

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Fleischmann's Vinegar
Attn: H. C. Daugherty
4801 South Oakley Avenue
Chicago, Illinois 60609

Application No.: 01010007

I.D. No.: 031600AHP

Applicant's Designation:

Date Received: January 5, 2001

Subject: New Acetators (A11-A15), Modification to Acetators (A1-A5, A7)

Date Issued:

Location: 4801 South Oakley Avenue, Chicago, 60609

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of five new acetators (A11-A15) and a modification to existing acetators (A1-A5, A7) as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 Unit Specific Conditions

1.1 Unit: Acetators (A1-A5, A7, A11-A15)
Control: Scrubbers

1.1.1 Description

Vinegar is made by the acetous fermentation of ethyl alcohol to acetic acid (vinegar) by the microorganism called Acetobacter.

Acetator process uses a tank with an aerator and internal cooling coils or external heat exchanger for controlling the temperature. The alcohol/nutrient/vinegar mixture is continuously mixed and aerated inside this tank by the aerator. The acetobacter thrives in the liquid mixture. When the alcohol is completely fermented into vinegar, one third of the liquid volume is pumped out. The same volume of fresh mash of alcohol/nutrient/vinegar mixture is then charged into tank to start another cycle of fermentation.

Vinegar is concentrated from 12% to 20%-30% acetic acid in a concentrator, a tank with internal cooling coils. Water in the vinegar is turned to ice and the remaining liquid, which is concentrated vinegar, is pumped out. Emissions from the acetators are controlled by packed bed scrubbers.

1.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
A11, A12, A13	Acetators	Scrubbers S11, S12, S13
A14, A15	Acetators	Scrubber S14
A1, A2, A3, A4, A5, A7	Acetators	Scrubbers S1, S2, S3, S4, S5, S7

1.1.3 Applicability Provisions and Applicable Regulations

- a. The "affected acetator" for the purpose of these unit-specific conditions, is an acetator as described in Conditions 1.1.1 and 1.1.2.
- b. The affected acetators are subject to 35 IAC 218 Subpart G, Use of Organic Material, which provides that:
 - i. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in Condition 1.1.3(b)(ii) (see also 35 IAC 218.302) and the following exception: If no odor nuisance exists the limitation of 35 IAC 218 Subpart G shall apply only to photochemically reactive material [35 IAC 218.301].
 - ii. Emissions of organic material in excess of those permitted by Condition 1.1.3(b)(i) (see also 35 IAC 218.301) are allowable if such emissions are controlled by a vapor recovery system which adsorbs and/or condenses at least 85 percent of the total uncontrolled organic material that would otherwise be emitted to the atmosphere [35 IAC 218.302(b)].
- c. The affected acetators are subject to 35 IAC 218 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes. Pursuant to 35 IAC 218.966(a), every owner or operator of a miscellaneous organic chemical manufacturing process emission unit subject to 35 IAC 218 Subpart RR shall employ emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent from each emission unit.

1.1.4 Non-Applicability of Regulations of Concern

- a. The affected acetators are not subject to the NESHAP for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry, 40 CFR 63, Subpart F, because the source does not manufacture as a primary product one or more of the chemicals listed in table 1 of 40 CFR 63 Subpart F.
- b. The affected acetators are not subject to the requirements of 35 IAC 218 Subpart Q, Leaks from Synthetic Organic Chemical and Polymer Manufacturing Plants, pursuant to 35 IAC 218.421 because these components are not used to manufacture the synthetic organic chemicals or polymers listed in Appendix A of 35 IAC Part 218.

1.1.5 Operational And Production Limits And Work Practices

- a. For any leaks from components subject to the control requirements of 35 IAC 218 Subpart RR, the owner or operator shall repair any component from which a leak of VOL can be observed. The repair shall be completed as soon as practicable but no later than 15 days after the leak is found, unless the leaking component cannot be repaired until the process unit is shut down, in which case the leaking component must be repaired before the unit is restarted [35 IAC 218.966(c)(1)].
- b. The Permittee shall follow good operating practices for the scrubbers, including periodic inspection, routine maintenance and prompt repair of defects.

1.1.6 Emission Limitations

The affected acetators are subject to the following:

- a. Emissions from the affected acetators (A1-A5, A7, A11-A15) shall not exceed the following limits:

VOM Emissions	
<u>(Ton/Month)</u>	<u>(Ton/Year)</u>
4.5	54.0

These limits are based on minimum overall control efficiency and the compliance procedures specified in Condition 1.1.12. The annual limit represents an increase of 40.1 tons. This increase is based on an "actual-to-potential" calculation for the modification

to existing equipment and the potential emissions from the new equipment. Actual emissions for modified acetators = 13.9 tons. Potential emissions for modified acetators = 34.8 tons. Potential emissions for new acetators = 19.2 tons. Contemporaneous increase = $19.2 + (34.8 - 13.9) = 40.1$ tons.

