

Appendix K

**Technical Support Documentation:
Revision of VOC Emission Requirement Contained in
OAC Rule 3745-21-09(BBB)(1) for the Agerite Resin D Process at
BfGoodrich Company Akron Chemical Plant**

BFGoodrich
Specialty Chemicals

BFGoodrich Specialty Chemicals
Akron Chemical Plant
240 West Emerling Avenue
Akron, Ohio 44301

August 10, 1995

Mr. James A. Orlemann, P.E.
Manager, Engineering Section
Division of Air Pollution Control
Ohio Environmental Protection Agency
P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149

RE: Acetone As Exempted VOC and RACT Rule Impact

Per our recent phone conversation I am providing below a suggested RACT Rule revision that takes into consideration the changed regulatory circumstances. As you are aware the USEPA on June 16, 1995 revised the definition of volatile organic compounds (i.e., VOC) by adding acetone to the list of compounds excluded from the definition of VOC. We understand that the Ohio EPA plans to revise its VOC definition in the SIP to agree with this USEPA regulatory action.

We are proposing that concurrently with this VOC definition change that the Ohio EPA deletes OAC 3745-21-09(BBE)(01) for our Agerite Resin D (i.e., ARD) manufacturing process. We are making this proposal since with the exclusion of acetone as a VOC there would only be left about 0.13 pounds per hour of stack tested VOC's requiring control. We believe that control of this level of VOC's is not technically nor economically feasible as required by OAC 3745-21-11.

We believe that some background facts are appropriate for your full consideration of our proposal and we are providing them as an attachment to this cover. Should you have any questions or wish to discuss our proposal please feel free to call me at (216)374-3010. We are also available to meet with you on this matter if required.

Sincerely,



Kevin J. Kilroy
Manager, Environmental Affairs

cc: Mr. Lynn Malcolm, Administrator
Akron Regional Air Quality Management District
177 South Broadway
Akron, Ohio 44308

ATTACHMENT TO BFG MEMO DATED 8/10/95 - BACKGROUND FACTS

1. The BFGoodrich Agerite Resin D manufacturing process is covered by a site specific RACT Rule per OAC 3745-21-09(BBB)(01). We have installed and operate a control device which underwent a successful compliance stack test in mid-January of 1994.
2. As part of a voluntary plant wide emission reduction effort, in-process source reduction conducted since the RACT study has reduced the amount potentially available for control.
3. The average volumes of VOC's measured during the compliance stack test were extremely low at 1.21 pounds per hour before control and around 0.1 pounds per hour after the RACT control device.
4. The delisting of acetone as a VOC has further reduced the amount of VOC's subject to control. During the compliance stack test the worst case amount of VOC's, excluding acetone, that were measured at the inlet of the RACT control device is 0.146 pounds per hour (0.64 tons per year).
5. The RACT technical and economic feasibility study for providing VOC emission controls, which was the basis of this RACT Rule, was itself based on process vent emissions significantly higher than the average residual loss with or without acetone (0.127 pounds per hour or 0.6 tons per year).
6. The RACT study was based on control of mostly acetone and to a lesser degree aniline. The attached summary page from the compliance stack test shows that both are well controlled by the RACT control system (~100%).
7. The other two organics monitored during the compliance stack test were not included or considered in the RACT study, nor in the design basis of the RACT control system. Mesitylene is a residual by-product of the process. It currently represents 27% of the inlet VOC gas stream and was somewhat controlled at 57%. The presence of the other contaminant, butene, was unexpected and its origin is still unexplained. It currently represents 71% of the inlet VOC gas stream, and as a gas it cannot, nor was it intended to, be controlled by the installed RACT control device (i.e., a vent gas contact condenser).
8. In order to meet the 90% VOC control level required by Rule OAC 3745-21-09(BBB)(01) we would have to provide an additional control device. This additional control device would be required to control only 0.114 pounds per hour of mostly butene and mesitylene (90% control of 0.127 pounds per hour).
9. The continuation of this particular site specific RACT Rule is at an emission rate, that were this a new air contaminant source, no modelling for control determination under the Ohio EPA's Air Toxic Policy would occur. That policy requires modelling for determining if controls are required for air toxic emission rates of 1 ton per year (0.23 pounds per hour).

BF Goodrich
Akron, OH 44325

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TABLE 2-1
CONTROL EFFICIENCIES

| Run #3 Compound | Raw Data Emission Rate lb/hr | |
|--------------------|---------------------------------|-----------|
| | Inlet | Outlet |
| Butene | 0.104 | 0.12100 |
| Acetone | 1.4 | < 0.00010 |
| Mesitylene | 0.0391 | 0.01590 |
| Aniline | 0.00317 | < 0.00008 |

| Run #4 Compound | Raw Data Emission Rate lb/hr | |
|--------------------|---------------------------------|-----------|
| | Inlet | Outlet |
| Butene | 0.07128 | 0.07470 |
| Acetone | 0.755 | < 0.00010 |
| Mesitylene | 0.02405 | 0.01100 |
| Aniline | 0.00232 | < 0.00006 |

| Run #5 Compound | Raw Data Emission Rate lb/hr | |
|--------------------|---------------------------------|-----------|
| | Inlet | Outlet |
| Butene | 0.096 | 0.11010 |
| Acetone | 1.12 | < 0.00010 |
| Mesitylene | 0.0397 | 0.01690 |
| Aniline | 0.00296 | < 0.00007 |

ARD Scrubber Performance

| Run #3 Compound | Lb/hr Emissions | | Control Efficiency | |
|--------------------|-----------------|---------------|--------------------|-------------|
| | Inlet | Outlet | | |
| Butene | 0.104 | 0.10400 | % | 0.0 |
| Acetone | 1.4 | ND | % | 100.0 |
| Mesitylene | 0.0391 | 0.01590 | % | 59.3 |
| Aniline | 0.00317 | ND | % | 100.0 |
| Total | 1.54627 | 0.1169 | % | 92.2 |

| Run #4 Compound | Lb/hr Emissions | | Control Efficiency | |
|--------------------|-----------------|----------------|--------------------|-------------|
| | Inlet | Outlet | | |
| Butene | 0.07128 | 0.07128 | % | 0.0 |
| Acetone | 0.755 | ND | % | 100.0 |
| Mesitylene | 0.02405 | 0.01100 | % | 54.3 |
| Aniline | 0.00232 | ND | % | 100.0 |
| Total | 0.85263 | 0.08228 | % | 90.4 |

| Run #5 Compound | Lb/hr Emissions | | Control Efficiency | |
|--------------------|-----------------|---------------|--------------------|-------------|
| | Inlet | Outlet | | |
| Butene | 0.096 | 0.09600 | % | 0.0 |
| Acetone | 1.12 | ND | % | 100.0 |
| Mesitylene | 0.0397 | 0.01690 | % | 57.4 |
| Aniline | 0.00296 | ND | % | 100.0 |
| Total | 1.26866 | 0.1129 | % | 91.0 |

* ND = Not Detected