

## Permit Review Narrative

PTI 14-4633

The Procter & Gamble Co.  
Ivorydale Beauty Care Plant  
5201 Spring Grove Avenue  
Cincinnati, OH 45217

PN: 1431390903 P023

This permit is for emissions unit P023, the detergent manufacturing process. Equipment is being added to the detergent manufacturing process (P023) which calls for a change in the above unit. The new molten sulfur storage tank is de minimis. The other storage tanks associated with this process were permitted under PTI 14-4517.

Emissions from this unit include: PM, CO, OC, NO<sub>x</sub>, SO<sub>2</sub>, and SO<sub>3</sub>. This emissions unit is regulated by the following Ohio Administrative Code (OAC) rules: 3745-31-05 which requires the use of Best Available Technology (BAT), 3745-15-07 concerning air pollution nuisances, 3745-17-07 concerning restrictions on visible particulate emissions, 3745-17-11 concerning restrictions on particulate emissions from industrial processes, and 3745-18-06(D) concerning restrictions on sulfur dioxide emissions from processes.

Control equipment employed by the new reactor include four electrostatic precipitators and a wet scrubber in series. For the existing reactor the control equipment consists of a packed bed scrubber followed in series by a mist eliminator.

I recommend approval of this PTI based on the fact that control equipment is employed in the detergent process.

Permit fee: \$1000 - See confidential file for additional information.

Prepared by: Elizabeth A. Evans  
Date Prepared: 9/11/98

The Procter & Gamble Co.  
PTI 14-4633

Additional Special Terms and Conditions

**A. Applicable Emission Limitations and/or Control Requirements**

1. The following emission limitations for emissions unit P023 shall not be exceeded:
  - a. SO<sub>2</sub>: 1.91 lbs/hour, 8.38 TPY (not including preheater)
  - b. SO<sub>3</sub> (sulfur trioxide): 0.062 lb/hour, 0.28 TPY
  - c. PM/PM10\* (H<sub>2</sub>SO<sub>4</sub>): 1.05 lbs/hour, 4.58 TPY (not including preheater)
2. The following emission limitations for the preheaters shall not be exceeded:
  - a. NO<sub>x</sub>: 0.1 lb/MMBTU, 7.01 TPY
  - b. CO: 0.021 lb/MMBTU, 1.47 TPY
  - c. PM/PM10\*: 0.0045 lb/MMBTU, 0.32 TPY
  - d. SO<sub>2</sub>: 0.0006 lb/MMBTU, 0.042 TPY
  - e. OC: 0.0058 lb/MMBTU, 0.41 TPY

\* All PM is assumed to be PM<sub>10</sub>.
3. Visible particulate emissions from any stack shall not exceed 20% opacity, as a six-minute average, except as specified by rule.
4. The hourly emission limitations outlined are based upon the emissions units' potential to emit. Therefore, no hourly records are required to demonstrate compliance with these limits.

## **B. Operational Restrictions**

1. At all times while emissions unit P023 is in operation, the gas-side pressure drop across the new SO<sub>2</sub>/H<sub>2</sub>SO<sub>4</sub> scrubber shall be continuously maintained at a value of not less than the minimum static pressure drop established during the emission test required by this permit that demonstrates that the emissions unit is in compliance.
2. The scrubber liquor flow rate of the new SO<sub>2</sub>/H<sub>2</sub>SO<sub>4</sub> scrubber shall be continuously maintained at a value of not less than 500 gallons per minute at all times while the emissions unit is in operation.
3. The pH of the scrubber liquor shall be maintained at or above 5.

## **C. Monitoring and Recordkeeping Requirements**

1. The permittee shall properly install, operate and maintain equipment to continuously monitor the gas-side static pressure drop across the new SO<sub>2</sub>/H<sub>2</sub>SO<sub>4</sub> scrubber, the scrubber liquor flow rate of the new SO<sub>2</sub>/H<sub>2</sub>SO<sub>4</sub> scrubber and the pH of the scrubber liquor while the emissions unit is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

- a. The gas-side pressure drop across the new SO<sub>2</sub>/H<sub>2</sub>SO<sub>4</sub> scrubber, in inches of water, on a once per shift basis.
- b. The scrubber liquor flow rate of the new SO<sub>2</sub>/H<sub>2</sub>SO<sub>4</sub> scrubber, in gallons per minute, on a once per shift basis.
- c. The pH of the scrubber liquor, on a once per shift basis.

