April 30, 2008

Ms. Cristie Browning
Industrial Anodizing, Inc.
1610 West Washington Street
Indianapolis, IN 46222

Certified Mail Number: 7008 0150 0003 5246 7518

Dear Ms Browning:

Re: Exempt Construction and Operation Status, E097-26424-00414

The application from Industrial Anodizing, Inc., received on April 16, 2008, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following metal anodizing operation, located at 1610 West Washington Street, Indianapolis, Indiana, is classified as exempt from air pollution permit requirements:

(a) One (1) acid bath containing phosphoric and nitric acids mixed with water, identified as emission unit ID 1, constructed in 2003, with a maximum capacity of 6,751 pounds per year of nitric acid and 48,655 pounds per year of phosphoric acid, using an air scrubber to control acid mists, and exhausting to stack 1.

(b) One (1) natural gas boiler, identified as emission unit ID 2, constructed in 2003, with maximum heat input rate of 0.08 million Btu/hour, exhausting to stack 2.

(c) Two (2) acid baths containing nitric acid mixed with water, identified as emission unit ID 3, constructed in 2003, with a combined maximum throughput of 22,502 pounds per year of nitric acid, and exhausting indoors.

(d) Four (4) acid baths containing sulfuric acid mixed with water, identified as emission unit ID 4, constructed in 2003, with a combined maximum throughput of 201,830 pounds per year of sulfuric acid, and exhausting indoors.

(e) One (1) caustic rinse bath containing Houghto-Deox A-1745L mixed with water, identified as emission unit ID 5, constructed in 2003, with a maximum throughput of 14,235 pounds per year of Houghto-Deox A-1745L, and exhausting indoors.

(f) One (1) caustic rinse bath containing Houghto-Etch AX-1857 mixed with water, identified as emission unit ID 6, constructed in 2003, with a maximum throughput of 94,900 pounds per year of Houghto-Etch AX-1857, and exhausting indoors.

(g) One (1) natural gas boiler, identified as emission unit ID 7, constructed in 2003, with maximum heat input rate of 3.349 million Btu/hour, exhausting to stack 7.

(h) One (1) natural gas boiler, identified as emission unit ID 8, constructed in 2003, with maximum heat input rate of 2.51 million Btu/hour, exhausting to stack 8.

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Department of Public Works
Office of Environmental Services
2700 Belmont Avenue
Indianapolis, IN 46221
317-327-2234
Fax 327-2274
TDD 327-5186
indygov.org/dpw

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:

(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 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuos opacity monitor in a six (6) hour period.

(2) Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape 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 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), the boilers identified as emission units ID 2, 7, and 8 shall be limited to 0.60 pounds per MMBtu.

This existing source was issued a Registration R097-15011-00414 on February 28, 2003. Due to the re-evaluation of the emission calculations, the source is transitioning from a Registration to an Exemption.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Indiana Department of Environmental Management (IDEM) Office of Air Quality (OAQ) and Indianapolis Office of Environmental Services (OES) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Original Signed by

Timothy J. Method
Environmental Coordinator
Department of Public Works

an

cc: OES Files - 2 copies
Compliance - Matt Mosier
USEPA - R5
Marion County Health Dept.
IDEM, Mindy Hahn

Indiana Department of Environmental Management
Office of Air Quality
And
Indianapolis Office of Environmental Services

Technical Support Document (TSD) for a Registration Transitioning to an Exemption

Source Description and Location

Source Name:	**Industrial Anodizing, Inc.**
Source Location:	**1610 West Washington Street**
County:	**Marion**
SIC Code:	**3471**
Exemption No.:	**E097-26424-00414**
Permit Reviewer:	**A. Nguyen**

On December 19, 2007, the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) and the Indianapolis Office of Environmental Services (OES) received an application from Industrial Anodizing, Inc. related to the construction and operation of new emission units at an existing metal anodizing operation and transition from a Registration to an Exemption.

Existing Approvals

The source has been operating under Registration No. R097-15011-00414 on February 28, 2003.

Due to the re-evaluation of the emission calculations, the source is transitioning from a Registration to an Exemption.

