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PERMITTEE

Chromalloy Castings Tampa Corporation
3401 Queen Palm Dr.
Tampa, FL 33619

Authorized Representative:
Scott Sanders, General Manager

Air Permit No. 0571408-009-AO
Effective Date: August 16, 2016
Renewal Application Due Date: February 16, 2017
Expiration Date: April 17, 2017

Metal Casting Products Manufacturing
Hillsborough County, Florida

PROJECT

This is the final air operation permit, which authorizes the operation of Chromalloy Castings Tampa Corporation, a metal casting products manufacturing facility (Standard Industrial Classification No. 3724). This permit incorporates Permit No. 0571408-007-AC, which authorized the construction of a new afterburner for the wax burn-off oven No. 1. The facility is located in Hillsborough County at 3401 Queen Palm Dr. in Tampa, Florida. The UTM coordinates are Zone 17, 349.00 kilometers (km) East, and 3100.00 km North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

Permitting Authority: Applications for air operation permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and Chapters 62-4 and 62-210 of the Florida Administrative Code (F.A.C.). The Permitting Authority responsible for making a permit determination for this project is the Environmental Protection Commission of Hillsborough County. The Permitting Authority's physical address is: 3629 Queen Palm Dr., Tampa, Florida 33619. The Permitting Authority's mailing address is: 3629 Queen Palm Dr., Tampa, Florida 33619. The Permitting Authority's telephone number is 813/627-2600.

Petitions. A person whose substantial interests are affected by the proposed decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Legal Department of the EPC at 3629 Queen Palm Drive, Tampa, Florida 33619, Phone 813-627-2600, Fax 813-627-2602. Petitions filed by the applicant or any of the parties listed below must be filed within 14 days of receipt of this notice. Petitions filed by any other person must be filed within 14 days of receipt of this proposed action. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone of the petitioner; the name, address and telephone number of the

petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when each petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and, (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the permitting authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the permitting authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available in this proceeding.

Effective Date: This permitting decision is final and effective on the date filed with the clerk of the Permitting Authority unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition pursuant to Rule 62-110.106, F.A.C., and the petition conforms to the content requirements of Rules 28-106.201 and 28-106.301, F.A.C. Upon timely filing of a petition or a request for extension of time, this action will not be effective until further order of the Permitting Authority.

Judicial Review: Any party to this permitting decision (order) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Legal Department of the EPC at 3629 Queen Palm Drive, Tampa, Florida 33619, Phone 813-627-2600, Fax 813-627-2602, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Hillsborough County, Florida

Janet L. Dougherty

Janet L. Dougherty
Executive Director

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Air Permit package was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Scott Sanders, General Manager - Chromalloy Castings Tampa Corporation (ssanders@chromalloy.com)
Omana Taylor, P.E., – ETG, Inc. (Omana@comcast.net)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

(Clerk) 8/16/2016 (Date)

FACILITY DESCRIPTION

This permit incorporates the operation of a new 1.0 MMBtu/hr afterburner, which controls emissions from the wax burn-off oven No. 1 at a metal casting products manufacturing facility. The manufacturing process starts by melting metal pellets in a Consarc vacuum induction melting furnace. The furnace, which operates on electricity, uses high heat and high pressure to melt and blend the pellets. The furnace produces a metal alloy brick(s) that will either be shipped to an outside company or will be used in Chromalloy's metal casting product operation. When the vacuum on the furnace chamber is released, the furnace chamber is vented to a 3,000 DSCFM US Air Filtration, Model No. 2DCP8, baghouse. The Consarc vacuum induction melting furnace and this baghouse are exempt from permitting pursuant to Rule 62-210.300(3)(b)1., F.A.C.

A wheel cut-off saw machine is used to cut the top and bottom edges off of the alloy brick as needed. In addition, a belt roller mill is used to blast and polish the alloy brick as needed. The wheel cut-off saw and the abrasive belt roller mill (EU No. 010) are vented to a 4,000 DSCFM Donaldson Torit, Model No. DFR3-6, pulse jet baghouse.

The metal casting product process begins with wax injection molding. Casting molds are injected with wax and stored inside the building to allow for cooling. Once cooled, the molds are dipped into a tank containing a VOC based solvent to clean the mold. The molds are then covered with sand or stucco using an automated system to create a ceramic covering over the wax mold.

Once the ceramic covering has dried, the molds are put into one of two electric powered steam autoclaves which use high temperatures to melt the wax out of the mold. The autoclaves are exempt from permitting pursuant to Rule 62-210.300(3)(b)1., F.A.C. To burn off any residual wax which may remain inside of the mold, the molds are placed in one of four, identical, natural gas fired 1.0 MMBtu/hr Pacific Kiln wax burn-off ovens (EU No. 002), which are controlled by afterburners. Oven Nos. 1, 3 and 4 each have one 1.0 MMBtu/hr afterburner and Oven No. 2 has one 0.75 MMBtu/hr afterburner.

In some of the molds, there is an additional ceramic piece(s) in the interior of the mold called a core. The core is used to create a void or hollow space inside of the mold when the molten metal is poured into the ceramic mold. The ceramic core, which is partially covered with metal when the metal is poured into the ceramic mold, is grit blasted, cut, sanded, or leached out so that the finished metal part has a void or hollow spot within the part.

