



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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217/785-1705

## CONSTRUCTION PERMIT NESHAP SOURCE

### PERMITTEE

Medline Industries  
Attn: Jasper Titus, Director EHS  
3 Lakes Drive  
Northfield, Illinois 60093

Application No.: 19020013

I.D. No.: 097190AFG

Applicant's Designation:

Date Received: February 14, 2019

Subject: Improved Control of the Emissions of the Commercial Sterilization Facility

Date Issued: May 30, 2019

Location: 1160 South Northpoint Boulevard, Waukegan, Lake County

This Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of improvements in the control of emissions of this commercial sterilization facility, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

If you have any questions on this permit, please contact Daniel Rowell at 217/558-4368.

*Raymond E. Pilapil*

Raymond E. Pilapil  
Manager, Permit Section  
Bureau of Air

REP:DBR:mlm

*DBR*  
*5/30/19*

Conditions for the Project

1. Introduction

- a. This permit addresses the following improvements to the emission control measures for ethylene oxide at this commercial sterilization facility. The Permittee has agreed to these improvements to reduce the emissions of ethylene oxide of this facility and its impacts on air quality:
  - i. Changes to enable the sterilization processes and related operations to be conducted with permanent total enclosure (PTE), with all exhaust gas streams containing ethylene oxide being captured and ducted to control systems and with all emissions through a single stack. These changes include installation of fans and ductwork, construction of a partition wall between the areas at the source in which sterilized and unsterilized materials are stored, and installation of new emission control devices to control gas streams that currently vent to the atmosphere as general building ventilation air.
  - ii. Upgrades to the emission control systems for ethylene oxide to improve overall control efficiency, as follows:
    - A. Ducting of the outlet gas stream from the existing control system for the evacuation of the ten sterilization chambers, (i.e., two sets of Glygen™ scrubbers, in series) to the existing system that controls the gas stream from the aeration rooms (two packed tower scrubbers and an oxidizer, in parallel).
    - B. Installation of two multi-bed dry bed absorption (DBA) control devices in series after the existing control system for the aeration rooms. These DBA devices would also be used to control the gas streams from the back vents on the sterilization chambers, which are opened after the evacuation is completed.
    - C. Installation of a new packed tower scrubber for control of the incidental gas streams that are currently not controlled.
  - iii. Installation of a new stack at the facility that would improve dispersion, replacing the stacks that currently serve the existing control systems for the sterilization chambers and the aeration rooms.
  - iv. The potential installation of a third packed tower scrubber in the initial set of control devices for the aeration rooms, which scrubber would be similar to the existing scrubbers and reduce the loading of ethylene oxide to the initial DBA device.

- b. This permit does not authorize changes to this sterilization facility that would increase its sterilization capacity or emissions.
- c. For purposes of this permit, this sterilization facility, which includes ten sterilization chambers, two aeration rooms and a storage area for sterilized material, is referred to as the "affected facility."

2. Applicable Regulatory Requirements

This permit does not affect the applicability of regulatory requirements for the affected facility, i.e., applicable emission standards and associated regulatory requirements for testing, monitoring, recordkeeping and reporting, as are addressed in the current operating permit for the source, Federally Enforceable State Operating Permit 04120009, issued December 31, 2013.

In particular, the sterilization chambers and aeration rooms at the affected facility will continue to be subject to the requirements of the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) for Ethylene Oxide Emissions from Sterilization Facilities, 40 CFR 63 Subpart O, and applicable requirements of the General Provisions of the NESHAP, 40 CFR 63 Subpart A.

Note: If the Permittee were to seek alternatives to the procedures for performance testing in 40 CFR 63.365 to address the new configuration of control devices for the affected facility, the Permittee would need to obtain approval from USEPA in accordance with 40 CFR 63.7(e)(2). In addition, if the Permittee were to seek to rely on the new DBA control devices for compliance with the emission standards of 40 CFR 63.362, it would need to obtain approval of an operational monitoring plan that addresses these new devices in accordance with 40 CFR 63.365(g).

3. Emission Limits and Emission Control Requirements

- a. i. The emissions of ethylene oxide from the affected facility shall not exceed 15 pounds/month and 150 pounds/year. Compliance with these emission limits shall be determined by continuous emissions monitoring for ethylene oxide in accordance with Condition 7-1 except that during periods when monitoring data is not available, data for emissions shall be based on the usage of ethylene oxide, operating data for control devices and emission factors developed from emission testing in accordance with Condition 8-2.

Note: The above limits are more stringent than the emission limits in Condition 6(a) in the current operating permit for the source.

