INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant

DATE: May 8, 2006

RE: Cylicron Engineered Cylinders, LLC / 019-23005-00113

FROM: Nisha Sizemore
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FN-REGIS.dot 03/23/06

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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May 8, 2006

Mr. Brice Bushau
Cylicron Engineered Cylinders, LLC
5171 Maritime Road
Jeffersonville, Indiana 47130

Re: Registered Construction and Operation Status,
019-23005-00113

Dear Mr. Bushau:

The application from Cylicron Engineered Cylinders, LLC received on April 25, 2006, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.1, it has been determined that the following polyurethane foam and plastic/steel lightweight printing cylinder manufacturing facility, to be located at 5171 Maritime Road, Jeffersonville, Indiana is classified as registered:

(a) One (1) maintenance cold cleaner, identified as Tank 1, initially constructed between 1985 and 1987, using two (2) gallons of mineral spirits per day.

(b) The following machining and metal working operations, with a total capacity of approximately 7,000 pounds (3.5 tons) per hour:

(1) One (1) steel cutting saw for cutting heavy wall pipe, with an aqueous cutting coolant continually flooding the interface, with a total capacity of 0.875 tons of steel per hour.

(2) One (1) CNC roughing lathe used for machining pipe sections to the appropriate diameter, with a cutting coolant continually flooding the interface, with a total capacity of 3.5 tons of steel per hour.

(3) Four (4) heating torches, using a BOC gas which is a LPG mixture with Methyl Acetylene - Propadiene gas, for inserting head assemblies into the cylinder body, each with a capacity of 0.90 million British thermal units per hour.

(4) One (1) hand held heating torch, using a BOC gas which is a LPG mixture with Methyl Acetylene - Propadiene gas, for inserting head assemblies into the cylinder body, with a total capacity of 0.90 million British thermal units per hour.

(5) Two (2) face and center drills, each with a capacity of 1.75 tons of steel per hour.

(6) Seven (7) CNC lathe machines, with a cutting coolant continually flooding the interface, each with a capacity of 0.5 tons of steel per hour.

(7) Six (6) key cutting machines, with a coolant misted onto the interface, each with a capacity of 0.875 tons of steel per hour.

(8) Four (4) steel tube grinders, with a cutting coolant continually flooding the interface, each with a capacity of 1.17 tons of steel per hour.

(9) One (1) Ramco centerless grinder for grinding bearings to the required size and finish, with a cutting coolant continually flooding the interface, with a total capacity of 1.25 tons of steel per hour.

(10) One (1) HMT CNC lathe for bearing manufacture, with a cutting coolant continually flooding the interface, with a total capacity of 1.25 tons of steel per hour.

(11) Three (3) CNC lathes for head operations, with cutting coolant continually flooding the interface, each with a capacity of 1.75 tons of steel per hour.

(12) One (1) CNC lathe for turning and boring operations, with cutting coolant continually flooding the interface, with a total capacity of 1.75 tons of steel per hour.

(13) Six (6) manual lathes for turning and boring operations, each with a capacity of 3.5 tons of steel per hour.

(c) The following welding operations:

(1) Three (3) metal inert gas (MIG) welding stations, each with a capacity of 6 pounds of wire per hour.

(2) Two (2) stick welding stations, each with a capacity of 7 pounds of electrode per hour.

(3) Two (2) maintenance stick welders, each with a capacity of 7 pounds of electrode per hour.

(d) Twenty-six (26) natural gas fired space heaters, with a total capacity of 11.427 million British thermal units per hour.

(e) One (1) natural gas fired stove, equipped with five (5) burners, with a capacity of 0.072 million British thermal units per hour per burner.

(f) The following above ground storage tanks:

(1) One (1) above ground storage tank, identified as S/N 174465, constructed in 1973, storing methyl acetylene, with a storage capacity of 1,000 gallons.

(2) One (1) above ground storage tank, identified as S/N 862652, constructed in 1998, storing methyl acetylene, with a storage capacity of 500 gallons.

(3) One (1) above ground storage tank, identified as S/N 124, constructed in 1977, storing liquid oxygen, with a storage capacity of 3,000 gallons.

(g) One (1) subgrade Henry chip conveyor system.

(h) One (1) Daetwyler Star Base Foam Cylinder and Plastic Buildup manufacturing process, consisting of:

(1) One (1) polyurethane foam cylinder closed molding process, identified as EU 1, to be constructed in 2006, with a maximum capacity of 0.59 cylinders per hour, and exhausting to stack S1.

(2) One (1) plastic cylinder buildup closed molding process, identified as EU 2, to be constructed in 2006, with a maximum capacity of 0.59 cylinders per hour, and exhausting to stack S1.

(3) One (1) ceramic filler cylinder buildup open molding process, identified as EU 3, to be constructed in 2006, with a maximum capacity of 1.19 cylinders per hour, and exhausting to stack S1.

(4) One (1) plastic machining process, identified as EU 4, to be constructed in 2006, consisting of three (3) manual lathes for machining foam, plastic and ceramic cylinders, identified as P-9, P-10, and P-11, respectively, each with a maximum capacity of 1.19 cylinders per hour, with particulate emissions controlled by dust collector CE 1, and exhausting to stack S1.

(5) One (1) conductive coating application process, identified as EU 5, to be constructed in 2006, with coatings applied by manual application methods, with a maximum capacity of 1.19 cylinders per hour, and exhausting to stack S1.