The ceramic cores are made using either of two distinct processes (EU No. 008); the Injection Molded Core Process or the Alternate Core Process. In the Injection Molded Core Process, wax and ceramic are mixed together and injected into a core casting mold which is enclosed in a box called a sagger. The sagger is placed in one of two, natural gas fired, 3.0 MMBtu/hr wax burn-off ovens to burn off the wax. Each wax burn-off oven is controlled by one 0.8 MMBtu/hr afterburner. The ceramic core is then removed from the sagger, inspected, and grit blasted, sanded, or cut as needed within two enclosed booths. Each booth has its own 1,400 DSCFM baghouse which vent inside of a partially enclosed area. The core is then dipped in a water and polyvinyl alcohol mixture, which helps to increase the tensile strength of the ceramic core. The finished core is then placed inside of the ceramic casting mold and the mold continues through the metal casting product process described below.

In the Alternate Core Process, an alcohol based binder and ceramic are mixed together to make a slurry. The slurry is pumped to a hopper and pressed into a die in the shape of the core. The alcohol based binder is added to the ceramic to ensure that the ceramic material is soft enough to be pressed into the die. The core is then ignited with a torch to burn off the alcohol. The ceramic core is then placed in one of the two wax burn-off ovens described above to burn off any residual wax or binder. The ceramic core is then dipped in a liquid mixture of silica and sodium (colloidal silica) to improve the strength of the core. The core is then once again placed in one of the two wax burn-off ovens to burn off any moisture that may remain in the core.

After the wax burn-off ovens, the core is placed in one of three enclosed booths to be cut or grinded as needed. One booth is controlled by a 7,000 DSCFM baghouse and the other two booths are each controlled by a 1,400 DSCFM baghouse. These three baghouses vent indoors. The core is then dipped in the water and polyvinyl alcohol mixture. The finished core is then placed inside of the ceramic casting mold and the mold continues through the metal casting product process described below.

The molds, which may contain one or more cores, are placed in one of four natural gas (EU No. 009) fired pre-heat ovens, which heat the mold to a uniform temperature in order to prevent the mold from cracking when cast. Three of the pre-heat ovens are rated at 4.0 MMBtu/hr and the fourth pre-heat oven is rated at 1.0 MMBtu/hr. The mold is then moved into one of eight vacuum furnaces where metal ingots are melted down and the molds are filled with molten metal. The parts are then removed from the furnaces and sprinkled with a chemical referred to as "hot top" which is used to help ensure that the part cools at a uniform rate. For small parts, the molds may be cast by one of two roll over furnaces where metal is melted inside the furnace, a mold is placed on top of an opening at the top of the furnace, and the furnace is manually turned upside down so that the molten metal falls into the mold. Once cast, the molds from all of the furnaces are moved to an adjacent area where they are left for several days to cool. The facility uses natural gas for fueling the wax burn-off ovens and the pre-heat ovens. The vacuum furnaces and the rollover furnaces are electric powered and are exempt from permitting pursuant to Rule 62-210.300(3)(b)1., F.A.C.

Once the mold has cooled, the parts are separated, grit blasted, and buffed to ensure that all of the ceramic and the core(s) is removed from the metal part. There are a maximum of fifty blasting and/or buffing cabinets which vent to a maximum of thirty-one baghouses. The baghouses exhaust inside a partially enclosed process area. These emission sources, as well as the blasting and sanding cabinets associated with the core making process described above, which are also controlled by baghouses, are all exempt from permitting per Rule 62-210.300(3)(b)1., F.A.C. because the combined potential PM emissions from all these sources are less than 5.0 tons/year.

In addition to grit blasting the metal part to remove the ceramic core, the finished parts may be placed in one of three heated tanks. The tanks contain sodium hydroxide, which in combination with high temperatures and pressures, is used to leach the core out of the finished part. Each tank has one natural gas fired heater that is rated at 0.875 MMBtu/hr. The heaters are exempt from permitting per Rule 62-210.300(3)(a)33., F.A.C. because the rated heat input capacity of each heater is less than 10 MMBtu/hr.

After being grit blasted and/or buffed, a portion of the parts are dipped in several types of acids in the acid cleaning room (EU No. 005) to determine the grain characteristic of the part. An 11,000 ACFM AAT, Inc., Orion Model 11V-IS-P, Packed Bed Scrubber with a mist eliminator controls particulate matter and acid mist emissions from the acid cleaning room.

The metal parts are then placed into one of six vacuum heat treat ovens which use negative pressure and heat to harden the part. The heat treat ovens are electric powered and no melting of metal occurs in the ovens. Therefore, the heat treat ovens are exempt from permitting because there are no emissions associated with them. The finished parts are then inspected using several nondestructive means (magnetic tester and x-ray). The parts are also inspected using a fluorescent penetrate process. The parts are dipped in penetrate, covered with a developer, and then inspected under a black light for flaws, defects, or residual ceramic.

In some metal parts, ceramic may still remain on or inside the part. If the parts need any final cleaning or touch-up, they are moved to a separate staging area where the parts are inspected, hand sanded or cleaned, and re-inspected. If the part is off-spec or the metal part needs additional machining, two electro discharge machines (EDM) are used (One is manufactured by Astec and one by Fanuc). Each EDM machine is rated at 3 inches per hour for machining. The EDM machines are exempt from permitting pursuant to Rule 62-210.300(3)(b)1., F.A.C.

The facility has a 2,400 HP, diesel fired, emergency generator that is categorically exempt from permitting pursuant to Rule 62-210.300(3)(a)35., F.A.C., provided that the fuel usage of the generator does not exceed 64,000 gallons/year of diesel fuel. Chromalloy also conducts lab testing and research on site, which is exempt from permitting pursuant to Rule 62-210.300(3)(b)2., F.A.C.