- ii. As this condition sets a monthly limit for the emissions of the affected facility, the first determination of compliance with this limit shall address the first whole

month after the control improvements identified in Conditions 1(a)(i) and (ii) are completed.

- iii. As this condition and Condition 5(a) set annual limits for the affected facility, compliance with these limits shall be determined from a running total of 12 consecutive months of data, with the first determination of compliance with these annual limits addressing the 12-month period that begins with the first whole month after the control improvements identified in Conditions 1(a)(i) and (ii) are completed.
- b.
  - i. The Permittee shall operate the affected facility with permanent total enclosure (PTE) for all areas of the facility in which ethylene oxide is used or may be released, including the storage and handling of bulk ethylene oxide and the storage and handling of sterilized material prior to loadout from the facility. This PTE shall be designed and operated to comply with the criteria for PTE in Section 6 of Method 204 in 40 CFR Part 51 Appendix M, as modified by Condition 3(b)(ii), so that 100 percent of the emissions of ethylene oxide of the facility are captured and ducted to control device(s). Compliance with these criteria shall be demonstrated by testing in accordance with Condition 8-1 and continuous operational monitoring for differential pressure, comparing pressure inside and outside the PTE, in accordance with Condition 7-2.
  - ii. For the doors at the loading dock, through which the sterilized material is moved during loadout, the PTE shall be designed and operated to comply with Criteria 5.4 of Method 204 (i.e., maintain an average facial velocity of air through of least 200 feet per minute through open doors, with air flow into the enclosure). However, the PTE need not comply with Criteria 5.1 of Method 204 for these doors (i.e., the doors need not be at least four equivalent diameters from the material that is being loaded out).
- c. The Permittee shall operate the emission control systems for ethylene oxide at the affected facility in accordance with the following requirements:
  - i. The Permittee shall operate each control system or segment of a control system at all times that a gas stream containing any ethylene oxide is ducted to it. In particular:
    - A. When a sterilization chamber is being evacuated, the entire control system for the evacuation of the sterilization chambers shall be in operation, i.e., both sets of Glygen™ scrubbers, the packed tower scrubber(s) and/or oxidizer, the initial DBA device and the final DBA device shall be in operation.

- B. When material is in an aeration room, the segment of the control system for the aeration rooms shall be in operation, i.e., the packed tower scrubber(s) and/or oxidizer, the initial DBA device and the final DBA device.
  - C. When sterilized material is being moved from a sterilization chamber to an aeration room or sterilized material is stored at the facility, the new packed tower control device for these activities shall be in operation.
- ii. The Permittee shall operate the control systems at the affected facility to comply with one of the following requirements for ethylene oxide. Compliance with this requirement shall be demonstrated by emission testing in accordance with Condition 8-2 and continuous monitoring in accordance with Conditions 7-1 and/or 7-3.

- A. The control systems shall be operated to reduce ethylene oxide emissions by at least 99.9 percent overall, comparing the total amount of ethylene oxide entering the control systems and the amount of ethylene oxide in the outlet gas stream from the systems.
- B. The concentration of ethylene oxide in the exhaust from the affected facility, as monitored in the stack shall be no more than 0.2 ppmv (parts per million by volume).

Note: 0.2 ppmv is the same as 200 ppbv (parts per billion by volume).

- d. The requirements of Conditions 3(b) and (c) shall take effect when the construction and operational verification of the improvements to the control systems for the affected facility that are needed to comply with such requirements, as addressed in Conditions 1(a)(i), (ii)(A) and (ii)(B), are completed, provided, however, that construction and operational verification of all such improvements shall be completed within 180 days of the effectiveness of this permit.

4. Construction of a New Stack for the Affected Facility

- a.
  - i. The Permittee shall construct a new stack for the affected facility that replaces the facility's existing stacks and roof vents, which shall be closed off.
  - ii. The construction of this new stack and replacement of the existing stacks shall be completed within 180 days of the effectiveness of this permit, provided however, that this

date may be extended by the Illinois EPA to accommodate the installation of a taller stack.

- b. i. The height of the new stack above ground level shall be at least 60 feet, provided, however, that if the City of Waukegan, by its action on a petition for a variance, allows installation of a taller stack, the height of the new stack above ground level shall be at least the lower of the following:
  - A. The height allowed by the City of Waukegan; or
  - B. 85.3 feet.
- ii. The Permittee shall submit a petition to the City of Waukegan for a variance for installation of new stack that is taller than 60 feet. This petition shall be submitted within 30 days of the effectiveness of this permit. Thereafter, the Permittee shall take reasonable actions, e.g., supplementing the variance with information as requested by the City, to support issuance of such a variance that would allow construction of a new stack with a height of at least 85.3 feet.
- c. i. Within 30 days of beginning operation of the new stack, the existing stacks and roof vents of the affected facility shall be sealed.
- ii. The requirements of Condition 4(c)(i) shall not apply during reasonable periods as needed to accommodate increasing the height of the new stack, provided the Permittee notifies the Illinois EPA in advance of increasing the height of the stack with the expected duration of the period until the new stack will be operational.