County Attainment Status

The source is located in Marion County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Attainment effective February 18, 2000, for the part of the city of Indianapolis bounded by 11th Street on the north; Capitol Avenue on the west; Georgia Street on the south; and Delaware Street on the east. Unclassifiable or attainment effective November 15, 1990, for the remainder of Indianapolis and Marion County.
O_3	Attainment effective November 8, 2007, for the 8-hour ozone standard.[1]
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Attainment effective July 10, 2000, for the part of Franklin Township bounded by Thompson Road on the south; Emerson Avenue on the west; Five Points Road on the east; and Troy Avenue on the north. Attainment effective July 10, 2000, for the part of Wayne Township bounded by Rockville Road on the north; Girls School Road on the east; Washington Street on the south; and Bridgeport Road on the west. The remainder of the county is not designated.

[1]Attainment effective October 18, 2000, for the 1-hour ozone standard for the Indianapolis area, including Marion County, and is a maintenance area for the 1-hour ozone National Ambient Air Quality Standards (NAAQS) for purposes of 40 CFR 51, Subpart X*. The 1-hour designation was revoked effective June 15, 2005.
Basic Nonattainment effective April 5, 2005 for PM2.5.

(a) Ozone Standards

(1) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.

(2) On September 6, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Allen, Clark, Elkhart, Floyd, LaPorte, St. Joseph as attainment for the 8-hour ozone standard.

(3) On November 9, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Boone, Clark, Elkhart, Floyd, LaPorte, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Shelby, and St. Joseph as attainment for the 8-hour ozone standard.

(4) 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 ozone. Marion County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) PM2.5
Marion 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 a surrogate for PM2.5 emissions pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5.

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

Fugitive Emissions

The fugitive emissions of criteria pollutants and hazardous air pollutants are counted toward the determination of 326 IAC 2-1.1-3 (Exemptions) applicability.

Background and Description of Emission Units and Pollution Control Equipment

The Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) and the Indianapolis Office of Environmental Services (OES) have reviewed an application, submitted by Industrial Anodizing, Inc. on April 16, 2008, relating to the construction of six (6) new acids baths, two (2) new caustic baths, two (2) natural gas fired boilers, and revising previous emissions calculations listed in Registration R097-15011-00414, issued on February 28, 2003. The new potential to emit (PTE) of all regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is transitioning from a Registration to an Exemption.

The source consists of the following existing emission units:

(a) One (1) acid bath containing phosphoric and nitric acids mixed with water, identified as emission unit ID 1, constructed in 2003, with a maximum capacity of 6,751 pounds per year of nitric acid and 48,655 pounds per year of phosphoric acid, using an air scrubber to control acid mists, and exhausting to stack 1.

(b) One (1) natural gas boiler, identified as emission unit ID 2, constructed in 2003, with maximum heat input rate of 0.08 million Btu/hour, exhausting to stack 2.

Unpermitted Emission Units and Pollution Control Equipment

The source consists of the following unpermitted emission units:

(a) Two (2) acid baths containing nitric acid mixed with water, identified as emission unit ID 3, constructed in 2003, with a combined maximum throughput of 22,502 pounds per year of nitric acid, and exhausting indoors.

(b) Four (4) acid baths containing sulfuric acid mixed with water, identified as emission unit ID 4, constructed in 2003, with a combined maximum throughput of 201,830 pounds per year of sulfuric acid, and exhausting indoors.

(c) One (1) caustic rinse bath containing Houghto-Deox A-1745L mixed with water, identified as emission unit ID 5, constructed in 2003, with a maximum throughput of 14,235 pounds per year of Houghto-Deox A-1745L, and exhausting indoors.

(d) One (1) caustic rinse bath containing Houghto-Etch AX-1857 mixed with water, identified as emission unit ID 6, constructed in 2003, with a maximum throughput of 94,900 pounds per year of Houghto-Etch AX-1857, and exhausting indoors.

(e) One (1) natural gas boiler, identified as emission unit ID 7, constructed in 2003, with maximum heat input rate of 3.349 million Btu/hour, exhausting to stack 7.