(i) One (1) Daetwyler Copper Plating process, consisting of:

(1) One (1) electrolytic degreasing machine using sodium hydroxide for degreasing steel/foam, steel/plastic and steel printing cylinders, identified as EU 6, to be constructed in 2006, with a maximum capacity of 2 cylinders per hour, and exhausting to stack S2.

(2) One (1) alkaline copper plating machine using sodium hydroxide and copper solutions for electroplating copper onto steel cylinders, identified as EU 7, to be constructed in 2006, with a maximum capacity of 2 cylinders per hour, and exhausting to stack S3.

(3) One (1) acidic copper plating process using sulfuric acid and copper solutions for electroplating copper onto steel/foam, steel/plastic and steel printing cylinders identified as EU 8, to be constructed in 2006, consisting of three (3) electroplating machines, identified as P-14, P-15, and P-16, respectively, each with a maximum capacity of 1.19 cylinders per hour, and exhausting to stacks S4, S5 and S6, respectively.

(j) One (1) copper cylinder finishing process, identified as EU 9, to be constructed in 2006, with an aqueous cutting coolant continually flooding the machining surface, with emissions exhausting inside the building.

(k) The following VOC and HAP storage containers:

(1) Storage tanks with capacity less than or equal to one thousand (1,000) gallons and annual throughputs equal to or less than twelve thousand (12,000) gallons.

(2) Vessels storing lubricating oils, hydraulic oils, machining oils, or machining fluids.

(l) Machining where an aqueous cutting coolant continuously floods the machining interface.

(m) Closed loop heating and cooling systems.

(n) Any operation using aqueous solutions containing less than or equal to one percent (1%) by weight of VOCs excluding HAPs.

(o) Replacement or repair of electrostatic precipitators, bags in baghouses, and filters in other air filtration equipment.

(p) Paved and unpaved roads and parking lots with public access.

(q) Blowdown for the following: sight glass, boiler, cooling tower, compressors and/or pumps.

The following conditions shall be applicable:

1. Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in the permit:

    (a) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

    (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

2. Pursuant to 326 IAC 6-4, the Permittee shall not generate fugitive dust to the extent that some portion of the material escapes beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

3. Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), the Permittee of the maintenance cold cleaning facility (Tank 1) shall:

    (a) Equip the cleaner with a cover;

    (b) Equip the cleaner with a facility for draining cleaned parts;

    (c) Close the degreaser cover whenever parts are not being handled in the cleaner;

    (d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;

    (e) Provide a permanent, conspicuous label summarizing the operation requirements;

    (f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

4. Pursuant to 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), the Permittee of the maintenance cold cleaner degreaser facility (Tank 1) shall ensure that the following control equipment requirements are met:

    (a) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:

(1) The solvent volatility is greater than two (2) kilo Pascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F));

(2) The solvent is agitated; or

(3) The solvent is heated.

(b) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kilo Pascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(c) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).

(d) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.

(e) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kilo Pascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9°C) (one hundred twenty degrees Fahrenheit (120°F)):

(1) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

(2) A water cover when solvent used is insoluble in, and heavier than, water.

(3) Other systems of demonstrated equivalent control such as a refrigerated chiller or carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.

5. Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the Permittee of a cold cleaning facility shall ensure that the following operating requirements are met:

(a) Close the cover whenever articles are not being handled in the degreaser.

(b) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.

(c) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

6. Pursuant to 326 IAC 6-3-2, the particulate from the welding operations shall not exceed 0.551 pounds per hour when operating at a process weight rate less than 100 pounds per hour.

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

7. Pursuant to 326 IAC 6-3-2, the particulate emissions from the plastic machining process (EU 4) shall be limited to less than 0.551 pounds per hour, when operating at a process weight rate of less than 100 pounds per hour.

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The dust collector for particulate control (CE 1) shall be in operation at all times the plastic machining process (EU 4) is in operation, in order to comply with this limit.

The source has been previously operating under Exemption 019-18146-00113, issued on December 17, 2003. This registration (019-23005-00113) supercedes Exemption 019-18146-00113. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.1-2(f)(3). The annual notice shall be submitted to:

Compliance Data Section
Office of Air Quality
100 North Senate Avenue
Indianapolis, IN 46204-2251

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Pursuant to Contract No. A305-5-65, IDEM, OAQ has assigned the processing of this application to Eastern Research Group, Inc., (ERG). Therefore, questions should be directed to Mr. Stephen Treimel, ERG, 1600 Perimeter Park Drive, Morrisville, North Carolina 27560, or call (919) 468-7902 to speak directly to Mr. Treimel. Questions may also be directed to Duane Van Laningham at IDEM, OAQ, 100 North Senate Avenue, Indianapolis, Indiana, 46204-2251 or call (800) 451-6027, ask for Duane Van Laningham, or extension 3-6878, or dial (317) 233-6878.

Sincerely,

Origin signed by

Nisha Sizemore, Chief
Permits Branch
Office of Air Quality

ERG/ST

cc: File - Clark County
Clark County Health Department
Air Compliance – Ray Shick
Permit Tracking
Compliance Data Section

Registration
Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3)

Company Name:	Cylicron Engineered Cylinders, LLC
Address:	5171 Maritime Road
City:	Jeffersonville, Indiana 47130
Authorized individual:	Tom Hammond, Operations Manager
Phone #:	(812) 283-4600
Registration #:	019-23005-00113

I hereby certify that Cylicron Engineered Cylinders, LLC is still in operation and is in compliance with the requirements of Registration 019-23005-00113.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Name:	Cylicron Engineered Cylinders, LLC
Source Location:	5171 Maritime Road, Jeffersonville, Indiana 47130
County:	Clark
SIC Code:	3443
Exemption No.:	019-18176-00113
Exemption Issuance Date:	December 17, 2003
Registration No.:	019-23005-00113
Permit Reviewer:	ERG/ST

The Office of Air Quality (OAQ) has reviewed an application from Cylicron Engineered Cylinders, LLC relating to the construction and operation of a stationary lightweight polyurethane foam, plastic, and steel printing cylinder manufacturing facility.

