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STATE OF ILLINOIS

217/782-2113

Application No.: I811006
I.D. No.: 163121AAJ INC-1
Received: January 29, 1979
Construction of: Incinerator System
Location: 1 Mobile Avenue, Sauget, Illinois

EPA Region 5 Records Ctr.
285133

April 27, 1979

Clayton Chemical Company
1 Mobile Avenue
Sauget, Illinois 62201

Attention: B. R. Haney

Gentlemen:

Permit is hereby granted to construct the above-referenced equipment. This permit is granted subject to the following conditions:

1. Standard conditions attached hereto and incorporated herein by reference.

2. Additional requirements which are to be accomplished by the time of application for the incinerator operating permit:

   a. All necessary Federal, State and Local water pollution control operating permits are to be applied for, and the Agency is to be advised of the status of the applications for permits other than Agency permits.

   b. All necessary Federal, State, and Local solid waste disposal permits are to be applied for either by Clayton Chemicals if disposal is to be on-site or by the appropriate landfill owner if that landfill is not already permitted for special wastes, and the Agency is to be advised of the status of the applications for permits other than Agency permits.

   c. Written approval is to be obtained from the Agency for disposal methods for any liquid wastes which may be determined by analysis or by test burn (reference Condition 6c) to be unsuitable for burning in the incinerator. Unsuitable wastes are those which contain unacceptable (reference Condition 3c for definition of acceptable waste) wastes which cannot be diluted to less than the acceptable waste level and for which the operating temperature of the incinerator cannot be increased sufficiently to attain 99.99% destruction for that chlorinated organic.

3. The operating permit for this equipment will be issued after the successful completion of the testing program conducted by an independent testing agent whose provisions are detailed in this condition. Permittee's plan and specifics for this testing program are to be provided in advance to the Agency for review and approval.

   a. Stack testing program to demonstrate the incinerator's ability to incinerate liquid wastes: A series of four test burns will be conducted for the purpose of testing the incinerator's ability to destruct an example difficult waste:

      1. Particulate emissions are to be measured by USEPA Method 5.

      2. Carbon monoxide emissions are to be measured by methods and procedures described in the Illinois EPA publication ATP-2.

      3. Organic material emissions are to be measured by a flame ionization detector (Beckman 402 or equivalent).

   b. Calculation of the incinerator's compliance will be based upon the arithmetic average of the four test results:

      1. Compliance with Rule 203(e)(2) will be established when the particulate emissions for four consecutive test results average less than 0.08 grains/SCF corrected to 12% carbon dioxide.

      2. Compliance with Rule 206(b) will be demonstrated when the carbon monoxide emission is less than 500 ppm @ 50% excess for the average of four consecutive test results.

      3. Section 9a of the Illinois Environmental Protection Act requires the Agency to consider the potential for Air Pollution of all permits issued. The potential emission of toxic organic materials represents a potential for air pollution. A method which is acceptable to the Agency for demonstration that chlorinated organic emissions will not occur is the demonstration of 99.99% destruction of the liquid waste and of the nitrochlorobenzene component (see Condition 3c) during four consecutive test burns during the stack testing program. This will be calculated using the measure of total organic material and, separately, the nitrochlorobenzene in the stack gas and amount of liquid waste and, separately, the nitrochlorobenzene being fed to the incinerator, averaged over the period of the test burn. The average of four test burns will be compared to the 99.99% destruction acceptance standard, for total organics and, separately, for nitrochlorobenzene.

c. To provide a reasonable demonstration of the incinerator's ability to destroy resilient chlorinated organics in concentrations which may be charged to the incinerator, an addition of 2.25 wt. % of nitrochlorobenzene shall be made to the liquid waste for the four test burns. If nitrochlorobenzene cannot be 99.99% destructed and if operating temperature increase to attain that destruction is not selected, then total chlorine in the liquid waste must be less than the acceptable waste level where the acceptable waste level in parts per million is defined as 0.5/(1-P/100) and where P is the actual percent destruction achieved for the four test burns of the nitrochlorobenzene test waste.

d. Verification of the liquid waste feed screening procedure, which is to be used during stack testing and also during subsequent operation of the incinerator.

1. Before the stack emission tests are conducted, the applicant will obtain written Agency approval of sampling and analytical procedures to be used in the screening analysis.

2. Specific ASTM analytical procedures must be specified where applicable to allow the Agency to evaluate the precision of the measurement method.

3. Verification of the analytical screening procedures is to be accomplished in conjunction with the four trial burns by submitting aliquots of samples to a commercial laboratory for replicate analysis. The results for the commercial laboratory and for Clayton Chemicals are to be within norms established for reproducibility of the analysis procedures:

a. Heat content ASTM D240-76
b. Sulfur content ASTM D129-64 (1978)
c. Chlorine content ASTM D808-63 (1976)
d. Ash content ASTM D482-74

The average ash content of the liquid waste fed to the incinerator during the four test burns will be established as the maximum permitted ash content for liquid waste feed.

4. Results of the commercial laboratory tests and analytical results of the screening procedures should fall within the range of accepted reproducibility.

e. In no case are wastes containing greater than 0.5% chlorine by weight to be incinerated, unless diluted to less than 0.5% chlorine by weight.