(f) One (1) natural gas boiler, identified as emission unit ID 8, constructed in 2003, with maximum heat input rate of 2.51 million Btu/hour, exhausting to stack 8.

Enforcement Issues

IDEM, OAQ, and OES are aware that equipment has been constructed and operated prior to receipt of the proper permit. However, the air emissions from the source have been evaluated and no air permit is needed. Therefore, no enforcement action is necessary.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – Exemption

The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/Emission Unit	Potential To Emit of the Entire Source (tons/year)							
	PM	PM10*	SO_2	NOx	VOC	CO	Total HAPs	Worst Single HAP
One (1) Acid bath/ Emission Unit ID 1	0.04	0.04	0.0	1.05	0.0	0.0	0.0	0.0
Two (2) Acid Baths/ Emission Unit ID 3	0.15	0.15	0.0	2.44	0.0	0.0	0.0	0.0

Process/Emission Unit	Potential To Emit of the Entire Source (tons/year)							
	PM	PM10*	SO_2	NOx	VOC	CO	Total HAPs	Worst Single HAP
Four (4) Acids Baths/ Emission Unit ID 4	0.26	0.26	0.0	0.0	0.0	0.0	0.0	0.0
One (1) Caustic Bath/ Emission Unit ID 5	0.26	0.26	0.0	0.39	0.0	0.0	0.0	0.0
One (1) Caustic Bath/ Emission Unit ID 6	0.26	0.26	0.0	2.57	0.0	0.0	0.0	0.0
Combustion units / Emission Unit ID 2, 7 & 8	0.05	0.20	0.02	2.60	0.14	2.19	0.05	0.05/ Hexane
Total PTE of Entire Source	1.03	1.18	0.02	9.05	0.14	2.19	0.05	

* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant". US EPA has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions.

(a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of all regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3 (Exemptions).

(b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-7.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

(a) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc (326 IAC 12), are not included in the permit, since each boiler located at the source has a maximum design heat input capacity of less than ten (10) million Btu per hour.

(b) There are no other New Source Performance Standards (NSPS)(40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

(a) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

Compliance Assurance Monitoring (CAM)

(a) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the unlimited potential to emit of the source is less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

State Rule Applicability Determination

The following state rules are applicable to the source:

(a) 326 IAC 2-1.1-3 (Exemptions)
Exemption applicability is discussed under the Permit Level Determination – Exemption section above.

(b) 326 IAC 2-1.1-5 (Nonattainment New Source Review)
This source is not major under nonattainment NSR because it has the potential to emit less than 100 tons of PM10 (as a surrogate for PM2.5). Therefore, the Nonattainment New Source Review requirements are not applicable.

(c) 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Requirements)
This existing source is not a major stationary source because no attainment regulated pollutant emissions are equal to or greater than two hundred fifty (250) tons per year, this source is not one of the 28 listed source categories under 326 IAC 2-2. There have been no modifications or revisions to this source that were major modifications pursuant to 326 IAC 2-2. Therefore, 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Requirements) are each not applicable to the source.

(d) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-4.1.

(e) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.

(f) 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 this permit:

(1) 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.

(2) 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.

(g) 326 IAC 6.5 (Particulate Matter Limitations Except Lake County) and 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)
This source does not have any potential particulate matter emissions greater than 100 tons per year. Since potential emissions are less than 10 tons per year, then actual emissions are less than 10 tons per year (see Appendix A page 3). Therefore, 326 IAC 6.5-1 does not apply. This source is not specifically identified in 6.5-6. Therefore, 326 IAC 6.5-6 does not apply.
Pursuant to 326 IAC IAC 6-3-1(b)(14), manufacturing processes with the potential emissions less than five hundred fifty-one thousandths (0.551) pounds per hour of PM shall be exempt from 326 IAC 6-3. Each emission unit located at the source has potential PM emissions less than 0.551 pounds per hour (see Appendix A pages 1 - 2). Therefore, 326 IAC 6-3 does not apply.

(h) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape 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.