Permitted Emissions Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

(a) One (1) maintenance cold cleaner, identified as Tank 1, initially constructed between 1985 and 1987, using two (2) gallons of mineral spirits per day.

(b) The following machining and metal working operations, with a total capacity of approximately 7,000 pounds (3.5 tons) per hour:

(1) One (1) steel cutting saw for cutting heavy wall pipe, with an aqueous cutting coolant continually flooding the interface, with a total capacity of 0.875 tons of steel per hour.

(2) One (1) CNC roughing lathe used for machining pipe sections to the appropriate diameter, with a cutting coolant continually flooding the interface, with a total capacity of 3.5 tons of steel per hour.

(3) Four (4) heating torches, using a BOC gas which is a LPG mixture with Methyl Acetylene - Propadiene gas, for inserting head assemblies into the cylinder body, each with a capacity of 0.90 million British thermal units per hour.

(4) One (1) hand held heating torch, using a BOC gas which is a LPG mixture with Methyl Acetylene - Propadiene gas, for inserting head assemblies into the cylinder body, with a total capacity of 0.90 million British thermal units per hour.

(5) Two (2) face and center drills, each with a capacity of 1.75 tons of steel per hour.

(6) Seven (7) CNC lathe machines, with a cutting coolant continually flooding the interface, each with a capacity of 0.5 tons of steel per hour.

(7) Six (6) key cutting machines, with a coolant misted onto the interface, each with a capacity of 0.875 tons of steel per hour.

(8) Four (4) steel tube grinders, with a cutting coolant continually flooding the interface, each with a capacity of 1.17 tons of steel per hour.

(9) One (1) Ramco centerless grinder for grinding bearings to the required size and finish, with a cutting coolant continually flooding the interface, with a total capacity of 1.25 tons of steel per hour.

(10) One (1) HMT CNC lathe for bearing manufacture, with a cutting coolant continually flooding the interface, with a total capacity of 1.25 tons of steel per hour.

(11) Three (3) CNC lathes for head operations, with cutting coolant continually flooding the interface, each with a capacity of 1.75 tons of steel per hour.

(12) One (1) CNC lathe for turning and boring operations, with cutting coolant continually flooding the interface, with a total capacity of 1.75 tons of steel per hour.

(13) Six (6) manual lathes for turning and boring operations, each with a capacity of 3.5 tons of steel per hour.

(c) The following welding operations:

(1) Three (3) metal inert gas (MIG) welding stations, each with a capacity of 6 pounds of wire per hour.

(2) Two (2) stick welding stations, each with a capacity of 7 pounds of electrode per hour.

(3) Two (2) maintenance stick welders, each with a capacity of 7 pounds of electrode per hour.

(d) Twenty-six (26) natural gas fired space heaters, with a total capacity of 11.427 million British thermal units per hour.

(e) One (1) natural gas fired stove, equipped with five (5) burners, with a capacity of 0.072 million British thermal units per hour per burner.

(f) The following above ground storage tanks:

(1) One (1) above ground storage tank, identified as S/N 174465, constructed in 1973, storing methyl acetylene, with a storage capacity of 1,000 gallons.

(2) One (1) above ground storage tank, identified as S/N 862652, constructed in 1998, storing methyl acetylene, with a storage capacity of 500 gallons.

(3) One (1) above ground storage tank, identified as S/N 124, constructed in 1977, storing liquid oxygen, with a storage capacity of 3,000 gallons.

(g) One (1) subgrade Henry chip conveyor system.

New Emission Units and Pollution Control Equipment

The application includes information relating to the prior approval for the construction and operation of the following equipment pursuant to 326 IAC 2-5.1-2(a)(1) and 326 IAC 2-5.1(b):

(h) One (1) Daetwyler Star Base Foam Cylinder and Plastic Buildup manufacturing process, consisting of:

(1) One (1) polyurethane foam cylinder closed molding process, identified as EU 1, to be constructed in 2006, with a maximum capacity of 0.59 cylinders per hour, and exhausting to stack S1.

(2) One (1) plastic cylinder buildup closed molding process, identified as EU 2, to be constructed in 2006, with a maximum capacity of 0.59 cylinders per hour, and exhausting to stack S1.

(3) One (1) ceramic filler cylinder buildup open molding process, identified as EU 3, to be constructed in 2006, with a maximum capacity of 1.19 cylinders per hour, and exhausting to stack S1.

(4) One (1) plastic machining process, identified as EU 4, to be constructed in 2006, consisting of three (3) manual lathes for machining foam, plastic and ceramic cylinders, identified as P-9, P-10, and P-11, respectively, each with a maximum capacity of 1.19 cylinders per hour, with particulate emissions controlled by dust collector CE 1, and exhausting to stack S1.

(5) One (1) conductive coating application process, identified as EU 5, to be constructed in 2006, with coatings applied by manual application methods, with a maximum capacity of 1.19 cylinders per hour, and exhausting to stack S1.

(i) One (1) Daetwyler Copper Plating process, consisting of:

(1) One (1) electrolytic degreasing machine using sodium hydroxide for degreasing steel/foam, steel/plastic and steel printing cylinders, identified as EU 6, to be constructed in 2006, with a maximum capacity of 2 cylinders per hour, and exhausting to stack S2.

