

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- REVISED

PERMITTEE

Arnold Magnetic Technologies Corporation
Attn: Stephen Brisson
300 North West Street
Marengo, Illinois 60152

Application No.: 73090130

I. D. No.: 111812AAB

Applicant's Designation:

Date Received: March 4, 2008

Subject: Magnetic Alloys Manufacturing

Date Issued: May 9, 2008

Expiration Date: July 13, 2011

Location: 300 North West Street, Marengo, McHenry County, 60152

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of the following equipment pursuant to the above-referenced application:

Permalloy Strip Facility

Five Strip Mills

Strip Treatment Equipment comprised of:

Phosphoric Acid Bath,

Nine Annealing Furnaces, and

Three Cold Degreasers

Sintered Alnico Facility

Jaw Crusher Controlled by Dust Collector,

Ball Mill Controlled by Dust Collector,

Powder Mixer, Scale, Separator, Pulverizers and Screener Controlled by Dust Collectors,

Three Dewaxing Furnaces

Three Sintering Furnaces

Ten Presses

Cast Alnico Facility

Five Induction Furnaces,

Sand Mold/Core Making Equipment Controlled by Baghouse and Scrubber,

Two Heat Treating Furnaces

Die Casting Operations

Bake Oven

Shell Molding Machine

this Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued:
 - i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for VOM and PM₁₀, 10 tons/year for a single HAP and 25 tons/year of any combination of such HAPs)). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A.
 - ii. To establish federally enforceable production and operating limitations, which restrict the potential to emit for VOM to less than 25 tons per year so that emission units at this source not regulated by 35 Ill. Adm. Code 218 Subpart E are not subject to the requirements of 35 Ill. Adm. Code Part 218 Subpart TT (Other Emission Units).
 - b. Prior to initial issuance, a draft of this permit has undergone a public notice and comment period.
 - c. This permit supersedes all operating permits issued for this location.
- 2a. This permit is issued based on this source not being a participating source in the Emissions Reduction Market System (ERMS), 35 Ill. Adm. Code Part 205, pursuant to 35 Ill. Adm. Code 205.200. This is based on the source's actual VOM emissions during the seasonal allotment period from May 1 through September 30 of each year being less than 10 tons and the source's baseline emissions also being less than 10 tons.
 - b. In the event that the source's VOM emissions during the seasonal allotment period equal or exceed 10 tons, the source shall become a participating source in the ERMS and beginning with the following seasonal allotment period, shall comply with 35 Ill. Adm. Code Part 205, by holding allotment trading units (ATUs) for its VOM emissions during each seasonal allotment period, unless the source obtains exemption from the ERMS by operating with seasonal VOM emissions of no more than 15 tons pursuant to a limitation applied for and established in a Clean Air Act Permit Program (CAAPP) permit or a Federally Enforceable State Operating Permit (FESOP).
 - c. Pursuant to 35 Ill. Adm. Code 205.316(a), any participating or new participating source shall not operate without a CAAPP permit or FESOP. Pursuant to 35 Ill. Adm. Code 205.316(a)(2), if a participating or new participating source does not have a CAAPP permit containing ERMS provisions and the source elects to obtain a permit other than a CAAPP permit, the source shall apply for and obtain a FESOP that contains, in addition to other necessary provisions, federally enforceable ERMS provisions, including baseline emissions, allotment for each seasonal allotment period, identification of any units deemed to be insignificant activities for purposes of the ERMS, emissions calculation methodologies, and provisions addressing all other applicable requirements of 35 Ill. Adm. Code Part 205.