5. Operational Limits for the Affected Facility

- a. The usage of ethylene oxide by the affected facility shall not exceed 37.5 tons/month and 375 tons/year.

Note: The above limits are lower than the limits for the permitted usage of ethylene oxide in Condition 6(a) in the current operating permit for the source.

6-1. Operational Requirements Related to Permanent Total Enclosure (PTE)

- a. When the affected facility is in operation, the Permittee shall operate the PTE for the affected facility to maintain:
  - i. The pressure differential across the enclosure to at least 0.007 inches of water, rolling 3-hour average, as demonstrated by operational monitoring in accordance with Condition 6-3(a); and

- ii. The direction of air flow through openings in the enclosure into the enclosure at all times.
- b. The above operational requirements for the PTE of the affected facility shall take effect when the construction and operational verification of the relevant improvements to the control system for the affected facility addressed in Conditions 1(a)(i) are completed.

6-2. Design and Operating Requirements for Control Devices

- a. The emission control devices at the affected facility shall be designed and operated so that internal inspections, maintenance and repair of control devices are conducted without interrupting the control of emissions or releasing gas streams containing ethylene oxide inside the building. In particular:
  - i. Each DBA device shall be equipped so that an individual bed in the device may be temporarily removed from service for replacement of sorbent or other activities with all gas flow going to beds that are in service.
  - ii. If inspections, maintenance or repair of the Glygen™ scrubbers for the evacuation of the sterilization chambers will occur during operation of the sterilization chambers, these scrubbers shall be equipped so that individual scrubber(s) may be temporarily removed from service with all gas flow going to other scrubber(s).
  - iii. The first-stage control devices for the aeration rooms (i.e., the existing packed tower scrubbers and catalytic oxidizer) shall be equipped so that an individual device may be temporarily removed from service with all gas flow going to other devices.
  - iv. The new packed tower scrubber shall be designed and equipped with ductwork so that the emission streams that are normally controlled by this device will still be controlled when this device is temporarily removed from service.
- b. i. If the Permittee elects to comply with Condition 3(c)(ii)(A) (i.e., reduce emissions by at least 99.9 percent overall control efficiency), the Permittee shall operate the control devices in the emission control systems to comply with operational limits that are consistent with operation during the most recent emission testing of the affected facility, that shows compliance with Condition 3(c)(ii)(A), as follows:
  - A. New packed tower control device: Scrubbant flow rate and pH of the scrubbant, both on a rolling 3-hour average, as measured pursuant to Condition 7-3(a).

- B. Other control devices: Concentration of ethylene oxide in the stack, on a rolling 3-hour average, as monitored pursuant to Condition 7-1(a).
  - ii. During the period before Condition 6-2(b)(i) becomes effective (i.e., before emission testing is conducted and results are compiled showing compliance), control systems shall be operated in accordance with good air pollution control practice, as required by Condition 6-3(a).
  - iii. Notwithstanding Condition 6-2(b)(i), the Permittee may operate control systems at different values for operating parameters for purposes of conducting emissions testing provided that the Permittee notifies the Illinois EPA prior to such operation.

6-3. General Operational Requirements for Capture and Control Systems

- a. At all times, the Permittee shall maintain and operate the affected facility, including the emission capture and control systems in a manner consistent with safety and good air pollution control practice for minimizing emissions.
- b. This permit does not authorize operation of the affected facility without existing emission capture and control systems during the period when improvements to the capture and control system are being constructed and connected.

7-1. Emissions Monitoring

- a. The Permittee shall install, operate, calibrate and maintain a continuous emissions monitoring system (CEMS) on the stack of the affected facility to measure the concentration of ethylene oxide in the exhaust stream in parts per billion by volume (ppbv).
  - i. This monitoring system shall be designed and operated to meet the requirements in USEPA's Performance Specification 15 (PS-15) for Extractive Fourier Transform Infrared Spectroscopy (FTIR).
  - ii. This monitoring system shall be designed and operated to maintain a limit of quantification that is no greater than 10 ppbv.
- b. The Permittee shall install, operate, calibrate and maintain a continuous monitoring system (CMS) on the stack of the affected facility to measure the gas flow rate in the stack so as to be able to determine the mass emissions of the affected facility in pounds/hour. This CMS shall be located in the same area as the required CEMS and be designed and operated to meet the requirements in USEPA's Performance Specification 6, "Specifications and Test Procedures for Continuous Emission Rate



Monitoring Systems in Stationary Sources," 40 CFR Part 60, Appendix B, PS-6.