(2) One (1) alkaline copper plating machine using sodium hydroxide and copper solutions for electroplating copper onto steel cylinders, identified as EU 7, to be constructed in 2006, with a maximum capacity of 2 cylinders per hour, and exhausting to stack S3.

(3) One (1) acidic copper plating process using sulfuric acid and copper solution for electroplating copper onto steel/foam, steel/plastic and steel printing cylinders identified as EU 8, to be constructed in 2006, consisting of three (3) electroplating machines, identified as P-14, P-15, and P-16, respectively, each with a maximum capacity of 1.19 cylinders per hour, and exhausting to stacks S4, S5 and S6, respectively.

(j) One (1) copper cylinder finishing process, identified as EU 9, to be constructed in 2006, with an aqueous cutting coolant continually flooding the machining surface, with emissions exhausting inside the building.

(k) The following VOC and HAP storage containers:

(1) Storage tanks with capacity less than or equal to one thousand (1,000) gallons and annual throughputs equal to or less than twelve thousand (12,000) gallons.

(2) Vessels storing lubricating oils, hydraulic oils, machining oils, or machining fluids.

(l) Machining where an aqueous cutting coolant continuously floods the machining interface.

(m) Closed loop heating and cooling systems.

(n) Any operation using aqueous solutions containing less than or equal to one percent (1%) by weight of VOCs excluding HAPs.

(o) Replacement or repair of electrostatic precipitators, bags in baghouses, and filters in other air filtration equipment.

(p) Paved and unpaved roads and parking lots with public access.

(q) Blowdown for the following: sight glass, boiler, cooling tower, compressors and/or pumps.

Existing Approvals

The source has been operating under Exemption 019-18176-00113, issued on December 17, 2003.

All conditions from previous approvals were incorporated into this permit.

Justification for the Revision

This source is being issued a Registration permit pursuant to 326 IAC 2-5.1-2(a)(1) because the source is constructing new emission units and the entire source has a potential to emit of criteria pollutants within the ranges requiring a Registration.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (ft)	Diameter (ft)	Flow Rate (acfm)	Temperature (^{o}F)
S1	EU 1 through EU 5	36	5.5	5,000	Ambient
S2	EU 6	23.5	.83	1,470	Ambient
S3	EU 7	23.5	.83	1,470	Ambient
S4	EU 8 P-14	23.5	.83	1,470	Ambient
S5	EU 8 P-15	23.5	.67	1,470	Ambient
S6	EU 8 P-16	23.5	.67	1,470	Ambient

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on April 25, 2006.

Emission Calculations

See Appendix A of this document for detailed emission calculations (pages 1 through 9).

Potential to Emit of the Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential to Emit (tons/yr)
PM	23.6
PM-10	23.9
SO_2	0.04
VOC	6.11
CO	4.4
NO_x	6.27

HAPs	Potential to Emit (tons/yr)
Styrene	1.37
MEK	0.164
Manganese	0.13
All others	0.25
Total	1.91

(a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of all criteria pollutants are less than 25 tons per year. The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM and PM10 is greater than ten (10) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.

(b) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

County Attainment Status

The source is located in Clark County.

Pollutant	Status
PM10	Attainment
PM 2.5	Nonattainment
SO_2	Attainment
NO_2	Attainment
1-hour Ozone	Maintenance Attainment
8-hour Ozone	Nonattainment
CO	Attainment
Lead	Attainment

(a) Clark County has been classified as nonattainment for PM2.5 in 70 FR 943 dated January 5, 2005. Until U.S. EPA adopts specific New Source Review rules for PM2.5 emissions, it has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions pursuant to the Non-attainment New Source Review requirements.

(b) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Clark County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for nonattainment new source review.

(c) Clark County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Source Status

Existing Source PSD, Part 70, or FESOP Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	4.97
PM-10	4.99
SO_2	0.032
VOC	3.28
CO	4.50
NO_x	6.33
Single HAP	0.13
Combination HAPs	0.22

(a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater, no nonattainment regulated pollutant is emitted at a rate of 100 tons per year or greater and it is not in one of the 28 listed source categories.

(b) These emissions were based on the potential to emit calculations for Exemption 019-18176-00113, issued on December 17, 2003.

Proposed Modification

PTE from the proposed modification (based on 8760 hours of operation per year at rated capacity including enforceable emission control and production limit where applicable):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO_2 (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO_x (ton/yr)
Proposed Modification	19.2	19.2	0	2.35	0	0
PSD or Offset Threshold Level	250	100	250	100	250	100

This modification to an existing minor stationary source is not major because the emission increase is less than the Emission Offset major source levels. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD major source levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source, including the emissions from this Registration No. 019-23005-00113, is still not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than 100 tons per year,

(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and

(c) any combination of HAPs is less than 25 tons per year.

This status is based on all the air approvals issued to the source.

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in this Registration.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14 and 40 CFR Part 61) included in this Registration.

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 20 and 40 CFR Part 63) included in this Registration. This source is not a major source of HAPs, as defined in 40 CFR 63.2.

(d) The requirements of the National Emission Standards for Halogenated Solvent Cleaning (326 IAC 20-6, 40 CFR 63, Subpart T) are not included in this Registration for the degreasing operations. The cold solvent cleaning machine does not use a solvent containing methylene chloride, perchlorethylene, trichlorethylene, 1,1,1-trichlorethane, carbon tetrachloride, chloroform or any combination of these halogenated HAP solvents in a total concentration greater than five percent (5%) by weight as a cleaning or drying agent.