4. Requirements for the installation of continuous stack emission monitors: This installation is to be completed before the stack testing program is begun and continued during the operation. Written Agency approval of the stack monitors is to be obtained prior to submitting stack test results.

   a. A hydrocarbon emission monitor of the flame ionization type and an oxygen monitor are to be installed to sample the stack gases on a continuous basis. Demonstration of the destruction efficiency will be accomplished with the use of the flame ionization detector and the oxygen monitor. Incinerator operator instructions are to be developed which will allow the operator to determine from the readings if the incinerator is achieving the required destruction efficiency. This set of instructions is to receive Agency approval before the testing program is conducted. All results of the monitor are to be recorded continuously. The range of the oxygen monitor should be such that the lowest oxygen concentration for design operation gives a reading of more than 10% of the monitors full scale. The flame ionization detector must give at least 10% of full scale response at the destruction efficiency.

   b. An incinerator temperature monitor shall be installed to measure the incinerator temperature within 1% accuracy and record this result on a continuous recorder.

   c. An incinerator liquid waste feed rate monitor shall be installed and the value recorded on a continuous recorder.

5. Equipment required for the identification of any acceptable chlorinated organic compounds in the liquid waste being fed to the incinerator. This equipment is to be purchased prior to stack testing and is to be used during the stack testing program and during future incinerator operation.

   a. Equipment as necessary to accomplish the heat content, chlorine content, and ash content analysis in accord with the ASTM methods prescribed in Condition 3.d.3.

   b. A high efficiency gas chromatograph with a chlorine specific detector having accuracy sufficient to detect organic chlorine compounds present at the acceptable waste level (reference condition 3c). Written approval of specific equipment to be used to be obtained from the Agency before the equipment is purchased.

6. Conditions in addition to those above which will be included in the operating permit to assure that the liquid waste incinerator will be operated in compliance with applicable regulations.

   a. Before beginning operation, the applicant will obtain written approval of the data log formats which involve the material being incinerated.

      1. Provisions must be made for the logging on to the incinerator site all liquid waste which is designated for incineration, maintaining the storage tank location. The log shall include the following minimum information: company generating organic waste, type of process generating, amount of liquid waste received, and the holding tank where it is to be stored.

      2. Provisions must be made to describe the amounts and material types added to the incinerator blending tanks. This may be accomplished by listing the holding tanks and amount of organic material added to the blending tank from each holding tank.

   b. The liquid waste screening analysis, which was validated during the emission stack test, is to be conducted on each batch of liquid waste feed for the incinerator which is made up in the blending tanks.

      1. The blending tank tests will be continued for three months to establish the normal range of the parameters.

      2. After three months the Agency will consider a less frequent sampling schedule for some or all of the parameters being measured in the screening analysis.

      3. If the liquid waste incinerator failed to accomplish the required degree of destruction for nitrochlorobenzene as indicated by the monitors during the stack testing, the liquid waste being fed to the incinerator must be limited to less than the acceptable waste level (reference condition 3c) for all unacceptable chlorinated organics. This is to be accomplished by replacing the chlorine test with a test including a gas chromatograph and a chlorine specific detector with sufficient sensitivity to detect at the acceptable waste level. In such a situation, when the blending tank contents exceed the acceptable waste level the contents are not acceptable for incineration.

c. The first 15 minutes of incinerator operation following the introduction of liquid waste from a newly filled blending tank shall be considered to be a trial burn. If after 15 minutes, the required destruction efficiency has not been acheived as indicated by the oxygen monitor and flame ionization detector, the burning of the material in the blending tank shall be discontinued. Dilution of the contents or increased incinerator temperature will be required before the burning of the liquid waste in the batch is to be attempted again. If the material is not acceptable for incineration other approved disposal methods are to be used (reference Condition 2c). Whatever action is taken must be recorded in the incinerator log(s). Positive action must be taken to prevent the loading of that unacceptable liquid waste into the blending tanks in the future.

d. The incinerator log(s) will be kept on an hour by hour basis for operating parameters as follows:

Operating temperature
Liquid waste feed rate
Oxygen concentration in stack gas
Water flow through scrubber
Pressure drop across scrubber

The above incinerator parameters will have defined optimal values and acceptable ranges of values to assure similar operating conditions as recorded during the stack test.

e. Waste material generated in the incineration process in the form of collected ash or any material which was accepted at the site but which later proved unacceptable for incineration must be treated in accordance with the procedures per Condition 2.c. and sent to a designated landfill or other disposal site approved by the Agency.

f. Clayton Chemical Co. shall use the Agency's manifest system for identifications of the sources of the liquid wastes which are shipped to the site for incineration. Agency personnel shall have access to the records which are maintained as part of the manifest program.

1. Clayton will require its generators to ship only those wastes which were identified in the representative sample which was analyzed as part of the manifest permitting program.

2. Changed processes by a generator which affect the character of the waste will require a supplemental permit. Application for such permit shall include the analysis results for the sample of the new representative material.

3. The new material will not be accepted or incinerated by Clayton until the representative sample has been analyzed and found to be a material which the incinerator is capable of destructing.

7. Under no circumstances does the actual construction of equipment, as proposed in this construction permit, guarantee the issuance of an operating permit. Only after the permittee has successfully demonstrated compliance with Pollution Control Board Regulations and the Act, shall the Agency issue an operating permit for the above-referenced equipment.

Very truly yours,

Michael J. Hayes, P.E., Manager
Permit Section
Division of Air Pollution Control

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