- c. For the monitoring systems required by Conditions 7-1(a) and (b):
  - i. In addition to automatically recording the data measured by each of these monitoring systems, the Permittee shall automatically record the emissions of ethylene oxide measured by these systems.
  - ii. The Permittee shall operate and maintain these monitoring systems to comply with the requirements of 40 CFR 63.8(c).
- d. The Permittee shall submit an Emissions Monitoring Plan to the Illinois EPA for review and approval at least 15 days before purchasing monitoring equipment that is intended to be used to satisfy Condition 7-1(a) and (b). This plan shall include the manufacturer, model number, performance specifications and recommended operation and maintenance procedure for the equipment that is proposed to be purchased and the location(s) at which it would be proposed to be installed, with explanation.
- e. i. The requirements of Condition 7-1(a) through (c) shall take effect 30 days after combining the outlet gas stream of the scrubbers for evacuation of the sterilization chambers with the gas stream from the aeration rooms or 30 days after completion of construction of the new stack, whichever occurs first, provided, however, that the Illinois EPA may provide additional time to address difficulties in installation and certification of the monitoring system, e.g., difficulty in obtaining suitable calibration gases.
- ii. ~~The requirements of Condition 7-1(a) through (c) shall not apply to the monitoring system(s) during reasonable periods as needed to accommodate the relocation and recertification of the system(s), provided the Permittee notifies the Illinois EPA in advance of the relocation of the system(s), including a description of the relocation (e.g., from a lower to a higher location in the new stack), the reason(s), and the expected duration of the period until the monitoring system(s) will be certified at their new location.~~

7-2. Operational Monitoring for Permanent Total Enclosure (PTE)

- a. For the affected facility, the Permittee shall install, operate, calibrate and maintain a continuous monitoring system, as follows, to verify the presence of PTE, which system shall be operated whenever the facility is in operation and shall be used to demonstrate compliance with Condition 3(b).
  - i. This monitoring system shall measure the pressure differential between the interior and exterior of the PTE, with at least six separate monitoring devices located

inside the PTE (i.e., at least three devices at different points in the area in which the sterilization chambers and aeration rooms are located, one device in the room in which the Glygen™ scrubbers are located, one device in the ethylene oxide storage room, and one device in the area in which sterilized material is stored). These monitoring devices shall be designed to provide measurements of pressure differential to at least the nearest 0.001 inches of water taking measurements no less frequently than every 5 minutes.

- ii. This monitoring system shall record the data collected by each monitoring devices on a rolling 3-hour average, with each 3-hour rolling average consisting of at least 33 separate measurements of pressure differential, provided, however, that if data is not recorded from an alternative monitoring device during the malfunction of the principal monitoring device(s) or the automatic recorder, the Permittee shall manually record the measured data at least hourly.
- b. The Permittee shall keep a log or other records for the operation and maintenance of this monitoring system that includes information detailing all routine and non-routine maintenance performed and dates and duration of any outages.
- c. The Permittee shall submit a Pressure Differential Monitoring Plan to the Illinois EPA for review and approval at least 15 days before purchasing any new monitoring equipment that is intended to be used to satisfy Condition 7-2(a). This plan shall include the manufacturer, model number, performance specifications and recommended operation and maintenance procedure for the equipment that is proposed to be purchased and the location(s) at which such equipment would be proposed to be installed, with explanation.
- d. The requirements of Condition 7-2(a) and (b) shall take effect 30 days after installing the new packed tower scrubber or 30 days after completion of construction of the new stack, whichever is first, provided, however, that the Illinois EPA may provide additional time to address difficulties in installation and certification of the monitoring system, e.g., difficulty in locating monitoring devices outside the enclosure to appropriately account for ambient air flow around the building.

7-3. Operational Monitoring and Instrumentation for Control Devices

- a. For each packed tower scrubber device, the Permittee shall install, calibrate operate and maintain continuous monitoring systems for: 1) Scrubbant flow rate, 2) pH of the scrubbant, and 3) Temperature at the inlet of the device.