State Rule Applicability – Entire Source

326 IAC 1-5-3 (Emergency Reduction Plan)

The source-wide potential to emit of PM, PM10, CO, NOx, SO_2, and VOC is less than 100 tons per year. Therefore, the requirements of 326 IAC 1-5 are not applicable to this source.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of the printing cylinder manufacturing facilities has an unlimited potential to emit less than ten (10) tons per year of a single hazardous air pollutant (HAP) and less than twenty-five (25) tons per year of a combination of hazardous air pollutants (HAPs). Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)

This source is located in Clark County and the potential to emit of all criteria pollutants is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in the permit:

(a) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions)

The source is subject to 326 IAC 6-4 (Fugitive Dust Emissions) because the source maintains paved roads and parking lots with public access. Pursuant to 326 IAC 6-4, the Permittee shall not generate fugitive dust to the extent that some portion of the material escapes beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

The source is located in Clark County, Jeffersonville Township, and has not received all of the necessary preconstruction approvals prior to December 13, 1985. However, this source does not have the potential to emit equal to or greater than 25 tons per year of fugitive particulate emissions. Therefore, the source is not subject to the requirements of 326 IAC 6-5.

326 IAC 6.5-1 (County Specific Particulate Matter Limitations: Clark County)

This source is located in Clark County. However, the source is not specifically listed in 326 IAC 6.5-2, the potential to emit of particulate from the entire source is less than one-hundred (100)

tons per year, and the actual particulate emissions are less than ten (10) tons per year. Therefore, the requirements of 326 IAC 6.5 do not apply.

326 IAC 8-6 (Organic Solvent Emission Limitations)

The source is not subject to 326 IAC 8-6 (Organic Solvent Emission Limitations) because it was constructed after January 1, 1980, and the potential to emit of VOC is less than 100 tons per year.

326 IAC 8-7 (Specific VOC Reduction Requirements: Clark County)

The source is not subject to 326 IAC 8-7 (Specific VOC Reduction Requirements: Clark County) because the source-wide potential to emit of VOC is less than one-hundred (100) tons per year and the potential to emit of VOC of any individual facility located at this source is less than ten (10) tons per year.

State Rule Applicability – Individual Facilities

326 IAC 8-3-2 (Cold Cleaner Operations)

The maintenance cold cleaner, identified as Tank 1, is located in Clark County, was constructed after January 1, 1980 and is used to perform organic solvent degreasing operations. Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), the Permittee of a cold cleaning facility shall:

(a) Equip the cleaner with a cover;

(b) Equip the cleaner with a facility for draining cleaned parts;

(c) Close the degreaser cover whenever parts are not being handled in the cleaner;

(d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;

(e) Provide a permanent, conspicuous label summarizing the operation requirements;

(f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

326 IAC 8-3-5 (Cold Cleaner Degreaser Operation and Control)

The maintenance cold cleaner, identified as Tank 1, is located in Clark County, was constructed after January 1, 1990, is used to perform organic solvent degreasing operations and does not have a remote solvent reservoir. Pursuant to 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), the Permittee of a cold cleaner degreaser facility shall ensure that the following control equipment requirements are met:

(a) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:

(1) The solvent volatility is greater than two (2) kilo Pascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F));

(2) The solvent is agitated; or

(3) The solvent is heated.

(b) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kilo Pascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(c) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).

(d) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.

(e) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kilo Pascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9°C) (one hundred twenty degrees Fahrenheit (120°F)):

(1) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

(2) A water cover when solvent used is insoluble in, and heavier than, water.

(3) Other systems of demonstrated equivalent control such as a refrigerated chiller or carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.

Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the Permittee of a cold cleaning facility shall ensure that the following operating requirements are met:

(a) Close the cover whenever articles are not being handled in the degreaser.

(b) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.

(c) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

(a) The potential emissions of particulate from the insignificant machining and metal working facilities (steel cutting saw, CNC roughing lathe, four (4) heating torches, one (1) hand held heating torch, two (2) face and center drills, seven (7) CNC lathe machines, six (6) key cutting machines, four (4) steel tube grinders, Ramco centerless grinder, HMT CNC lathe, three (3) CNC lathes, CNC lathe, and six (6) manual lathes) and the Henry chip conveyor system is less than 0.551 pounds per hour for each of these facilities. Therefore, pursuant to 326 IAC 6-3-1(b)(14), the requirements of 326 IAC 6-3-2 do not apply.

(b) The welding operations have the potential to consume more than 625 pounds of rod or wire per day. Pursuant to 326 IAC 6-3-2, the particulate from the welding operations shall not exceed 0.551 pounds per hour when operating at a process weight rate less than 100 pounds per hour.

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

(c) The polyurethane foam cylinder closed molding process (EU 1), plastic cylinder buildup closed molding process (EU 2), the ceramic filler cylinder buildup open molding process (EU 3), and the conductive coating application process (EU 5) do not have the potential to emit particulate because these facilities use closed molding processes or apply

material using hand application methods. Therefore, the requirements of 326 IAC 6-3-2 do not apply.

(d) The plastic machining process (EU 4) has the potential to emit particulate. Pursuant to 326 IAC 6-3-2, the particulate emissions from the plastic machining process (EU 4) shall be limited to less than 0.551 pounds per hour, when operating at a process weight rate of less than 100 pounds per hour.

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The dust collector for particulate control (CE 1) shall be in operation at all times the plastic machining process (EU 4) is in operation, in order to comply with this limit.