In addition, the Consarc vacuum induction melting furnace, the furnace baghouse, and the following auxiliary equipment associated with the alloy manufacturing process are exempt from permitting pursuant to Rule 62-210.300(3)(b)1., F.A.C. - Generic Emissions Unit or Activity Exemption, F.A.C. In addition, this equipment is exempt from Rule 62-296.700(2)(c), F.A.C. - Reasonably Available Control Technology (RACT) Particulate Matter.

- One 1.0 mmBtu/hr Mold Heating Oven
- Two 0.2 mmBtu/hr Tundish Refractory Heaters
- One 0.6 mmBtu/hr Portable Crucible Heating Torch

Below is a list of the make and model number of all furnaces at the facility:

Emission Unit No. 002 - Wax Burn-Off Ovens

Emission Point No.	**Process**	**Manufacturer**	**Model No.**	**Control Device**
EP 001	Casting Molds	Pacific Kiln	PBF-CB-727252NG	1.0 MMBtu/hr afterburner
EP 002	Casting Molds	Pacific Kiln	PBF-CB-727252NG	0.75 MMBtu/hr afterburner
EP 003	Casting Molds	Pacific Kiln	FFDWS-9487236D8	1.0 MMBtu/hr afterburner
EP 004	Casting Molds	Pacific Kiln	FFDWS-6487236D8	1.0 MMBtu/hr afterburner
EP 005	Core Making	Harrop	GF-SG-38/36/72-3000-2600	0.8 MMBtu/hr afterburner
EP 006	Core Making	Harrop	GF-SG-48/48/96-3000-2450	0.8 MMBtu/hr afterburner

Type of Furnace	**Manufacturer**	**Model No.**
Preheat Furnace	Pacific Kiln Pusher	1119-248
Preheat Furnace	Pacific Kiln Pusher	1298-241
Preheat Furnace	Pacific Kiln Pusher	0598-234
Preheat Furnace	Pacific Kiln Pusher	PBF-104-NG-HT
Vacuum	Retech	010139-9-1/260
Vacuum	Retech	010337
Vacuum	Retech	011950-15-1
Vacuum	Ajax	M-06-31414-TFK
Vacuum	DS	419988-JEE
Vacuum	Retech	300
Vacuum	Retech	300
Vacuum	Retech	300
Rollover	Inductotherm	N/A
Rollover	Inductotherm	N/A

The existing facility consists of the following emissions units (EU).

EU No.	Emission Unit Description
001	Dip Tank
002	Wax Burn-Off Ovens
005	Finished Parts Inspection Process
008	Core Making
009	Natural Gas Combustion in the Pre-heat Ovens and Wax Burn-Off Ovens
010	Alloy Manufacturing

APPLICABLE REGULATIONS

A summary of applicable regulations is shown in the following table.

Regulations	EU No(s).
Federal Rule Citations	
40 CFR 63, Subpart ZZZZZZ* - Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries	001, 002, 005, 008, 009, 010
State Rule Citations	
62-296.320, F.A.C., General Pollutant Emission Limiting Standards	001, 002, 005, 008, 009, 010
62-296.700, F.A.C., PM RACT	001, 002, 005, 008, 009, 010
62-296.712, F.A.C., Miscellaneous Manufacturing Process Operations	001, 002, 005, 008, 009, 010

***** This NESHAP Subpart has not been adopted by the State of Florida.

FACILITY REGULATORY CLASSIFICATION

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is not a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is not a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

FW1. Permitting Authority: The permitting authority for this project is the Environmental Protection Commission of Hillsborough County. The Permitting Authority's mailing address is: 3629 Queen Palm Dr., Tampa, FL 33619. All documents related to applications for permits to operate an emissions unit shall be submitted to the Environmental Protection Commission of Hillsborough County.

FW2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Environmental Protection Commission of Hillsborough County at: 3629 Queen Palm Dr., Tampa, FL 33619.

FW3. Appendices: The following Appendices are attached as a part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); Appendix C (Common Conditions); Appendix D (Common Testing Requirements); and Appendix O&M (Operation & Maintenance Plan).

FW4. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapters 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C., or any other requirements under federal, state, or local law. [Rule 62-210.300, F.A.C. and Permit No. 0571408-007-AC]

FW5. The permittee shall not cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]

FW6. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

FW7. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the EPCHC may require the permittee to conform to new or additional conditions. The EPCHC shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the EPCHC may grant additional time. [Rule 62-4.080, F.A.C.]

FW8. Modifications: No new emissions unit shall be constructed and no existing emissions unit shall be modified without obtaining an air construction permit from the EPCHC. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

FW9. Renewal. Prior to 60 days before the expiration date of this permit, the permittee shall apply for a renewal of the permit. A renewal application shall be timely and sufficient. If the application is submitted prior to 60 days before expiration of the permit, it will be considered timely and sufficient. If the renewal application is submitted at a later date, it will not be considered timely and sufficient unless it is submitted and made complete prior to the expiration of the operation permit. When the application for renewal is timely and sufficient, the existing permit shall remain in effect until the renewal application has been finally acted upon by the Department. [Rule 62-4.090, F.A.C.]