- b. For the catalytic oxidizer, the Permittee shall install, calibrate, maintain and operate continuous monitoring system(s) for the temperature of the flue gas downstream of the catalyst bed, which system(s) shall be operated to comply with the requirements of 40 CFR 63.364(c). In addition to recording the daily average temperature, temperature shall also be automatically recorded on a 3-hour rolling average basis.
- c. For each DBA device, the Permittee shall install, operate and maintain instrumentation to measure or indicate:
  - i. The temperature and relative humidity of the gas stream entering the device.
  - ii. Flow of gas to individual beds, which may either be determined directly by measuring gas flow to individual beds or indirectly by identifying gas flow to beds based on the temperature of the gas entering the bed or the position of the damper (open or closed).
- d. The Permittee shall keep a log or other records for the operation, calibration and maintenance of the monitoring systems and instrumentation required by Conditions 7-3(a) through (c) that includes information detailing all routine and non-routine maintenance performed and dates and duration of any outages.

8-1. Requirements for Testing for Permanent Total Enclosure (PTE)

- a. The Permittee shall have testing for the presence of PTE on the affected facility, as required by Condition 3(b)(i), conducted by a qualified testing service that is independent of the Permittee and is experienced in such testing, as follows.
- b. This testing for PTE shall be conducted:
  - i. Within 45 days of the effectiveness of Condition 3(b)(i) provided, however, that the results of this testing shall be compiled before the initial testing of emissions required by Condition 8-2(a)(i) is conducted.
  - ii. Thereafter, testing shall be conducted upon written request by the Illinois EPA, with such testing conducted within 90 days of the request or such later date agreed to by the Illinois EPA.
- c. At least 45 days prior to the scheduled date for testing of PTE, the Permittee shall submit a proposed test protocol to the Illinois EPA for review. The test protocol submitted to the Illinois EPA shall address the manner in which testing will be conducted, including, the following. This emissions testing shall be performed in accordance with the test protocol, subject to any conditions on or revisions to the test protocol by the Illinois EPA.

- i. The person or persons who will be performing measurements and analysis, their experience with similar tests, the firm by which they are employed, and confirmation that the firm is independent of the Permittee.
  - ii. The test methods to be used.
  - iii. The conditions under which the test will be performed, including a discussion of why these conditions will be representative and the means by which the operating parameters for the sterilization process and control systems will be determined.
  - iv. The planned measurement locations.
- d. The Permittee shall notify the Illinois EPA prior to conducting this testing to enable the Illinois EPA to observe testing. Notification for the expected date of testing shall be submitted a minimum of 20 days prior to the expected date. Notification of the actual dates and expected times of testing shall be submitted a minimum of 5 working days prior to the actual date of the test.
- e. Copies of the Final Reports(s) for required tests shall be submitted to the Illinois EPA within 45 days after the date of testing. The Final Report shall include as a minimum:
- i. A summary of results.
  - ii. General information.
  - iii. Description of test method(s), including description of sample points, analysis equipment, and test schedule.
  - iv. Detailed description of test conditions, including process information and control equipment information, e.g., equipment condition and operating parameters during testing.
  - v. Data and calculations, including copies of all raw data sheets, records of laboratory analyses, sample calculations, and data on equipment calibration.

8-2. Requirements for Testing for Emissions

- a. i. Within 90 days of completion of this project or 270 days after the effectiveness of this permit, whichever occurs first, the Permittee shall have emissions testing conducted for the affected facility in accordance with the following requirements to measure emissions of ethylene oxide (pounds/hour) and compliance with Condition 3(c)(ii). This emissions testing shall be conducted under representative operating conditions by a qualified testing service that is

independent of the Permittee and experienced in conducted such testing.

ii. Thereafter, the Permittee shall have emissions testing conducted for the affected facility at least once each calendar year to demonstrate compliance with the requirements of Condition 3(c)(ii). The annual emissions tests required by this condition shall take place at least 6 months apart.

b. i. Emissions of ethylene oxide and compliance with Condition 3(c)(ii) shall be determined from the average of the results of three test runs, except as the average of the results of two test runs would be provided for by 35 IAC 283.240.

ii. The scope of the required testing shall be as follows:

A. If the Permittee intends to comply by means of Condition 3(c)(ii)(A) (i.e., control efficiency), tests shall be conducted for each inlet gas stream to the control systems and another test shall be conducted on the stack for the emissions of the affected facility, with at least three separate test runs attempted in each required test and at least two runs successfully completed.