(e) The potential to emit of particulate from the alkaline electrolytic degreasing process (EU 6), alkaline copper plating machine (EU 7), and acidic copper plating machines (EU 8) is less than 0.551 pounds per hour. Therefore, pursuant to 326 IAC 6-3-1(b)(14), the requirements of 326 IAC 6-3-2 do not apply.

(f) The copper cylinder finishing process (EU 9) does not have the potential to emit particulate because an aqueous coolant floods the machining surface. Therefore, the requirements of 326 IAC 6-3-2 do not apply.

326 IAC 8-3-2 (Cold Cleaner Operations)

The electrolytic degreasing machine, identified as EU 6, does not use organic solvents. Therefore, the requirements of 326 IAC 8-3-2 do not apply.

326 IAC 8-3-5 (Cold Cleaner Degreaser Operation and Control)

The electrolytic degreasing machine, identified as EU 6, does not use organic solvents. Therefore, the requirements of 326 IAC 8-3-5 do not apply.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)

The above ground storage tanks (S/N 174465 and S/N 862652) contain compressed gasses. Therefore, the requirements of 326 IAC 8-9 do not apply.

Conclusion

The construction and operation of this stationary lightweight polyurethane foam, plastic, and steel printing cylinder manufacturing facility shall be subject to the conditions of Registration 019-23005-00113.

Appendix A: Emission Calculations
VOC Emissions Calculations From Degreasing and Machining Coolant

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

Emission Unit	Material	Max. Material Usage (gals/day)	VOC Content (lbs/gal)	HAP Content (lbs/gal)	PTE of VOC (tons/year)	PTE of HAPs (tons/year)
Degreaser	Mineral Spirits	2.00	6.54	0.00	2.39	0.00
Machining	Coolant - Syltilo 9902	0.90	0.72	0.00	0.12	0.00
Machining	Coolant - Blue Chip Permasol	0.15	2.00	0.00	0.06	0.00
Machining	Coolant - Master Chemical SC 125	1.81	0.50	0.00	0.17	0.00
Machining	Coolant - Cutter EXP	0.75	1.63	0.00	0.22	0.00

The degreaser and coolant contain no HAPs. This information is from TSD Appendix A, page 3, (calculations) for Exemption 019-18176-00113, issued on December 17, 2003.
Material usage is based on records of material added to these emission units.

METHODOLOGY
PTE of VOC (tons/year) = Maximum Material Usage (gals/day) x 365 (days/year) x VOC Content (lbs/gal) x 1 ton/2000 lbs
PTE of HAP (tons/year) = Maximum Material Usage (gals/day) x 365 (days/year) x HAP Content (lbs/gal) x 1 ton/2000 lbs

Appendix A: Emissions Calculations
Potential to Emit of VOC and HAP from Cylinder Forming, Coating, and Plating Operations

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

EU1 Polyurethane Foam Cylinder Molding

Material	Throughput * (cylinders/day)	Usage (lbs/cylinder)	VOC (Weight %)	MDI (Weight %)	PTE of VOC[a] (tons/year)	PTE of MDI[a] (tons/year)
ACMOS P180-52 (release agent)	14.2	0.125	85%	0%	0.28	0
Enviromold 20.227 (foam: part 1)		13.2	0%	0%	0.00	0
Cellanate M (foam: part 2)		13.2	50%	50%	0.02	0.017

[a] Emissions of Diphenymethane 4,4'-diisocyanate (MDI) from the Cellanate M during the polyurethane foam reaction are modeled using MDI Emissions Software from the Alliance for Polyurethanes Industry. The two compounds react fully during the foam process. Emissions from unreacted MDI are 0.1% of MDI input.

EU2 Plastic Cylinder Buildup Molding

Material	Throughput * (cylinders/day)	Usage (lbs/cylinder)	VOC (Weight %)	Styrene (Weight %)	MEK (Weight %)	Dimethyl Phthalate (Weight %)	PTE of VOC[b] (tons/year)	PTE of Styrene[b] (tons/year)	PTE of MEK (tons/year)	PTE of Dimethyl Phthalate (tons/year)
ACMOS P180-52 (release agent)	14.2	0.125	85%	0%	0%	0%	0.28	0	0	0
Crystic PD9834PA (resin)		27.3	22%	22%	0%	0%	0.47	0.47	0	0
Butanox M-50 (catalyst)		0.018	64%	0%	1%	63%	0.029	0	0.0005	0.029

[b] Emissions for styrene are based on the "Technical Discussion of the Unified Emission Factors for Open Molding of Composites" (April, 1999) Styrene emissions are a maximum of 3% of styrene content for casting operations.

EU3 Ceramic Filler Buildup Molding

Material	Throughput * (cylinders/day)	Usage (lbs/cylinder)	VOC (Weight %)	Styrene (Weight %)	MEK (Weight %)	Dimethyl Phthalate (Weight %)	PTE of VOC[c] (tons/year)	PTE of Styrene[c] (tons/year)	PTE of MEK (tons/year)	PTE of Dimethyl Phthalate (tons/year)
Fillite (ceramic filler)	28.5	1.81	0%	0%	0%	0%	0	0	0	0
Crystic 471PALV (resin)		5.07	45%	45%	0%	0%	0.90	0.90	0	0
Butanox M-50 (catalyst)		0.018	64%	0%	1%	63%	0.059	0	0.0009	0.058

[c] Emissions of styrene are based on the "Unified Emission Factors for Open Molding of Composites" (July 23, 2001). The filled resin is 26% filler and 74% resin. Styrene emissions are a maximum of 7.6% of styrene content for manual application operations.