FW10. Annual Operating Report (AOR): The information required by the Annual Operating Report for Air Pollutant Emitting Facility (DEP Form No. 62-210.900(5)) shall be submitted by April 1 of each year, for the previous calendar year, to the Environmental Protection Commission of Hillsborough County. All synthetic non-Title V sources shall submit a completed DEP Form 62-210.900(5) unless the annual operating report is submitted using the DEP's electronic annual operating report software. Emissions shall be computed in accordance with the provisions of subsection 62-210.370(2), F.A.C. [Rule 62-210.370(3), F.A.C.]

{Permitting Note: Resources to help you complete your AOR are available on the electronic AOR (EAOR) website at: http://www.dep.state.fl.us/air/emission/eaor. If you have questions or need assistance after reviewing the information posted on the EAOR website, please contact the Department by phone at (850) 717-9000 or email at eaor@dep.state.fl.us.}

FW11. The use of property, facilities, equipment, processes, products, or compounds, or the commission of paint overspraying or any other act, that causes or materially contributes to a public nuisance is prohibited, pursuant to the Hillsborough County Environmental Protection Act, Section 16, Chapter 84-446, Laws of Florida, as Amended.

FW12. The permittee wishes to transfer this permit to another owner, an "Application for Transfer of Permit" (DEP Form 62-210.900(7)) shall be submitted, in duplicate, to the Environmental Protection Commission of Hillsborough County within 30 days after the sale or legal transfer of the permitted facility. [Rule 62-4.120, F.A.C.]

A. EU Nos. 001, 005, 008, and 010 – Dip Tank, Finished Parts Inspection Process, Core Making, Alloy Manufacturing

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
001	Dip Tank- One tank with no control device
005	Finished Parts Inspection Process - Controlled by a 11,000 ACFM AAT, Inc., Orion Model 11V-IS-P, Packed Bed Scrubber with a mist eliminator
008	Core Making
010	Alloy Manufacturing- Two wheel cut-off saws and an abrasive belt roller mill venting to a 4,000 DSCFM Donaldson Torit, Model No. DFR3-6, pulse jet baghouse

PERFORMANCE RESTRICTIONS

A.1. Permitted Capacity: As requested by the permittee, in order to limit the potential to emit and establish the facility as a synthetic minor for VOC and Hazardous Air Pollutants (HAP), the following emission limitations shall apply per any twelve consecutive month period: [Rules 62-4.070(3) and 62-210.200, F.A.C. and Permit Nos. 0571408-002-AC and 0571408-003-AC]

A) The combined VOC emissions from the Dip Tank (EU No. 001) and the Finished Parts Inspection Process (EU No. 005) shall not exceed 10.0 tons/year.
B) The HAP, as defined in Rule 62-210.200, F.A.C., emissions shall be less than 10 tons for any individual HAP and less than 25 tons for any combination of HAPs.

A.2. The following restrictions and limitations shall apply for any twelve consecutive month period in order to ensure compliance with Specific Condition Nos. A.1. and A.4.: [Rule 62-4.070(3), F.A.C. and Permit Nos. 0571408-002-AC and 0571408-003-AC]

A) Finished Parts Inspection Process (EU No. 005)
   a. The maximum material usages for the acid cleaning room shall not exceed the following per any twelve consecutive month period:
      i. Nitric acid: 12,000 pounds
      ii. Acetic acid: 5,000 pounds
      iii. Sulfuric acid: 100,000 pounds
      iv. Ferric chloride: 60,000 pounds
      v. Hydrochloric acid: 100,000 pounds
      vi. Phosphoric acid: 40,000 pounds

   b. Minimum scrubber efficiency: 95 percent.
   c. Operating scrubber liquid rate: 300 gallons/minute recirculation rate as recommended by the manufacturer.
   d. During the cleaning operation (metals parts being dipped in the tanks) the room doors shall be shut.
   e. The scrubber shall be in operation while the cleaning operation is occurring.
   f. Once per day, the operator shall record the scrubber pressure drop if the scrubber is in operation during that day.

A. EU Nos. 001, 005, 008, and 010 – Dip Tank, Finished Parts Inspection Process, Core Making, Alloy Manufacturing

B) Core Making (EU No. 008)

a. The material usage, VOC content, and density of the materials used in the Core Making process shall not result in the operation emitting more than 19.5 tons of VOC emissions per twelve consecutive month period.

C) Alloy Manufacturing (EU No. 010)

a. The cutting and blasting/polishing operations shall be performed within fully enclosed booths.
b. Each cutting and blasting/polishing booth shall be ducted and vented to the baghouse.
c. The baghouse shall be kept in good repair.
d. Check and record pressure drop, weekly, if operated.

A.3. Restricted Operation: The hours of operation of EU No. 010 (Alloy Manufacturing) shall not exceed 5,000 hours/year. The hours of operations for EUs 001, 005, and 008 are not limited (i.e. 8,760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.; Permit Nos. 0571408-002/003/006-AC]

EMISSIONS STANDARDS

A.4. Emissions Standards: Visible emissions from EUs 001, 005, 008 and 010 shall not exceed 5% opacity [Rule 62-4.070(3), F.A.C., Chapter 1-3.52.2, Rules of the EPC]

A.5. As requested by the permittee, in order to limit the potential to emit and establish the facility as a synthetic minor for PM, the allowable particulate matter emissions from the baghouse associated with EU No. 010 shall not exceed 0.03 grains/DSCF. [Rules 62-4.070(3) and 62-210.200, F.A.C. and Permit No. 0571408-006-AC]

TESTING REQUIREMENTS

A.6. Annual Compliance Tests: During each calendar year (January 1st to December 31st), the Finished Parts Inspection Process (EU 005) and the Alloy Manufacturing (EU 010) shall be tested for visible emissions. The readings shall be taken on the highest point of opacity from the operation. The EPA Method 9 test shall be a minimum of thirty (30) minutes in duration. Testing procedures shall be consistent with the requirements of Rule 62-297, F.A.C. [Rule 62-297.310 and 62-4.070(3), F.A.C.]