B. If the Permittee intends to comply by means of 3(c)(ii)(B) (i.e., ethylene concentration), a single test shall be conducted at the stack for the emission of the affected facility, with at least three separate test runs attempted and at least two runs successfully completed.

iii. For the gas stream from the sterilization chambers, the duration of each test run shall be sufficient to span the "middle portion" of the sterilization cycle for all chambers that that are in operation during the period of testing or be 20 hours in duration, whichever is less. For this purpose, the middle portion of the sterilization cycle begins with the initial evacuation of ethylene oxide laden air from a chamber and ends one hour after the sterilized material from that chamber is transferred to an aeration room.

iv. A. The following USEPA methods and procedures shall be used for testing, unless another USEPA method is approved by the Illinois EPA as part of the approval of the test protocol required by Condition 8-2(c):

Traverse Points	Method 1
Flowrate	Method 2, 2A, 2B, 2C or 2D
Molecular Weight	Method 3 or 320
Moisture Content	Method 4 or 320

Ethylene Oxide Method 320

- B. Notwithstanding Condition 8-2(b)(iv)(A), once the continuous monitoring systems required by Condition 7-1 are certified, measurements of ethylene oxide emissions in the stack of the affected facility may be made using those monitoring systems provided that the certification and use of these systems is addressed in the emission test protocol required by Condition 8-2(c).
  
- c. i. At least 60 days prior to the scheduled emissions test date, the Permittee shall submit a proposed emissions test protocol to the Illinois EPA for review. The emissions test protocol submitted to the Illinois EPA shall address the manner in which testing will be conducted, including the following. This emissions testing shall be performed in accordance with the test protocol, subject to any conditions on or revisions to the test protocol imposed by the Illinois EPA.
  - A. The person or persons who will be performing sampling and analysis, their experience with similar emissions tests and the firm by which they are employed; and confirmation that the firm is independent of the Permittee.
  - B. The methods to be used.
  - C. The conditions under which emissions tests will be performed, including a discussion of why these conditions will be representative and the means by which the operating parameters for the sterilization process and control systems will be determined.
  - D. The specific approach(es) to demonstrating compliance that are intended (i.e., compliance with Condition 3(c)(ii)(A) and/or (B)), with the planned sampling and measurement locations.
  - E. Any changes to the test method or methods proposed to accommodate the specific circumstances of testing, with justification.
  
- ii. Notwithstanding Condition 8-2(c)(i), if a periodic emission test required by Condition 8-2(a)(ii) will be conducted in accordance with the emissions test protocol previously approved by the Illinois EPA, including any conditions or revisions to that test protocol imposed by the Illinois EPA, the Permittee need only submit a detailed test protocol for a periodic test upon notification by the Illinois EPA that submittal of a test protocol is required for the subsequent periodic test. In such circumstances,

in lieu of a detailed test protocol, the Permittee shall may submit a simplified test protocol for such periodic testing that certifies that testing will be conducted by the same individuals or individual with similar qualifications employed by the same testing firm in accordance with previous test protocol approved by the Illinois EPA, including any conditions or revisions to that test protocol imposed by the Illinois EPA as part of that approval.

- d. The Permittee shall notify the Illinois EPA prior to conducting this emission testing to enable the Illinois EPA to observe testing. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual dates and expected times of testing shall be submitted a minimum of 5 working days prior to the actual date of the test.
- e. A copy of the Final Report(s) for these tests shall be submitted to the Illinois EPA no later than 60 days after completion of testing. The Final Report shall include the following information. Notwithstanding Condition 9(e), the Permittee shall retain a copy of the Final Report(s) for testing for at least five years beyond the dates that the testing is supplanted by subsequent testing.
  - i. General information, i.e., date of test and names of testing personnel.
  - ii. A summary of results for each run and for the average of test runs, including the mass emission rates (pounds/hour), the relative emission rates (pound/pound ethylene oxide used) and compliance with the applicable limit (control efficiency in percent or the exhaust concentration in ppbv, as applicable).
  - iii. A detailed description of operating conditions of the affected facility during testing, including:
    - A. Process information, i.e., operating schedule of sterilization chambers and aeration rooms during the period of testing and the amount of ethylene oxide introduced into the sterilization chambers during each test run (total usage, in pounds, and average usage, in pounds/hour).
    - B. Control device information, i.e., operating parameters during testing, including temperature and humidity levels for DBA devices.
    - C. A discussion of any maintenance or repairs conducted in preparation for testing.

- iv. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.
- v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
- vi. Conclusions.