(i) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is not subject to the requirements of 326 IAC 6-5, because the source does not have potential fugitive particulate emissions greater than 25 tons per year. Therefore, 326 IAC 6-5 does not apply.

(j) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Each of the emission units at this source is not subject to the requirements of 326 IAC 8-1-6, since the unlimited potential to emit of VOC from each emission unit is less than twenty-five (25) tons per year (see Appendix A page 3).

(k) 326 IAC 8-2-9 (Miscellaneous metal coating operations)
Industrial Anodizing does not perform surface coating of metal parts. Therefore, 326 IAC 8-2-9 does not apply.

(l) 326 IAC 12 (New Source Performance Standards)
See Federal Rule Applicability Section of this TSD.

(m) 326 IAC 20 (Hazardous Air Pollutants)
See Federal Rule Applicability Section of this TSD.

<u>Boilers</u>

(a) 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating)
This source is subject to 326 IAC 6-2-4 because the boilers identified as emission units ID 2, 7, and 8 were constructed after September 21, 1983. Particulate emissions from the boilers identified as emission units ID 2, 7, and 8 shall be limited to 0.60 pounds per MMBtu. The particulate emissions were based on the following equation:

$$Pt = 1.09 / Q^{0.26}$$

Where:
Pt = Pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input.
Q = Total source maximum operating capacity rating in million Btu per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used. Q for the boilers is 5.939 MMBtu/hr (0.08 + 2.51 + 3.349).

For Q less than 10 MMBtu/hr, Pt shall not exceed 0.6.

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on April 16, 2008.

The construction and operation of this source shall be subject to the conditions of the attached proposed Exemption No. E097-26424-00414. The staff recommends to the Commissioner that this Exemption be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Anh-tuan Nguyen at Indianapolis Office of Environmental Services, Permits Section, 2700 South Belmont, Indianapolis, Indiana 46221 or by telephone at (317) 327-2353.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/.

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov.

Appendix A: Emission Calculations

Company Name: Industrial Anodizing, Inc.
Address, City IN Zip: 1610 West Washington Street, Indianapolis, IN 46222
Permit: 097-26424-00414
Reviewer: Anh-tuan Nguyen
Date: 4/18/2008

Maximum Throughputs

Emission unit / Product	Density (lb/gal)	Throughput (gal/day)	Throughput (lb/hr)	Throughput (lb/yr)	Area (ft^2)
four (4) acid baths (EU4) / Sulfuric Acid 66	15.36	36.00	23.04	201,830	100
two (2) acid baths (EU3) / Nitric Acid	12.33	3.50	1.80	15,752	58*
one (1) acid bath (EU1) / Nitric Acid	12.33	1.50	0.77	6,751	
one (1) acid bath (EU1) / Phosphoric Acid 80%	13.33	10.00	5.55	48,655	16
one (1) caustic bath (EU5) / Houghto-Deox A-1745L	9.75	4.00	1.63	14,235	100
one (1) caustic bath (EU6) / Houghto-Etch AX-1857	--	--	10.83	94,900	100

Methodology:
Area also includes the nitric acid area from EU1
Throughput [lb/hr] = Throughput [gal/day] x Density [lb/gal] / 24 [hr/day]
Throughput [lb/yr] = Throughput [lb/hr] x 8760 [hr/yr]

	Max Throughput (lb/yr)	Nitric Acid	CO	VOC	Sulfuric Acid	PM/PM_{10} Emission Factor (lb/hr-ft^2)
EU4 / Sulfuric Acid 66	201,830	0.00%	0.00%	0.00%	66.00%	0.0006
EU3 / Nitric Acid	15,752	85.00%	0.00%	0.00%	0.00%	0.0006
EU1 / Nitric Acid	6,751	85.00%	0.00%	0.00%	0.00%	0.0006
EU1 / Phosphoric Acid 80%	48,655	0.00%	0.00%	0.00%	0.00%	0.0006
EU5 / Houghto-Deox A-1745L	14,235	15.00%	0.00%	0.00%	18.00%	0.0006
EU6 / Houghto-Etch AX-1857***	94,900	10.00%	0.00%	0.00%	0.00%	0.0006

