adsorption control system should be specified as a control system for the Hydrogen Fluoride Vent in the Olefin Process, several technical questions should have been addressed. To properly accomplish this, it is necessary that pilot plant tests first be conducted. These tests would answer such questions as the regenerability of the carbon, carbon life expectancy, removal efficiencies, and feasibility of decantation of distillates. Without first performing these actual tests all that the applicable control option of an active carbon system represents is a "theoretical" possibility. Our main objection to this type of theoretical approach is that many times a blanket statement that "a control system could be used" is interpreted by regional offices and state agencies as meaning that it is totally technically feasible. Statements of this nature should be clarified as to the fact that the proposed systems are theoretical in nature and have not been commercialized.

In addition to the technical feasibility question, there is also the question of the safety of this proposed system. As this vent system is also utilized for emergency relief purposes, the carbon adsorption system would have to be sized for this type of release. Increasing the amount of equipment which could create unsafe back pressures during needed emergency relief does not seem a viable approach. For this reason the only control option which appears to meet both the safety and technical feasibility (commercialization) is the flare system.

V.A.5

For the storage and handling operations other possible control options should have been pursued such as flaring, vapor balancing and vapor recovery systems. The retrofitting of existing tankage with a floating roof is not always a feasible option.

V.A.6

The Hydrosience assumption that contaminated wastewaters should be disposed of by deep well injection is not a realistic option in many locations. As this is a major source of emissions as outlined in Section V (model plant), this aspect has not been properly addressed.

V.B.1.a

The control option of an activated carbon system in this application raises the same questions as raised previously for the HF vent. There is a definite need to prove commercial viability through pilot operations before a system can be proposed.

The basic design of the proposed system is also questioned. Rather than relying on a caustic scrubbing system to remove all traces of hydrochloric acid, it would be a better design to construct the adsorption system out of acid resistant material.

These previous comments appear mute, however, as emissions from this vent have been greatly overstated and thus control options need to be reviewed for the lesser quantities of emissions.

V.B.6

In reviewing this section there is speculation raised that Hydrosience is attempting to reach a given percentage reduction for the processes rather than applying best process control and economical options. For the Olefin route the Hydrosience report recommends that a surface condenser be used to recover material from the paraffin stripping column vent (Table V-1). For the chlorination process, however, there is no control device recommended (Table V-3) for the vacuum refining column vent. These two sources are identical even in the level of emissions. The only difference appears to be in the percentage of the total emission each source contributes to the total plant emission levels. The basic question raised here is if the control device is not warranted for the chlorination route, why was it specified for the Olefin process?

V.B.8

The same comments as made for V.A.5 apply here also.

V.B.9

The same comments as made for V.A.6 also apply here.

V.B.10

The statement that air stripping of the wastewaters could be used by other manufacturers to reduce VOC in the wastewater must be entirely premised upon the assumption that there are potential usages for the stripping air within the facility. In lieu of the air stripping, steam stripping of the wastewaters might present a more viable option.

Impact Analysis

Table VI-1

The factors used for operating labor and liquid waste disposal are felt to be too low. The recovery credit for benzene also needs to be updated.

VI.A.1.a

The activated carbon replacement life of four years appears to be excessive.

MCD 000011348

SAL 000C20299

Table VI-5

This table needs to be revised as the total quantity of emission controlled is based on an incorrect process description of the HCl Recovery System which resulted in inordinately high emission levels.

Product Assessment

This section points out one of the major flaws that seems to be prevalent throughout the report. This is the fact that the verification (by actual sampling) of the assumptions made throughout this report will take place "after the fact". To proceed with logical scientific methodology, the verification of the assumptions should have taken place before issuance of the report. To have properly evaluated the overall industry before the report was written, each of the manufacturing operations should have been visited to gain a working knowledge of the process and its variations. Only in this way can a meaningful evaluation of the industry be made.

/ikp

MCD 000011349

SAL 000020300