8-3. Alternative Administrative Requirements for Repeated Testing

- a. Notwithstanding the timing specified in Conditions 8-1(c) and (d) or Conditions 8-2(c) and (d), if after conducting a test, the Permittee plans to repeat the testing expeditiously, the following provisions for test protocols and test notifications shall apply. For this purpose, the Permittee shall be considered to plan to expeditiously retest emissions, if it plans to repeat testing within 90 days of a test.
  - i. The Permittee shall notify the Illinois EPA of its intent to repeat the test as soon as it is practical to do so.
  - ii. A new test protocol is not required for the repeat test pursuant to Condition 8-1(c) or 8-2(c) and the Permittee shall instead only submit to and obtain approval from the Illinois EPA for any changes to the test protocol or any conditions imposed by the Illinois EPA when accepting the test protocol for the test that will be repeated.
  - iii. A new notification for the expected date of testing is not required pursuant to Condition 8-1(d) or 8-2(d) and the Permittee shall instead only provide notification for the actual dates and expected times of testing.
  - iv. With this notification for the actual dates and expected times of testing, if the Permittee is conducting repeat testing following a failed test, the Permittee shall submit a comprehensive report to the Illinois EPA describing the findings of an analysis of the cause(s) for the failed test, any work that has been undertaken or is planned to address findings of that analysis, and a schedule for the work that has been done and that is still planned to be done in response to that analysis.

9. Recordkeeping

- a. The Permittee shall maintain the following records for each DBA device:
  - i. A file containing information for:



- A. The design parameters of the device, including number of beds, dimensions of each bed (length, width and depth), sorbent capacity of each bed (pounds of sorbent) and gas flow capacity (scfm).
- B. The sorbent used in the device, including material name or trade name, manufacturer's name, manufacturer's guarantees for ethylene oxide removal efficiency (percent) and absorption capacity (pounds ethylene oxide removed per pound of material), with supporting documentation and/or calculations.
- C. A copy of manufacturer's recommended operation and maintenance procedures for the device.
- D. A copy of the Permittee's operation and maintenance procedures for the device, including the procedures for disposal of spent sorbent, which procedures may incorporate the manufacturer's recommended procedures.

ii. An operating log or other records that include:

- A. The dates that the performance of individual beds for control of ethylene oxide was evaluated, with: 1) The measured concentration of ethylene oxide in the exhaust stream from the bed, the measured concentrations of ethylene oxide with and without the bed in service, or data for another operational parameter of the bed that is indicative of the current performance of the bed and the need for replacement of sorbent; and 2) The projected date by which the sorbent in the bed will need to be replaced, with explanation.
- B. The dates that the sorbent in individual beds is replaced, with data for the performance of the bed before and after the replacement of the sorbent and confirmation that the DBA device continued in operation during replacement of the sorbent, as required by Condition 6-2(a)(i).
- C. Information identifying circumstances when the Permittee's current operating and maintenance procedures were not followed, with description and information discussing the reason and the effect on emissions, if any.

iii. Records for the amount of sorbent added to the DBA device (pounds/month and pounds/year).

- b. For control devices other than the DBA devices, the Permittee shall maintain an operating log or other records that identify periods

when the control device was not in operation and confirm compliance with Condition 6-2(a)(ii), (iii) or (iv), as applicable.

- c. The Permittee shall maintain records of the ethylene oxide usage of the affected facility (tons/month and tons/year), with supporting data.
- d. The Permittee shall maintain records of the ethylene oxide emissions of the affected facility (pounds/month and pounds/year), with supporting data and calculations.
- e. The Permittee shall retain all records, including logs, required by this permit for at least five years from the date of entry unless a longer retention period is specified by a particular provision and keep the records at a location at the facility that is readily accessible to the Illinois EPA and USEPA. The Permittee shall make records available for inspection and copying by the Illinois EPA or USEPA upon request, including retrieving and printing on paper any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a facility inspection, or provide an electronic copy of such information in a format that is acceptable to the agency making the request.

10. Reporting

- a. Beginning with the first complete month after the certification of the continuous monitoring systems for emissions of ethylene oxide required by Condition 7-1 is successfully completed, the Permittee shall submit quarterly emission reports to the Illinois EPA that include the following information. These reports shall be submitted within 30 days of the end of each calendar quarter.
  - i. The monthly emissions of ethylene oxide.
  - ii. Changes to the emission monitoring systems, if any, to improve the limit of quantification of these systems.
  - iii. The results of any testing of the emission control system for ethylene oxide that the Permittee conducted or had conducted, other than testing addressed by Condition 8-2, accompanied by information describing this testing, including the procedures for testing and the operational conditions under which it was conducted.
- b. The Permittee shall notify the Illinois EPA of deviation(s) from the requirements of this construction permit, which notifications shall include information describing the deviation(s), the probable cause of the deviation(s), the corrective actions taken, and any preventative measures taken. The timing for these notifications shall be as follows unless otherwise provided for

in an operating permit for the source that addresses the requirements of this construction permit.