Estimated Emissions (lb/yr)

	NO_x	CO	VOC	SO_2	PM/PM_{10}	PM/PM_{10} (lb/hr)
EU4 / Sulfuric Acid 66	0.00	0.00	0.00	0.00	525.60	0.06
EU3 / Nitric Acid	4886.93	0.00	0.00	0.00	304.85	0.03
EU1 / Nitric Acid[1]	2094.40	0.00	0.00	0.00	0.00	0.00
EU1 / Phosphoric Acid 80%	0.00	0.00	0.00	0.00	84.10	0.01
EU5 / Houghto-Deox A-1745L	779.37	0.00	0.00	0.00	525.60	0.06
EU6 / Houghto-Etch AX-1857	5134.09	0.00	0.00	0.00	525.60	0.06
	12894.78	**0.00**	**0.00**	**0.00**	**1965.74**	

Estimated Emissions (ton/yr)

	NO_x	CO	VOC	SO_2	PM/PM_{10}
EU4 / Sulfuric Acid 66	0.00	0.00	0.00	0.00	0.2628
EU3 / Nitric Acid	2.44	0.00	0.00	0.00	0.1524
EU1 / Nitric Acid[1]	1.05	0.00	0.00	0.00	0.0000
EU1 / Phosphoric Acid 80%	0.00	0.00	0.00	0.00	0.0420
EU5 / Houghto-Deox A-1745L	0.39	0.00	0.00	0.00	0.2628
EU6 / Houghto-Etch AX-1857	2.57	0.00	0.00	0.00	0.2628
	6.45	**0.00**	**0.00**	**0.00**	**0.9829**

1 - PM emissions from the nitric acid from EU1 has been accounted for in EU3.

Methodology
*NO2 [lb/yr] = Usage [lb/yr] x Nitric Acid [%] x 0.365 [lb NO2/lb HNO3]
NO2 [ton/yr] =NO2 [lb/year] / 2000 [lb/ton]
**SO2 [lb/yr] = Usage [lb/yr] x Sulfuric Acid [%] x 0.653 [lb SO2/lb H2SO4]
SO2 [ton/yr] = SO2 [lb/year] / 2000 [lb/ton]
CO [ton/yr] = Usage [lb/yr] x CO [%] / 2000 [lb/ton]
VOC [ton/yr] = Usage [lb/yr] x VOC [%] / 2000[lb/ton]
PM/PM_{10} [ton/yr] = Hours Operation (8760) [hr/yr] x Area [ft^2] x 0.0006 [lb PM/hr-ft^2] / 2000 [lb/ton]
PM/PM_{10} emission factor is from AP-42 12.20-2 for Chrome Electroplating and Anodizing; Emission Factors for Aluminum Anodizing have not been determined

* 1 mol NO2 formed from 2 mol HNO3, therefore 46 lb NO2 formed from 2*63 lb HNO3 --- 46/126 = 0.365 lb NO2 per lb HNO3
** H2SO4 --> SO3 --> SO2 but only at high temperatures in gas phase (870 degrees fahrenheit) therefore no SO2 emissions from H2SO4

***Houghto-Etch AX-1857 is 10% Sodium Nitrate (NaNO3), not 10% Nitric Acid (HNO3)
1 mol NOx formed from 1 mol NaNO3, therefore 46 lb NO2 formed from 85 lb NaNO3 --- 46/85 = 0.541 lb NOx per lb NaNO3
NOx [lb/yr] = Usage [lb/yr] x Sodium Nitrate [%] x 0.541 [lbNO2/lbNaNO3]

Appendix A: Emission Calculations

Company Name: Industrial Anodizing, Inc.
Address, City IN Zip: 1610 West Washington Street, Indianapolis, IN 46222
Permit: 097-26424-00414
Reviewer: Anh-tuan Nguyen
Date: 4/18/2008