A.7. Test EU 010 (Alloy Manufacturing) for visible emissions the first time the abrasive belt roller mill is operated while both the wheel cut-off saw and the abrasive belt roller mill are in operation at the same time, and annually thereafter in accordance with Specific Condition A.6. [Rule 62-4.070(3), F.A.C.]

A.8. Test Requirements: At least 15 days prior to the date on which each required emissions test is to begin, the owner or operator shall notify the air compliance program identified by permit, unless shorter notice is agreed to by the appropriate air compliance program. The notification shall include the date, time, place of each such test, Facility ID Number, Emission Unit ID Number(s) and description(s), Emission Point Number(s) and description(s), test method(s), pollutant(s) to be tested, along with the name and telephone number of the person who will be responsible for conducting such test(s) for the owner or operator. If a scheduled emissions test needs to be re-scheduled, the owner or operator shall submit to the appropriate air compliance program a revised notification at least seven days prior to the re-scheduled emissions test date or arrange a re-scheduled test date with the appropriate air compliance program by mutual agreement. [Rule 62-297.310(9), F.A.C]

A.9. Emissions testing shall be conducted with the source operating at capacity. Capacity is defined as 90-100% of rated capacity which is defined as the scrubber being in operation and the cleaning operation

occurring for EU No. 005; and as operating both the wheel cut-off saw and the abrasive belt roller mill at the same time for EU No. 010. If an emissions unit is tested at less than the testing capacity, another emissions test shall be conducted and completed no later than 60 days after the emissions unit operation exceeds 110% of the capacity at which its most recent emissions test was conducted. Failure to submit the actual operating conditions, including what equipment was in operation during the test, may invalidate the test. [Rules 62-4.070(3) and 62-297.310, F.A.C.]

A.10. When the EPC, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit, unless the EPC obtains other information sufficient to demonstrate compliance. The owner or operator of the emissions unit shall provide a report on the results of said tests to the EPC in accordance with the provisions of subsection 62-297.310(10), F.A.C. [Rule 62-297.310(8)(c), F.A.C.]

A.11. Test Methods: Required tests shall be performed in accordance with the following reference methods:

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. The EPA Method 9 test for the emission units shall be a minimum of thirty (30) minutes in duration. Testing procedures shall be consistent with the requirements of Rule 62-297, F.A.C. and 40 CFR 60, Appendix A. [Rules 62-4.070(3) and 62-204.800, F.A.C.; and Appendix A of 40 CFR 60]

MONITORING REQUIREMENTS

A.12. The scrubber associated with the Finished Parts Inspection Process (EU No. 005) shall be maintained in accordance with the manufacturer's specifications in order to provide reasonable assurance that the control device will perform adequately the function for which it is intended. [Rules 62-296.700(6) and 62-4.070(3), F.A.C.]

A.13. The permittee shall not store, handle, process, or use in any process the volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems as follows and as deemed necessary and ordered by the Environmental Protection Commission of Hillsborough County: [Rule 62-296.320(1), F.A.C.]

A) Maintain tightly fitting cover, lids, etc. on all containers when they are not being handled, tapped, etc.
B) Where possible and practical, procure/fabricate a tightly fitting cover for any open trough, basin, etc. of VOC so that it can be covered when not in use.
C) Immediately attend to all spills/waste as appropriate

A.14. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Rule 62-296.320, F.A.C. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alterations, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling. Reasonable precautions shall include, but are not limited to the following: [Rule 62-4.070(3) and 62-296.320(4)(c), F.A.C.]

A. EU Nos. 001, 005, 008, and 010 – Dip Tank, Finished Parts Inspection Process, Core Making, Alloy Manufacturing

A) Removal of particulate matter from paved areas, buildings, and work areas under the control of the owner/operator.
B) Ensure that waste collected by the baghouse(s) is effectively contained and disposed of properly.
C) Clean accidental spills promptly.
D) Exercise good housekeeping at all times.

RECORDS AND REPORTS

A.15. In order to ensure compliance with Specific Condition Nos. A.1, A.2 and A.3, the following monthly records shall be kept for the most recent three (3) year period and made available to the EPC, state, or federal air pollution agency upon request: [Rules 62-4.070(3) and 62-4.160(14)(b), F.A.C.]

A) Month/Year
B) The density, VOC content, and HAP content of the solvent wash used in the dip tank
C) Amount of solvent wash used in the dip tank (gallons)
D) The amount, density, and VOC content of each material used in the core making process
E) Monthly VOC emissions from the core making process
F) Amount of each type of acid used in the acid cleaning room tanks (lbs)
G) Amount, density, and VOC content of each material used in the fluorescent penetrate process (gallons)
H) The amount of diesel fuel used in the emergency generator (gallons)
I) Monthly VOC emissions from the dip tank and the fluorescent penetrate process
J) Hours of operation of the Alloy Manufacturing (EU 010) baghouse
K) Rolling twelve month totals of C), D), E), and G) through J) above
L) Record the observations specified in A.2.A) f. and A.2.C) d.