i. These notifications shall be submitted to the Illinois EPA within five days of the deviation(s), provided, however, that the Permittee may submit an initial notification within five days of the deviation(s) with a follow-up notification submitted within 30 days of the deviation if more time is needed to fully investigate the deviation(s) and assemble the information that must be included in such notifications. In such case, the initial notification need only include information describing the deviation(s) and the corrective actions that were taken.

ii. In addition to the notification(s) for deviation(s) required by Condition 10(b)(i), if any test conducted pursuant to Conditions 8-1 or 8-2 does not demonstrate compliance with the applicable requirements in Condition 3(b) or Condition (c)(ii) or (iii), respectively, the Permittee shall notify the Illinois EPA of the results of that test within 24 hours of becoming informed of the results.

c. The Permittee submit Progress Reports to the Illinois EPA on a semi-monthly basis addressing progress toward completing the improvements addressed by this permit, continuing until all improvements are completed and the report for the initial testing required by Condition 8-2(a)(i) has been submitted to the Illinois EPA. These reports shall address actions during the first and second halves of each month, with the first report for a month addressing the period ending on the 15<sup>th</sup> of the month and the second report addressing the remainder of the month. These reports shall be submitted, respectively, by the end of the month or the 15<sup>th</sup> of the following month. Among other information, these reports shall include the following information:

i. For each new control device, the dates for ordering, beginning installation, completing installation and commencing routine operation of the device.

ii. For the upgrade to the emission control system for the evacuation of sterilization chambers, the dates of completion of the design, completion of construction, completion of installation of new ductwork and completion of the upgrade.

iii. For the changes to achieve permanent total enclosure (PTE), the dates of completion of the design, completion of construction of the wall or partition separating the receiving and shipping storage areas, completion of installation of new ductwork and completion of the PTE.

- iv. For the new stack, the dates for submittal of a variance petition and supporting information to the City of Waukegan, the City's action on the petition(s), the completion of the design, entering into the construction contract, starting construction and commencing operation. With the report that provides the completion of design, the Permittee shall include a diagram for the new stack that includes the height and the location of the CEMS and the test port(s) on the stack, confirming that they comply with USEPA Method 1.
- v. For the existing stacks and vents that are to be removed from service and sealed, the dates of closure.
- vi. If the Permittee decides to install a third packed tower scrubber in the initial set of control devices for the aeration rooms, the date that this decision is made, with reason(s) and confirmation that this device will be similar to the existing packed tower scrubbers.

11. Addresses for the Illinois EPA

- a. Plans, notifications and reports and required by this permit shall be sent to:

Illinois Environmental Protection Agency  
Bureau of Air  
Compliance Section (#40)  
1021 North Grand Avenue, East  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Telephone: 217/782-5811

- b. In addition, a copy of each plan, notification or report required by this permit that concerns monitoring or emission testing shall also be sent electronically to the Illinois EPA, Bureau of Air, Compliance Section, Source Monitoring Unit, using the State of Illinois File Transfer Website, unless otherwise instructed by the Illinois EPA:

<http://filet.illinois.gov>

Recipient Email Address: EPA.BOA.SMU@illinois.gov  
File Transfer Email Subject: Medline Industries, Waukegan,  
Illinois EPA I.D. 097190AFG

12. Effectiveness of Permit

This permit will take effect on the date that the Permittee commences construction activity pursuant to this permit or 36 days after the date that it is issued or, whichever occurs first. This condition supersedes Standard Condition 1.

13. Authorization to Operate

The Permittee may operate the affected facility with the improvements addressed by this construction permit pursuant to this construction permit until a new or revised operating permit for the facility is issued by the Illinois EPA that addresses the requirements of this construction permit, provided that the Permittee submits progress reports in accordance with Condition 10(c) and has initial testing conducted in accordance with Condition 8-2. This condition supersedes Standard Condition 6.

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STATE OF ILLINOIS  
ENVIRONMENTAL PROTECTION AGENCY  
DIVISION OF AIR POLLUTION CONTROL  
P. O. BOX 19506  
SPRINGFIELD, ILLINOIS 62794-9506

**STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS  
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.
2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.
3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.
4. The Permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:
  - a. to enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,
  - b. to have access to and copy any records required to be kept under the terms and conditions of this permit,
  - c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,
  - d. to obtain and remove samples of any discharge or emission of pollutants, and
  - e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.
5. The issuance of this permit:
  - a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,
  - b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,
  - c. does not release the Permittee from compliance with the other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,
  - d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

- e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
- 6.
- a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.
  - b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.
7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:
- a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed, or
  - b. upon finding that any standard or special conditions have been violated, or
  - c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.