Location	Unit Descriptions	Maximum Heat Input Capacity [MMBtu/hr]	Potential Natural Gas Usage [scf/hr] (1)
Plant 1	EU7 - Natual Gas Boiler (100 hp)	3.349	3,349
	EU8 - Natual Gas Boiler (75 hp)	2.510	2,510
Basement	EU2 - Natural Gas Boiler	0.080	80
		TOTAL	**5,939**

Potential Emissions:

Pollutant	Emission Factor [lb/MMscf] (2)	Potential Emissions [lb/hr] (3)	Potential Emissions [tpy] (4)
NO_X	100	0.59	2.60
CO	84	0.50	2.19
VOC	5.5	0.03	0.14
SO_2	0.6	0.00	0.02
PM	1.9	0.01	0.05
PM_{10}	7.6	0.05	0.20

HAP	Emission Factor [lb/MMscf] (2)	Potential Emissions [lb/hr] (3)	Potential Emissions [tpy] (4)
Benzene	2.1E-03	0.000	5.46E-05
Dichlorobenzene	1.2E-03	0.000	3.12E-05
Formaldehyde	7.5E-02	0.000	1.95E-03
Hexane	1.8E+00	0.011	**4.68E-02**
Toluene	3.4E-03	0.000	8.84E-05
Lead	5.0E-04	0.000	1.30E-05
Cadmium	1.1E-03	0.000	2.86E-05
Chromium	1.4E-03	0.000	3.64E-05
Manganese	3.8E-04	0.000	9.88E-06
Nickel	2.1E-03	0.000	5.46E-05
Combined HAPs	N/D	0.011	**4.91E-02**

Additional Information:

(1) Potential Natural Gas Usage [scf/hr] = Combined Maximum Heat Input Capacity [MMBtu/hr] x 1,000,000 Btu/MMBtu / 1,000 Btu/scf
Assumed heating value of natural gas to be 1,000 Btu/scf.
(2) Emission factors are from AP-42, Tables 1.4-1 and 1.4-2. Utilized the NO_x and CO emission factors for an uncontrolled small boiler (i.e. < 100 MMBtu/hr hea
All emission factors are for normal firing. The PM/PM_{10} emission factor is filterable and condensable particulate combined.
The HAPs above include the 5 organic HAPs and 5 metal HAPs with the highest emission factors.
(3) Potential Emissions [lb/hr] = Total Potential Natural Gas Usage [scf/hr] / 1,000,000 scf/MMscf x Emission Factor [lb/MMscf]
(4) Potential Emissions [tpy] = Potential Emissions [lb/hr] x 8,760 hr/yr / 2,000 lb/ton

Appendix A: Emission Calculations

Company Name: **Industrial Anodizing, Inc.**
Address, City IN Zip: **1610 West Washington Street, Indianapolis, IN 46222**
Permit: **097-26424-00414**
Reviewer: **Anh-tuan Nguyen**
Date: **4/18/2008**

SUMMARY OF CALCULATED POTENTIAL EMISSIONS (tons/yr) - BEFORE CONTROLS

Emission Unit	PM	PM-10	SO2	NOx	VOC	CO	Single HAPs	Combined HAPs
four (4) acid baths (EU4) / Sulfuric Acid 66	0.26	0.26	0.00	0.00	0.00	0.00	0.00	0.00
two (2) acid baths (EU3) / Nitric Acid	0.15	0.15	0.00	2.44	0.00	0.00	0.00	0.00
one (1) acid bath (EU1) / Nitric & Phosphoric Acids	0.04	0.04	0.00	1.05	0.00	0.00	0.00	0.00
one (1) caustic bath (EU5) / Houghto-Deox A-1745L	0.26	0.26	0.00	0.39	0.00	0.00	0.00	0.00
one (1) caustic bath (EU6) / Houghto-Etch AX-1857	0.26	0.26	0.00	2.57	0.00	0.00	0.00	0.00
Combustion units / EU 2, 7, & 8	0.05	0.20	0.02	2.60	0.14	2.19	0.05	0.05
Total	**1.03**	**1.18**	**0.02**	**9.05**	**0.14**	**2.19**	**0.05**	**0.05**