- b. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- c. The source has addressed the applicability and compliance of 35 IAC Part 203, Major Stationary Sources Construction and Modification (See Attachment 1). These limits continue to ensure that the construction and/or modification addressed in this construction permit does not constitute a new major source or major modification pursuant to these rules.

1.1.7 Testing Requirements

Within 30 days of initial startup, the Permittee shall conduct testing to demonstrate compliance with 35 IAC 218.966. The tests shall be conducted in accordance with the applicable test methods and procedures specified in 35 IAC 218.105, as follows:

- a. For control device efficiency testing and monitoring, the control device efficiency shall be determined by simultaneously measuring the inlet and outlet gas phase VOM concentrations and gas volumetric flow rates in accordance with the gas phase test methods specified in Condition 1.1.7(c) (see also 35 IAC 218.105(f)) [35 IAC 218.105(d)(1)].
- b. The overall efficiency of the emission control system shall be determined as specified in 35 IAC 218.105(c).
- c. Volatile Organic Material Gas Phase Source Test Methods: The methods in 40 CFR Part 60, Appendix A, delineated below shall be used to determine control device efficiencies:
 - i. 40 CFR Part 60, Appendix A, Method 18, 25 or 25A, as appropriate to the conditions at the site, shall be used to determine VOM concentration. Method selection shall be based on consideration of the diversity of

organic species present and their total concentration and on consideration of the potential presence of interfering gases. The test shall consist of three separate runs, each lasting a minimum of 60 minutes, unless the Illinois EPA and the USEPA determine that process variables dictate shorter sampling times [35 IAC 218.105(e)(1)];

- ii. 40 CFR Part 60, Appendix A, Method 1 or 1A, shall be used for sample and velocity traverses [35 IAC 218.105(e)(2)];
 - iii. 40 CFR Part 60, Appendix A, Method 2, 2A, 2C or 2D, shall be used for velocity and volumetric flow rates [35 IAC 218.105(e)(3)];
 - iv. 40 CFR Part 60, Appendix A, Method 3, shall be used for gas analysis [35 IAC 218.105(e)(4)];
 - v. 40 CFR Part 60, Appendix A, Method 4, shall be used for stack gas moisture [35 IAC 218.105(e)(5)];
 - vi. 40 CFR Part 60, Appendix A, Methods 2, 2A, 2C, 2D, 3 and 4, shall be performed, as applicable, at least twice during each test run [35 IAC 218.105(e)(6)]; and
 - vii. Use of an adaptation to any of the test methods specified in Conditions 1.1.7(c)(i), (ii) (iii), (iv), (v), and (vi) (see also 35 IAC 218.105(f)(1), (2), (3), (4), (5) and (6)) may not be used unless approved by the Illinois EPA and the USEPA on a case by case basis. An owner or operator must submit sufficient documentation for the Illinois EPA and the USEPA to find that the test methods specified in Conditions 1.1.7(c)(i), (ii) (iii), (iv), (v), and (vi) (see also 35 IAC 218.105(f)(1), (2), (3), (4), (5) and (6)) will yield inaccurate results and that the proposed adaptation is appropriate [35 IAC 218.105(e)(7)].
- d. Because the acetators A1-A5, A7, A11-A15 and their control devices are similar, the Permittee can choose to test just one acetator and assume the results will be the same for the remaining acetators.

1.1.8 Inspection Requirements

None

1.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for each affected acetator to demonstrate compliance with Conditions 1.1.3, 1.1.5, and 1.1.6:

- a. Records of the testing of the efficiency of each capture system and control device pursuant to Condition 1.1.7, which include the following:
 - i. The date, places and time of sampling or measurements;
 - ii. The date(s) analyses were performed;
 - iii. The company or entity that performed the analyses;
 - iv. The analytical techniques or methods used;
 - v. The results of such analyses; and
 - vi. The operating conditions as existing at the time of sampling or measurement.
- b. Pursuant to 35 IAC 218.991(a)(2), any owner or operator of a VOM emission unit which is subject to the requirements of 35 IAC 218 Subpart RR and complying by the use of emission capture and control equipment shall collect and record all of the following information each day and maintain the information at the source for a period of three years:
 - i. Control device monitoring data [35 IAC 218.991(a)(2)(A)];
 - ii. A log of operating time for the capture system, control device, monitoring equipment and the associated emission unit [35 IAC 218.991(a)(2)(B)]; and
 - iii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine

maintenance performed including dates and duration of any outages [35 IAC 218.991(a)(2)(C)].