A.16. The permittee shall submit a written test report to the Air Compliance Section of the Environmental Protection Commission of Hillsborough County, on the results of each such test performed in accordance with Specific Condition Nos. A.6. and A.7., as soon as practicable but no later than 45 days after the last run of each test is completed. [Rule 62-297.310(10), F.A.C.]

B. EU Nos. 002 and 009 – Ovens and Natural Gas Combustion

This section of the permit addresses the following emissions units.

EU No.	**Description**			
002	**Wax Burn-Off Ovens**			
Emission Point No.	*Process*	*Manufacturer*	*Model No.*	*Control Device*
EP 001	Casting Molds	Pacific Kiln	PBF-CB-727252NG	1.0 MMBtu/hr afterburner
EP 002	Casting Molds	Pacific Kiln	PBF-CB-727252NG	0.75 MMBtu/hr afterburner
EP 003	Casting Molds	Pacific Kiln	FFDWS-9487236D8	1.0 MMBtu/hr afterburner
EP 004	Casting Molds	Pacific Kiln	FFDWS-6487236D8	1.0 MMBtu/hr afterburner
EP 005	Core Making	Harrop	GF-SG-38/36/72-3000-2600	0.8 MMBtu/hr afterburner
EP 006	Core Making	Harrop	GF-SG-48/48/96-3000-2450	0.8 MMBtu/hr afterburner
009	**Natural Gas Combustion in the Pre-heat Ovens and Wax Burn-Off Ovens**			

PERFORMANCE RESTRICTIONS

B.1. As requested by the permittee, in order to limit the potential to emit and establish the facility as a synthetic minor for Hazardous Air Pollutants (HAP), as defined in Rule 62-210.200, F.A.C., HAP emissions shall be less than 10 tons for any individual HAP and less than 25 tons for any combination of HAPs per any twelve consecutive month period. [Rules 62-4.070(3) and 62-210.200, F.A.C.]

B.2. Permitted Capacity: In order to ensure compliance with Specific Condition No. B.1., the following restrictions and limitations shall apply per any twelve consecutive month period: [Rule 62-4.070(3), F.A.C. and Permit Nos. 0571408-002-AC and 0571408-003-AC]

A) The maximum combined natural gas usage (EU No. 009) of the pre-heat ovens and the wax burn-off ovens shall not exceed 238 million cubic feet.
B) The ovens shall burn natural gas only or be electric powered.

B.3. In order to ensure compliance with Specific Condition Nos. B.1 and B.5, the following restrictions and limitations shall apply to the Wax Burn-Off Ovens with Afterburners (Emission Unit No. 002) per any twelve consecutive month period: [Rule 62-4.070(3), F.A.C. and Permit Nos. 0571408-002-AC and 0571408-003-AC]

A) All casting molds shall be placed in an autoclave to remove the wax prior to being placed in the burn-off ovens to remove any residual wax.

B) The following throughput, limitations, and practices shall be followed during the operation of each wax burn-off oven used in the casting molds process (EU No. 002, Emission Points 1 - 4):

a. The throughput of each Pacific Kiln oven shall not exceed 1,600 lb/hour of molds.
b. The number of molds placed in each oven per load shall not exceed 18 molds.

c. The wax content of each mold shall not exceed 3% of the mold weight.
d. The minimum destruction efficiency of each afterburner shall be 99%.
e. Preheat the afterburner chamber until it reaches a minimum temperature of 1,425°F prior to the initial charge upon startup.
f. Maintain the afterburner temperature at a minimum of 1,425°F during operation, including during the charging operation.
g. Observe the furnace doors/openings, and seals for visible emissions at least once per shift. Make note of any problems and correct promptly.
h. Record the temperature of each afterburner at least once per shift.
i. Turn on the afterburner during ash removal or cleaning of the burn-off chamber.

C) The following throughput, limitations, and practices shall be followed during the operation of each wax burn-off oven used in the core making process (EU No. 002, Emission Points 5 - 6):

a. The maximum combined throughput of wax in the two ovens shall not exceed 1,600 lbs/year.
b. The minimum destruction efficiency of each afterburner shall be 99%.
c. The afterburner temperature shall be maintained at a minimum of the temperature the afterburner was set at during the latest successful compliance demonstration.
d. Observe the furnace doors/openings, and seals for visible emissions at least once per shift. Make note of any problems and correct promptly.
e. Record the temperature of each afterburner at least once per shift.
f. Turn on the afterburner during ash removal or cleaning of the burn-off chamber.

B.4. Restricted Operation: The hours of operations for EUs 002 and 009 are not limited (i.e. 8,760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.; Permit Nos. 0571408-002-AC and 0571408-003-AC]

EMISSIONS STANDARDS

B.5. Emissions Standards: The following restrictions and limitations shall apply in order to ensure compliance with Specific Condition No. B.3: [Rule 62-296.320(4)(b)1., F.A.C., Ch. 1-3.52 of the Rules of the EPCHC, and Permit Nos. 0571408-002-AC, 0571408-003-AC, and 0571408-007-AC]

A) Visible emissions from the pre-heat ovens shall not exceed 20% opacity.
B) Visible emissions from EU No. 002 shall not exceed 5% opacity.