- 3a. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 Ill. Adm. Code 212.122, pursuant to 35 Ill. Adm. Code 212.123(a), except as allowed by 35 Ill. Adm. Code 212.123(b) and 212.124.
- b. Pursuant to 35 Ill. Adm. Code 212.301, no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the emission source.
- c. Pursuant to 35 Ill. Adm. Code 212.321(a), no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).
- 4a. Pursuant to 35 Ill. Adm. Code 218.182(a), no person shall operate a cold cleaning degreaser unless:
 - i. Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;
 - ii. The cover of the degreaser is closed when parts are not being handled; and
 - iii. Parts are drained until dripping ceases.
- b. Pursuant to 35 Ill. Adm. Code 218.182(b), no person shall operate a cold cleaning degreaser unless:
 - i. The degreaser is equipped with a cover which is closed whenever parts are not being handled in the cleaner. The cover shall be designed to be easily operated with one hand or with the mechanical assistance of springs, counter-weights or a powered system if:
 - A. The solvent vapor pressure is greater than 2 kPa (15 mmHg or 0.3 psi) measured at 38°C (100°F);
 - B. The solvent is agitated; or
 - C. The solvent is heated above ambient room temperature.

- ii. The degreaser is equipped with a device for draining cleaned parts. The drainage device shall be constructed so that parts are enclosed under the cover while draining unless:
 - A. The solvent vapor pressure is less than 4.3 kPa (32 mmHg or 0.6 psi) measured at 38°C (100°F); or
 - B. An internal drainage device cannot be fitted into the cleaning system, in which case the drainage device may be external.
 - iii. The degreaser is equipped with one of the following control devices if the vapor pressure of the solvent is greater than 4.3 kPa (32 mmHg or 0.6 psi) measured at 38°C (100°F) or if the solvent is heated above 50°C (120°F) or its boiling point:
 - A. A freeboard height of 7/10 of the inside width of the tank or 91 cm (36 in), whichever is less; or
 - B. Any other equipment or system of equivalent emission control as approved by the Illinois EPA and further processed consistent with 35 Ill. Adm. Code 218.108. Such a system may include a water cover, refrigerated chiller or carbon adsorber.
 - iv. A permanent conspicuous label summarizing the operating procedure is affixed to the degreaser; and
 - v. If a solvent spray is used, the degreaser is equipped with a solid fluid stream spray, rather than a fine, atomized or shower spray.
- c. Pursuant to 35 Ill. Adm. Code 218.182(c)(3)(B), on and after May 30, 2007 no person shall operate a cold cleaning degreaser with a solvent vapor pressure which exceeds 1.0 mmHg (0.019 psi) measured at 20°C (68°F), unless the person is in compliance with the control requirements of 35 Ill. Adm. Code 218.182(c)(4) or is exempt under 35 Ill. Adm. Code 218.182(f) or (g).
- d. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall apply only to photochemically reactive material.
5. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hour (25 mph). Determination of wind speed for the purposes of this rule shall be by a one-hour average

or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In cases where the duration of operations subject to this rule is less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.

- 6. This permit is issued based on the source not being subject to the control requirements of 35 Ill. Adm. Code 218 Subpart TT. Pursuant to 35 Ill. Adm. Code 218.980(b)(1)(A), a source is subject to 35 Ill. Adm. Code 218 Subpart TT if it has the potential to emit 22.7 Mg (25 tons) or more of VOM per year, in aggregate, from emission units, other than furnaces at glass container manufacturing sources and VOM leaks from components, that are not regulated by 35 Ill. Adm. Code Subparts B, E, F, H, Q, R, S, T, (excluding 35 Ill. Adm. Code 218.486), V, X, Y, Z, or BB.
- 7. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
- 8a. Solvent usage and VOM emissions from the degreasers shall not exceed 1.7 tons/month; 16.5 tons/year. For this purpose solvent usage shall be determined as the amount of virgin solvent added to the degreasers minus the amount of waste solvent shipped off site for recycling or disposal.
- b. Emissions from and operation of all emission units at this source not subject to 35 Ill. Adm. Code 218 Subpart E shall not exceed the following limits:
 - i. Mold making and metal casting
 - A. Cast Alnico Production: 135 tons/month, 1,560 tons/year
 - B. DMEA Catalyst Usage: 3.0 tons/month, 30.0 tons/year
 - C. Emissions from Cast Alnico Production and DMEA Catalyst Usage:

<u>Process</u>	<u>Emission Factor</u> (lb/Ton)	<u>(Wt. %)</u>	Control	<u>VOM Emissions</u>	
			<u>Efficiency</u> (Wt. %)	<u>(Lb/Mo)</u>	<u>(Ton/Yr)</u>
Sand/Binder Mixing/ Forming/Storage	1.8	---	--	243	1.4
Metal Pouring/ Casting	0.14	---	--	19	0.1
Casting Shakeout	1.2	---	--	162	0.9
DMEA Catalyst	----	100	90	600	<u>3.0</u>
				Total	<u>5.4</u>

These limits are based on the maximum production rate, standard emission factors for metal casting and mold shakeout (SCC 3-04-003-20, 3-04-003-31), emission factor for sand/binder mixing/forming/storage derived from the study conducted by Ohio Cast Metals Association, scrubber manufacturer's specification and engineering estimate of at least 50% of ceramic binder VOM being burned in curing oven.

ii. Ceramic core making

Binder Usage		Emission Factor	VOM Emissions	
(Tons/Month)	(Tons/Year)	(Wt. %)	(Lbs/Month)	(Tons/Year)
1.2	12.0	50	0.6	6.0

These limits are based on the maximum production rate and engineering estimate of at least 50% of ceramic binder VOM being burned in curing oven. The above limitations were established in Permit 07110041, pursuant to 35 Ill. Adm. Code Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the Clean Air Act, specifically 35 Ill. Adm. Code Part 203.

iii. This permit is issued based on negligible emissions of volatile organic materials and particulate matter from dewaxing and sintering furnaces and shell molding machine. For this purpose, emissions of each pollutant from each emission unit shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.

iv. Emissions from the natural gas combustion equipment shall not exceed the following limits:

A. Natural Gas Usage: 20 mmscf/month, 200 mmscf/year

B. Emissions from the combustion of natural gas:

Pollutant	Emission Factor	Emissions	
	(lbs/10 ⁶ scf)	(Tons/Mo)	(Tons/Yr)
Carbon Monoxide (CO)	84	0.8	8.4
Nitrogen Oxides (NO _x)	100	1.0	10.0
Particulate Matter (PM)	7.6	0.1	0.8
Sulfur Dioxide (SO ₂)	0.6	0.4	0.1
Volatile Organic Material (VOM)	5.5	0.06	0.6

These limits are based on the maximum production rate and standard emission factors (Tables 1.4-1, 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- v. The above limitations are being established in Construction permit 07110041 to ensure that the mold making and metal casting, Ceramic core making, dewaxing and sintering furnaces and shell molding machine are not subject to the control requirements of 35 Ill. Adm. Code 218 Subpart TT, Other Emission Units.
- c. This permit is issued based on negligible emissions of particulate matter from strip mills, strip treatment equipment, jaw crusher, ball mill, powder mixing operations, sintering furnaces, presses, induction furnaces, sand mold/core making operations, heat treating furnaces and die casting operations. For this purpose, emissions from each emission unit or group of emission units shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
- 9. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act from the source shall not exceed 0.79 tons/month and 7.9 tons/year of any single HAP and 1.99 tons/month and 19.9 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirements to obtain a CAAPP permit from the Illinois EPA and Section 112(g) of the Clean Air Act.
- 10. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- 11a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
 - i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
 - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide,