- c. Airflow from each affected acetator (cfm).
- d. VOM emissions (tons/month and tons/year) from the affected acetators as calculated by condition 1.1.12.

1.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of noncompliance of the affected acetator with the permit requirements as follows. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken: Emissions of VOM in excess of the limits in Conditions 1.1.3(b) and/or 1.1.6 based on the current month's records plus the preceding 11 months within 30 days of such an occurrence.

1.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

1.1.12 Compliance Procedures

Compliance with the emission limits shall be based on the recordkeeping requirements in Condition 1.1.9 and the emission factors and formulas listed below:

- a. Compliance with Conditions 1.1.3(b) and (c) is assumed by proper operation of the scrubber, as addressed by Condition 1.1.5(b).
- b. To determine compliance with Condition 1.1.6, VOM emissions from the affected acetators shall be calculated based on the following:

Volatile Organic Material emission rates for the affected acetators:

Uncontrolled VOM Emissions: 3.25 lb/hr/100 cfm

$$\text{VOM (tons)} = \text{Uncontrolled emission rate (lbs/hr)} \times [1 - (88.62/100)] \times \text{Hours of operation} \times 1/2000$$

- 2. The affected acetators may be operated for a period of 180 days under this construction permit.

Please note that the Permittee should seek to amend their CAAPP permit to include the construction and/or modification covered under this permit through the administrative amendment process by submitting an application that includes the information contained in form 273-CAAPP. This application must also identify and address any changes from the associated construction permit application. Note that information previously submitted in the construction permit application may be incorporated by reference into the application to amend the CAAPP permit. The Permittee must also provide updated information on fees as contained in form 292-CAAPP, "Fee Determination for CAAPP Permit".

If you have any questions on this, please call Jason Schnepf at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:JMS:psj

cc: Region 1

Attachment 1

Nonattainment NSR Applicability

Contemporaneous Time Period of 1997 Through 2001

Table I - Emissions Increases Associated With The Proposed Modification

<u>Item of Equipment</u>	<u>Proposed Commencement of Operation Date</u>	<u>VOM Emissions Increase (Tons/Year)</u>	<u>Permit Number</u>
Acetators (A1-A5, A7, A11-A15)	2001	40.10 ^a	01010007

Table II - Source-Wide Creditable Contemporaneous Emission Increases

<u>Item of Equipment</u>	<u>Commencement of Operation Date</u>	<u>VOM Emissions Increase (Tons/Year)</u>	<u>Permit Number</u>
Acetators (A6, A8, A9, A10)	2000	16.10 ^b	00030132

Table III - Source-Wide Creditable Contemporaneous Emission Decreases

<u>Item of Equipment</u>	<u>Commencement of Operational Change Date</u>	<u>VOM Emissions Decrease (Tons/Year)</u>	<u>Permit Number</u>
Generator Group C4 ^c	1998	18.14	73032296
Generator Groups C1, C2, C3, C5, C6 ^d	1999	<u>57.40</u> 75.54	73032296

Table IV - Net Emissions Change

	<u>(Tons/Year)</u>
Increases Associated With The Proposed Modification	40.10
Creditable Contemporaneous Emission Increases	16.10
Creditable Contemporaneous Emission Decreases	<u>- 75.54</u>
	- 19.34

^a This increase is based on the modification of six acetators (A1-A5, A7) and the construction of five acetators (A11-A15). The emission increase

was calculated using a "potential-to-actual" calculation for the modified acetators and the potential of the new acetator.

b

This increase is based on the modification of three acetators (A6, A8, A9) and the construction of one acetator (A10). The emission increase was calculated using a "potential-to-actual" calculation for the modified acetators and the potential of the new acetator.

^c This decrease is based upon the shutdown of a group of generators (C4). The decrease was calculated using the allowable emissions for the generators (i.e. 81 percent control efficiency was used since the allowable emissions were less than the actual emissions for calendar years 1996 and 1997).

^d This decrease is based upon the shutdown of a group of generators (C1, C2, C3, C5, C6). The decrease was calculated using the allowable emissions for the generators (i.e. 81 percent control efficiency was used since the allowable emissions were less than the actual emissions for calendar years 1997 and 1998).

JMS:psj