EU5 Conductive Coating Application

Material	Throughput * (cylinders/day)	Usage (lbs/cylinder)	VOC (Weight %)	Toluene (Weight %)	MEK (Weight %)	Xylene (Weight %)	PTE of VOC (tons/year)	PTE of Toluene (tons/year)	PTE of MEK (tons/year)	PTE of Xylene (tons/year)
Electrodag 440AS	28.5	0.06	50%	10%	0%	5%	0.16	0.033	0	0.016
2-Butanone (MEK)		0.03	100%	0%	100%	0%	0.16	0	0.163	0

EU6 Alkaline Electrolytic Degreasing - Cylinders are degreased using a sodium hydroxide solution. No VOC is used.
EU7 Alkaline Copper Plating (Strike) - Copper is deposited on cylinders using an alkaline copper electrodeposition process using potassium hydroxide and copper solution. No VOC is used.
EU8 Acid Copper Plating - Copper is electroplated onto cylinders using an acid copper sulfate electrodeposition process. No VOC is used.
* EU1 and EU2 operate in parallel. Production from both EU1 and EU2 is processed in EU3, and then in EU5.

Methodology
PTE of VOC (tons/year) = Throughput (cylinders/day) x Usage (lbs/cylinder) x VOC (Weight %) x Emission Factor (%)(if applicable) x 365 (days/year) x 1 ton/2,000 lbs
PTE of HAP (tons/year) = Throughput (cylinders/day) x Usage (lbs/cylinder) x HAP (Weight %) x Emission Factor (%)(if applicable) x 365 (days/year) x 1 ton/2,000 lbs

Appendix A: Emissions Calculations
Particulate Emissions from Lathing Operations

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

EU4 Lathing Operations - The lathe removes excess foam or plastic material from each cylinder before the cylinder is coated with ceramic filler. After the ceramic filler is cured, excess material is removed on the lathe.

Operation	Throughput (cylinders/year)	Material (lbs/cylinder)	Material Removed (%)	Particulate Content[a] (%)	Capture/ Control Efficiency (%)	Potential to Emit (tons/year)			
						PTE of PM Before Controls	PTE of PM10 Before Controls	PTE of PM After Controls	PTE of PM10 After Controls
P-9 Excess Foam Removal	5,200	19.6	10%	5%	99%	0.26	0.26	0.003	0.003
P-10 Excess Plastic Removal	5,200	27.3	10%	5%		0.36	0.36	0.004	0.004
P-11 Excess Ceramic Removal	10,400	6.88	50%	100%		17.9	17.9	0.18	0.18

[a] The lathe knife removes the excess foam and plastic from the cylinders in a continuous strip which falls to the floor below the machine. No visible airborne particulate is formed in the process. Particulate emissions for foam and plastic removal are conservatively estimated at 5% of the material removed. This is based on observation of an identical process and is as reported by source.

Methodology
PTE of PM/PM10 Before Controls (tons/year) = Throughput (cylinders/year) x Material (lbs/cylinder) x Material Removed (%) x Particulate Content (%) x 1 ton/2,000 lbs
PTE of PM/PM10 After Controls (tons/year) = PTE of PM/PM10 Before Controls (tons/year) x (1 - Capture/Control Efficiency (%))

Appendix A: Emissions Calculations
Welding Operations

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

Welding	Number of Stations	Electrode Consumption per station (lbs/hour)	Emission Factors (lbs pollutant/1,000 lbs electrode consumed)				Potential to Emit (tons/year)			
			PM10	Cr	Mn	Ni	PM10	Cr	Mn	Ni
Metal Inert Gas (MIG)	3	6.0	24.1	0.01	0.034	NA	1.90	0.001	0.003	NA
Shielded Metal Arc (SMAW)	4	7.0	18.4	0.006	1.03	0.002	2.26	0.001	0.13	2.5E-04
						Total	**4.16**	**0.002**	**0.13**	**2.5E-04**

MIG welders use ER5154 wire (worst case) and Stick Welders use E7018 electrode (worst case).
MIG and SMAW welding emission factors are from FIRE 6.24 (SCC 3-09-052-26, 3-09-051-44)

Methodology
PTE (tons/year) = Number of Stations x Electrode Consumption (lbs/hour) x Emission Factor (lbs /1,000 lbs electrode) x 8760 (hours/year) x 1 ton/2,000 lbs

Appendix A: Emissions Calculations
Particulate Emissions from Insignificant Metal Lathing Operations

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

Emissions Unit	Maximum Capacity (tons/hour)	PM/PM10 Emission Factor (lbs/ton)	Potential to Emit (tons/year)	
			PTE of PM	PTE of PM10
Machining and Metal Working	3.5	0.0045	0.069	0.069

Emission factor is from FIRE 6.24 (SCC 3-04-003-60). Assume PM emissions are equal to PM10.

Methodology
PTE of PM/PM10 (tons/year) = Maximum Capacity (tons/hour) x Emission Factor (lbs/ton metal) x 8760 (hours/year) x 1 ton/2,000 lbs

Appendix A: Emission Calculations
Combustion Emissions from the Propane-Fired Air Make-Up Units

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

Total Heat Input Capacity (MMBtu/hour)
1.80

Pollutant Emission Factors (lbs/MMBtu)					
PM	**PM10**	**SO_2**	**NO_X**	**CO**	**VOC**
0.004	0.004	0.001	0.15	0.021	0.005

Potential To Emit (tons/year)					
PM	**PM10**	**SO_2**	**NO_X**	**CO**	**VOC**
0.034	0.034	0.009	1.21	0.16	0.043

Emission factors are from AP-42, Chapter 1.5 - Liquified Petroleum Gas, Table 1.5-1, SCC #1-03-010-02. (10/96)
Emission factors are converted from a volume basis (lb/10^3gal) to an energy basis (lb/MMBtu) by dividing by a heating value of 91.5 MMBtu/10^3gal for propane.
Assume PM is equal to PM10.