without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

- b. Testing required by Condition 12 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.
- 12a. Pursuant to 35 Ill. Adm. Code 212.107, for both fugitive and nonfugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR Part 60, Appendix A, except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. 35 Ill. Adm. Code 212 Subpart A shall not apply to 35 Ill. Adm. Code 212.301.
- b. Pursuant to 35 Ill. Adm. Code 212.109, except as otherwise provided in 35 Ill. Adm. Code Part 212, and except for the methods of data reduction when applied to 35 Ill. Adm. Code 212.122 and 212.123, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR Part 60, Appendix A, and the procedures in 40 CFR 60.675(c) and (d), if applicable, except that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged.
 - c. Pursuant to 35 Ill. Adm. Code 212.110(a), measurement of particulate matter emissions from stationary emission units subject to 35 Ill. Adm. Code Part 212 shall be conducted in accordance with 40 CFR Part 60, Appendix A, Methods 5, 5A, 5D, or 5E.
 - d. Pursuant to 35 Ill. Adm. Code 212.110(b), the volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR Part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4.
 - e. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.
13. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants

regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

14. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- 15a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
 - i. The Permittee shall maintain the following records to allow the confirmation of actual VOM emissions during the seasonal allotment period:
 - A. Records of operating data and other information for each individual emission unit or group of related emission units at the source, as appropriate, to determine actual VOM emissions during the seasonal allotment period;
 - B. Records of the VOM emissions, in tons, during the seasonal allotment period, with supporting calculations, for each individual emission unit or group of related emission units at the source, determined in accordance with the procedures that may be specified in this permit; and

- C. Total VOM emissions from the source, in tons, during each seasonal allotment period, which shall be compiled by November 30 of each year.
 - ii. Solvent usage in degreasers (gallons/month, gallons/year);
 - iii. Certified amount of waste solvent shipped off (gallons/month, gallons/year);
 - iv. Certified VOM content of waste solvent (lbs/gallon);
 - v. Binder usage in mold/core making process (tons/month, tons/year);
 - vi. Resin coated sand usage in shell molding (tons/month, tons/year);
 - vii. VOM and HAP content of resin coated sand in shell molding (% by weight);
 - viii. Natural gas usage (mmscf/month, mmscf/year); and
 - ix. Monthly and annual CO, NO_x, PM, SO₂, VOM and HAP emissions with supporting calculations (tons/month, tons/year).
 - b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
16. If there is an exceedance of or a deviation from the requirements of this permit, as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation, and efforts to reduce emissions and future occurrences.
17. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
18. Pursuant to 35 Ill. Adm. Code 218.990, upon request by the Illinois EPA, the owner or operator of an emission unit which is exempt from the requirements of 35 Ill. Adm. Code 218 Subparts PP, QQ, RR, TT or 35

Ill. Adm. Code 218.208(b) shall submit records to the Illinois EPA within 30 calendar days from the date of the request that document that the emission unit is exempt from those requirements.

19. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Illinois EPA
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Illinois EPA
Division of Air Pollution Control - Regional Office
9511 West Harrison
Des Plaines, Illinois 60016

It should be noted that this permit has been revised to include operation of two ceramic core mixers and one shell molding machine described in Construction Permit 07110041.

If you have any questions on this permit, please call Valeriy Brodsky at 217/782-2113.

Edwin C. Bakowski, P.E.
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:VJB:psj

cc: IEPA, FOS Region 1
Lotus Notes

Attachment A - Emissions Summary

This attachment provides a summary of the maximum emissions from this facility operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels (e.g., 100 tons per year of VOM, 10 tons per year for a single HAP, and 25 tons per year for any combination of such HAP) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled and control measures are more effective than required in this permit.

<u>Emission Units</u>	E M I S S I O N S (Tons/Year)						
	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>	<u>Single</u>	<u>Total</u>
						<u>HAP</u>	<u>HAPs</u>
Degreasers					16.5		
Mold/Core Making					11.4		
Dewaxing, Sintering Furnaces			0.4		0.4		
Shell Molding Machine			0.4		0.4		
Fuel Combustion Equipment	8.4	10.0	0.8	0.1	0.6		
Metal Processing and Sand Handling			<u>4.8</u>				
	<u>8.4</u>	<u>10.0</u>	<u>6.4</u>	<u>0.1</u>	<u>29.3</u>	<u>7.9</u>	<u>19.9</u>

VJB:psj