TESTING REQUIREMENTS

B.6. Annual Compliance Tests: During each calendar year (January 1st to December 31st), test each Wax Burn-Off Oven (EU No. 002) for visible emissions. The readings shall be taken on the highest point of opacity from the operation. Two copies of the test data shall be submitted to the Air Management Division of the Environmental Protection Commission of Hillsborough County within 45 days of such testing. The EPA Method 9 test shall be a minimum of thirty (30) minutes in duration. Testing procedures shall be consistent with the requirements of Rule 62-297, F.A.C. [Rule 62-297.310, F.A.C. and Ch. 1-3.52 of the Rules of the EPCHC]

B.7. In addition to the testing requirements specified in Specific Condition No. B.6, the following shall apply to EU No. 009. The readings shall be taken on the highest point of opacity from the operation. Two copies of the test data shall be submitted to the Air Management Division of the Environmental Protection Commission of Hillsborough County within 45 days of such testing. The EPA Method 9 test shall be a minimum of thirty

(30) minutes in duration. Testing procedures shall be consistent with the requirements of Rule 62-297, F.A.C. [Rule 62-4.070(3), F.A.C., Ch. 1-3.52 of the Rules of the EPCHC, and Permit No. 0571408-002-AC]

A) Test each Pre-heat Oven for visible emissions if the combined natural gas usage of the Pre-heat Ovens is equal to or exceeds 99 million standard cubic feet (mmcf) during the corresponding calendar year.

B) Test each Pre-heat Oven for visible emissions at least 90 days prior to the expiration date of this permit.

B.8. Test Requirements: At least 15 days prior to the date on which each required emissions test is to begin, the owner or operator shall notify the air compliance program identified by permit, unless shorter notice is agreed to by the appropriate air compliance program. The notification shall include the date, time, place of each such test, Facility ID Number, Emission Unit ID Number(s) and description(s), Emission Point Number(s) and description(s), test method(s), pollutant(s) to be tested, along with the name and telephone number of the person who will be responsible for conducting such test(s) for the owner or operator. If a scheduled emissions test needs to be re-scheduled, the owner or operator shall submit to the appropriate air compliance program a revised notification at least seven days prior to the re-scheduled emissions test date or arrange a re-scheduled test date with the appropriate air compliance program by mutual agreement. [Rule 62-297.310(9), F.A.C]

B.9. Emissions testing shall be conducted with the source operating at capacity. Capacity is defined as 90-100% of the process rates defined below. If an emissions unit is tested at less than the testing capacity, another emissions test shall be conducted and completed no later than 60 days after the emissions unit operation exceeds 110% of the capacity at which its most recent emissions test was conducted. Failure to submit the actual operating conditions, including the number of molds or pounds of wax processed during the test and the afterburner temperature (°F), may invalidate the test. [Rules 62-4.070(3) and 62-297.310(3)(b), F.A.C. [Rules 62-4.070(3) and 62-297.310, F.A.C.]

A) For EU No. 002:
   a. Processing 18 molds per load per oven for the wax burn-off ovens associated with the casting mold process (EU No. 002, Emission Points 1 - 4).
   b. In lieu of a. above, capacity can also be defined as the heat input rate of 1.0 MMBtu/hr for each wax burn-off oven associated with the casting mold process (EU No. 002, Emission Points 1 - 4).
   c. Processing 65 pounds of wax per hour for the wax burn-off ovens associated with the core making process (EU No. 002, Emission Points 5 - 6).
   d. In lieu of c. above, capacity can also be defined as the heat input rate of 3.0 MMBtu/hr for each wax burn-off oven associated with the core making process (EU No. 002, Emission Points 5 - 6).

B) For EU No. 009, capacity is defined as 90-100% of the rated capacity of 4.0 MMBtu/hr for three of the pre-heat ovens and 1.0 MMBtu/hr for the fourth pre-heat oven.

B.10. When the EPC, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit, unless the EPC obtains other information sufficient to demonstrate compliance. The owner or operator of the emissions unit shall provide a report on the results of said tests to

the EPC in accordance with the provisions of subsection 62-297.310(10), F.A.C. [Rule 62-297.310(8)(c), F.A.C.]

B.11. Test Methods: Required tests shall be performed in accordance with the following reference methods:

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. The EPA Method 9 test for the emission units shall be a minimum of thirty (30) minutes in duration. Testing procedures shall be consistent with the requirements of Rule 62-297, F.A.C. and and 40 CFR 60, Appendix A.

[Rules 62-4.070(3) and 62-204.800, F.A.C.; and Appendix A of 40 CFR 60]

MONITORING REQUIREMENTS

B.12. The afterburners associated with the wax burn off ovens shall be maintained in accordance with the manufacturer's specifications in order to provide reasonable assurance that the control devices will perform adequately the function for which they are intended. [Rules 62-296.700(6) and 62-4.070(3), F.A.C. and Permit No. 0571408-007-AC]

B.13. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Rule 62-296.320, F.A.C. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alterations, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling. Reasonable precautions shall include, but are not limited to the following: [Rule 62-4.070(3) and 62-296.320(4)(c), F.A.C. and Permit No. 0571408-007-AC]

A) Removal of particulate matter from paved areas, buildings, and work areas under the control of the owner/operator.
B) Clean accidental spills promptly.
C) Exercise good housekeeping at all times.
D) Carefully place ash or residue from the burn-off oven chamber in a leak tight container and dispose of properly. Moisten ash/residue, if necessary.

RECORDS AND REPORTS

B.14. In order to ensure compliance with Specific Condition Nos. B.2 and B.3, the following monthly records shall be kept for the most recent three (3) year period and made available to the EPC, state, or federal air pollution agency upon request: [Rules 62-4.070(3) and 62-4.160(14)(b), F.A.C.]