- d. The operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.
2. Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit. Such records may be maintained in computerized form.

#### **D. Reporting Requirements**

1. The permittee shall submit quarterly deviation (excursion) reports that identify all periods of time during which the following scrubber parameters were not maintained at or above the required levels:
  - a. The gas-side static pressure drop across the new SO<sub>2</sub>/H<sub>2</sub>SO<sub>4</sub> scrubber.
  - b. The scrubber liquor flow rate of the new SO<sub>2</sub>/H<sub>2</sub>SO<sub>4</sub> scrubber.
2. The permittee shall submit quarterly pH deviation (excursion) reports that identify all periods of time during which the scrubber liquor pH did not comply with the pH requirements specified in Term B.3.
3. The permittee shall notify the Director (Hamilton County Department of Environmental Services) of any exceedance of the emission limitations set forth in this permit. The permittee shall submit reports which identify all exceedances of these limitations, as well as corrective actions that were taken to achieve compliance. If no exceedances occurred during the reporting period, then a report is required stating so.
4. The permittee shall submit required reports in the following manner:
  - a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the Hamilton County Department

of Environmental Services.

- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Hamilton County Department of Environmental Services. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 30, April 30, July 30, and October 30 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

#### **E. Compliance Methods/Testing Requirements**

1. Compliance with the emission limitations outlined in this permit shall be demonstrated by the emission factors, control efficiencies (if applicable), and the operational parameters (throughput, production rates and any other operational parameters which affect emissions) as submitted in the PTI application 14-4633 submitted August 12, 1998.
2. Compliance with the opacity limitation stated in term A.2. shall be demonstrated by the methods outlined in OAC rule 3745-17-03(B)(1).
3. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
  - a. The emission testing shall be conducted within 3 months after the start-up of this emissions unit.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub>(PM) from the new scrubber.
  - c. The following test method(s) shall be employed to demonstrate

compliance with the allowable mass emission rate(s): Method 6 (for SO<sub>2</sub>) and Method 8 (for H<sub>2</sub>SO<sub>4</sub>) of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Hamilton County Department of Environmental Services.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Hamilton County Department of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Hamilton County Department of Environmental Services' refusal to accept the results of the emission test(s).

Personnel from the Hamilton County Department of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the test and shall be submitted to the Hamilton County Department of Environmental Services within 30 days following the completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Hamilton County Department of Environmental Services.

## F. Miscellaneous Requirements

1. This permit allows the use of the materials specified by the permittee in the application for PTI number 14-4633. In conjunction with the best available technology requirements of OAC rule 3745-31-05, the emission limitations specified in this permit were established in accordance with the Ohio EPA's "Air Toxics Policy" and are based on both the material formulation data and the design parameters of the emissions unit's exhaust system, as specified in the application. Compliance with the Ohio EPA's "Air Toxics Policy" was demonstrated for each pollutant based on the SCREEN3 model and a comparison of the predicted 1 hour maximum ground-level concentration to the MAGLC. The following summarizes the results of the modeling for each pollutant modeled:

Pollutant: H<sub>2</sub>SO<sub>4</sub>

TLV (ug/m<sup>3</sup>): 1,000

Maximum Hourly Emission Rate (lbs/hr): 1.05

Predicted 1 hr max. Ground-level Concentration at the Fence Line  
(ug/m<sup>3</sup>): 20.68

Maximum Acceptable Ground-level Concentration (MAGLC)(ug/m<sup>3</sup>): 23.8

As long as the application of the "Air Toxics Policy" continues to show compliance with the applicable MAGLIC, the permittee may implement any of the following changes with prior notification to and approval from the Department of Environmental Services.

- a. Any changes in the composition of the materials, or the use of new, different materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists" (ACGIH), than the lowest TLV value specified in the above table.
- b. Any change to the emissions unit or its exhaust parameters (e.g., increased emission rate, reduction of exhaust gas flow rate, and decreased stack height).

For any change to the emissions unit or its method of  
operation that would either require an increase in

The Procter & Gamble Co.  
PTI 14-4633  
Page 8

the emission limitation(s) established by this permit or would otherwise be considered a "modification" as defined in OAC rule 3745-31-01, the permittee shall obtain a permit to install prior to the change.