Methodology

PTE (tons/year) = Total Heat Input Capacity (MMBtu/hour) x Emission Factor (lbs/MMBtu) x 8760 (hours/year) x 1 ton/2000 lbs

Appendix A: Emissions Calculations
Combustion Emissions from Natural Gas-fired Heaters

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

Total Heat Input Capacity (MMBtu/hour)	Potential Throughput (MMscf/year)
11.8	101

	Pollutant						
	PM*	PM10*	SO_2	NOx **	VOC	CO	HAPs
Emission Factor (lbs/MMscf)	1.9	7.6	0.6	100.0	5.5	84.0	1.89
PTE (tons/year)	0.10	0.38	0.030	5.06	0.28	4.25	0.096

* PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM and PM10 combined.
**Emission factor for NOx (Uncontrolled) = 100 lb/MMscf.
Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (7/98).
All emission factors are based on normal firing.

Methodology
Potential Throughput (MMscf/year) = Heat Input Capacity (MMBtu/hour) x 8,760 hours/year x 1 MMscf/1,020 MMBtu
PTE (tons/year) = Potential Throughput (MMscf/year) x Emission Factor (lbs/MMscf) x 1 ton/2,000 lbs

Appendix A: Emissions Calculations
Particulate Emissions from Electroplating Operations

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

Potential to Emit for:
EU6 Alkaline Electrolytic Degreasing - Cylinders are degreased using a sodium hydroxide solution.
EU7 Alkaline Copper Plating (Strike) - Copper is deposited on cylinders using an alkaline copper electrodeposition process using potassium hydroxide and copper solution.
EU8 Acid Copper Plating - Copper is electroplated onto cylinders using an acid copper sulfate electrodeposition process.

Operation	Amperage Rating (amps)	PM Emission Factor (gr/amp-hour)	PM10 Emission Factor (gr/amp-hour)	PTE PM/PM10 (lbs/hour)	PTE of PM (tons/year)	PTE of PM10 (tons/year)
EU6	1,250	0.08	0.08	0.01	0.07	0.07
EU7	500	0.08	0.08	0.01	0.03	0.03
EU8 P13	2,500	0.08	0.08	0.03	0.13	0.13
EU8 P14	5,000	0.08	0.08	0.06	0.26	0.26
EU8 P15	5,000	0.08	0.08	0.06	0.26	0.26
			Totals	**0.17**	**0.74**	**0.74**

Particulate emission factors are from AP 42, Chapter 12.20, Electroplating, Table 12.20-1. Emission factors for PM and PM10 are adjusted by a factor of 0.33 to account for higher electrode efficiency in copper electroplating (60%) versus hard chromium electroplating (20%). (SCC 3-09-010-18) (7/96).

Methodology
PTE of PM/PM10 (lbs/hour) = Amperage Rating (amps) x Emission Factor (gr/amp-hour) x 1 lb/ 7,000 gr
PTE of PM/PM10 (tons/year) = Amperage Rating (amps) x Emission Factor (gr/amp-hour) x 8760 (hours/year) x 1 lb/ 7,000 gr x 1 ton/2,000 lbs

Appendix A: Emissions Calculations
Summary

Company Name: Cylicron Engineered Cylinders, LLC
Address: 5171 Maritime Road, Jeffersonville, Indiana 47130
Registration: 019-23005-00113
Reviewer: ERG/ST
Date: May 5, 2006

Potential to Emit (tons/year)										
	Before Controls								After Controls	
Emission Unit	**PM**	**PM10**	**SO_2**	**NOx**	**CO**	**VOC**	**Single HAP**	**Comb HAPs**	**PM**	**PM10**
Degreaser	0	0	0	0	0	2.39	0	0	0	0
Machining	0.069	0.069	0	0	0	0.56	0	0	0.069	0.069
EU1 - Foam Buildup	0	0	0	0	0	0.29	0.017	0.017	0	0
EU2 - Plastic Buildup	0	0	0	0	0	0.77	0.47	0.50	0	0
EU3 - Ceramic Buildup	0	0	0	0	0	0.96	0.90	0.96	0	0
EU4 - Lathing	18.5	18.5	0	0	0	0	0	0	0.18	0.18
EU5 - Conductive Coating	0	0	0	0	0	0.33	0.163	0.21	0	0
EU6 - Alkaline Degreasing	0.07	0.07	0	0	0	0	0	0	0.07	0.07
EU7 - Alkaline Cu Plating	0.03	0.03	0	0	0	0	0	0	0.03	0.03
EU8 - Acid Cu Plating	0.65	0.65	0	0	0	0	0	0	0.65	0.65
Welding	4.16	4.16	0	0	0	0	0.13	0.13	4.16	4.16
Propane Combustion	0.034	0.034	0.009	1.21	0.16	0.043	NA	NA	0.034	0.034
Nat. Gas Combustion	0.10	0.38	0.030	5.06	4.25	0.28	0.091	0.096	0.10	0.38
Totals	**23.6**	**23.9**	**0.039**	**6.27**	**4.42**	**5.63**	**1.37**	**1.91**	**5.28**	**5.57**