A) Month/Year
B) Number of molds per load processed through each wax burn-off oven used in the casting molds process (EU No. 002, Emission Points 1 - 4)
C) Combined weight of wax processed through the wax burn-off ovens used in the core making process (EU No. 002, Emission Points 5 - 6)
D) Combined natural gas usage of the wax burn-off ovens and the pre-heat ovens
E) Rolling twelve month totals of C) and D) above
F) Record the observations specified in B.3.B)g and h, and B.3.C)d and e

B.15. The permittee shall submit a written test report to the Air Compliance Section of the Environmental Protection Commission of Hillsborough County, on the results of each such test performed in accordance with Specific Condition Nos. B.6. and B.7., as soon as practicable but no later than 45 days after the last run of each test is completed. The report shall include the number of molds or pounds of wax processed during the test and the afterburner temperature (°F). [Rule 62-297.310(10), F.A.C.]

<u>Operation and Maintenance (O&M) Plan</u>

CHROMALLOY CASTINGS
OPERATION & MAINTENANCE PLAN
For Baghouse, Scrubber, and the Wax Burn-off Ovens

A) Process Parameters: BAGHOUSE (EU No. 010)

1. Source Designators: Wheel Cut-off Saw and Abrasive Belt Roller Mill Baghouse
2. Baghouse Manufacturer: Donaldson Torit
3. Model Name and Number: DFE 3-6
4. Design Flow Rate: 4,000 DSCFM
5. Efficiency Rating at Design Capacity: 99.9%
6. Pressure Drop: 0-6 inches water
7. Air to Media Ratio: 3.5
8. Bag Type: Cartridge Filters (6)
9. Bag Material: Ultra Web Nanofiber Media
10. Bag Cleaning Conditions: Pulse Jet at 90-100 PSIG
11. Gas Temperatures: inlet and outlet 180 F
12. Stack Height Above Ground: 14 ft.
13. Process Controlled by Collection System: Abrasive residue
14. Operating Schedule: 5,000 hours/year

B) Inspections:

The following observations, checks, and operations apply to this source and shall be conducted at a minimum on the schedule specified:

<u>Weekly Inspections (if operated during the week)</u>

1. Check for visible emissions
2. Empty the hopper
3. Check and the record pressure drop.
4. Check for proper cleaning air pressure.

<u>Annual Inspections</u>

1. Inspect the exhaust fan for corrosion, material build-up, loose belts, and general deterioration
2. Check the differential pressure manometers for plugged lines
3. Check the ducts for dust buildup
4. Observe the baghouse housing for corrosion.
5. Inspect the exhaust system for any damage to duct and repair or replace as needed
6. Thoroughly inspect the filters in the baghouse for wear and proper tension and replace as needed

7. Completely inspect the control system for proper operation and signs of deterioration of parts

C) Records:

Records of any inspections, observed emissions, maintenance, malfunctions, and performance data of control devices and auxiliary equipment shall be retained by the emission unit for a minimum of two years and shall be made available to the Department upon request.

A) Process parameter: SCRUBBER (EU No. 005)

1. Source designators: Finished Parts Inspection
2. Scrubber manufacturer: AAT, Inc., Orion Model 11V-IS-P, Packed Bed Scrubber with Mist Eliminator
3. Flowrate: 11,000 ACFM
4. Minimum scrubber efficiency: 95 percent
5. Operating scrubber liquid rate: 300 gallons/minute recirculation rate as recommended by the manufacturer
6. During the cleaning operation (metals parts being dipped in the tanks) the room doors shall be shut.
7. The scrubber shall be in operation while the cleaning operation is occurring.
8. Once per shift, the operator shall record the scrubber pressure drop if the scrubber is in operation during that shift.

B) <u>Annual Inspections</u>

Inspect the scrubber assembly for corrosion, material build-up, loose belts, and general deterioration.

C) Records:

Records of any inspections, observed emissions, maintenance, malfunctions, and performance data of control devices and auxiliary equipment shall be retained by the emission unit for a minimum of two years and shall be made available to the Department upon request

A) Process Parameter: WAX BURN-OFF OVENS (EU No. 002)

The following practices shall be followed during the operation of each wax burn-off oven used in the casting molds process: (EU No. 002, Emission Points 1 - 4):

1. Preheat the afterburner chamber until it reaches a minimum temperature of 1,425°F prior to the initial charge upon startup.
2. Maintain the afterburner temperature at a minimum of 1,425°F during operation, including during the charging operation.
3. Observe the furnace doors/openings, and seals for visible emissions at least
4. Record the temperature of each afterburner at least once per shift.
5. Turn on the afterburner during ash removal or cleaning of the burn-off chamber.

The following practices shall be followed during the operation of each wax burn-off oven used in the core making process (EU No. 002, Emission Points 5 - 6):

1. The afterburner temperature shall be maintained at a minimum of the temperature the afterburner was set at during the latest successful compliance demonstration.
2. Observe the furnace doors/openings, and seals for visible emissions at least once per shift. Make note of any problems and correct promptly.
3. Record the temperature of each afterburner at least once per shift.
4. Turn on the afterburner during ash removal or cleaning of the burn-off chamber.

B) Records:

Records of any inspections, observed emissions, maintenance, malfunctions, and performance data of control devices and auxiliary equipment shall be retained by the emission unit for a minimum of two years and shall be made available to the Department upon request