

Facility DEC ID: 6304800138

PERMIT
Under the Environmental Conservation Law (ECL)

IDENTIFICATION INFORMATION

Permit Type: Air State Facility
Permit ID: 6-3048-00138/00002
Effective Date:

Expiration Date:

Permit Issued To: RESONETICS SMART MATERIALS INC
4355 MIDDLE SETTLEMENT RD
NEW HARTFORD, NY 13413

Contact: DYLAN HOFFMAN
RESONETICS SMART MATERIALS INC
4355 MIDDLE SETTLEMENT RD
NEW HARTFORD, NY 13413
(315) 235-6353

Facility: RESONETICS SMART MATERIALS INC
4355 MIDDLE SETTLEMENT RD
NEW HARTFORD, NY 13413

Description:

Resonetics Smart Materials, Inc. formerly known as SAES Smart Materials; melts, forms, and cleans nickel-based alloys to create shape memory alloys. The operations at the facility include Vacuum Induction Melt (VIM) furnace, Vacuum Arc Remelt (VAR) furnace, a cutting saw, bar forming, wire drawing operation, annealing operation, an acid etch line that vents to a scrubber and production of Nitinol thin sheet products. In the VIM furnace, virgin metals are pre weighed in appropriate proportions for the specified alloy, then charged in the furnace under vacuum or partial gas vacuum.

Melting is accomplished by induction coils surrounding the melting chamber. The resulting cylindrical mass is termed an "electrode". Once the electrode is formed the saw is used to cut a sample for a quality analysis. The rest of the "electrode" is then refined in the Vacuum ARC remelt furnaces and then sent off site for further processing. Once the material has been processed it is returned to the facility as bars, sheet products or coil. Bars are cut to size, and coil is shipped as is or drawn to smaller sized wire. Both wire and sheet products undergo acid etching for completion; acid emissions from the etching process are captured by hoods and exhausted to an acid scrubber.

Facility wide actual emissions were calculated and evaluated against Part 212's Table 2, HTAC mass emission thresholds. Emissions of non-HTACs were also evaluated for contaminants with an emission rate greater than 100 lbs/yr. Particulate (PM) emission from the VIM and VAR melt furnaces were of concern as PM emitted contains some HTACs. The VAR furnace emissions are directly reflected by the material loaded into

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the furnace. The VIM furnace is lined with refractory that has aged. As a result, emission of PM is not directly reflective of material loaded into the furnace. It was determined that additional particulate emissions from the VIM furnace are entrained in the exhaust stream due to the degradation of the refractory lining. Particulate emissions were estimated based on a combination of prior stack testing on similar furnaces and metal concentrations provided by Resonetics to demonstrate that HTAC contaminants did not exceed their respective mass emission limit.

The facility also operates a cutting saw to process materials down to desired sizes. Particulate emissions from the saw also contains the same HTACs as the furnace. The facility shall track emissions from all emission sources to ensure that no single contaminant exceeds the Part 212 Table 2 thresholds. The facility shall also comply with Part 212-2.4 grain loading standards.

Similarly, the emissions from the acid scrubber have also been evaluated under Part 212. Emissions of nitric acid were modeled using AERMOD. Actual emissions were determined to be in compliance with the short term and annual guideline concentration (SGC/AGC). Additionally, testing of the acid scrubber shows that the facility is achieving roughly 95% control for emissions of nitric acid and sulfuric acid, and up to 99% control for emissions of Hydrogen fluoride. Emissions from the etching process are mitigated while the pH in the scrubber is maintained at the recommended range.

Facility emissions were also modeled for compliance with the National Ambient Air Quality Standards (NAAQS). Emissions of PM₁₀, PM_{2.5}, and NO₂ were all shown to not exceed the NAAQS at the time of the application.

The facility is subject to 226-1 Solvent Cleaning Processes. A remote reservoir parts washer is stationed within the building. The facility is currently demonstrating compliance with 226-1 emission limits by utilizing cleaning solutions with a VOC content of 25 grams per liter or less, at 20°C. The facility shall maintain records of materials used along with the associated safety data sheet (SDS).

A majority of the facility's VOC are attributed to hand cleaning operations using isopropanol. Hand cleaning operations at the facility fall under 6NYCRR 201-3.3(c)(96). Emissions of VOCs from cleaning operations are not subject to 226-2 Industrial Cleaning Solvents, as long as facility actual VOCs from industrial cleaning solvents remain below 3 tons per year.

Resonetics operates two natural gas fired emergency engine generators. One 23hp (17kw) engine subject to 40 CFR 60 subpart JJJJ, and one 40hp (30kw) engine subject to 40 CFR 63 subpart ZZZZ. The facility shall conduct annual maintenance and keep

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activity logs. The engines fall under 6NYCRR 201-3.2(c)(6) and are not required to be permitted. Hours of operation must be tracked to demonstrate units are operating less than 500hrs per year per 6NYCRR 200.1(cq).

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified and any Special Conditions included as part of this permit.

Permit Administrator: JESSICA J HART
NYSDEC - REGION 6
317 WASHINGTON ST
WATERTOWN, NY 13601

Authorized Signature: _____ Date: ____ / ____ / ____

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Notification of Other State Permittee Obligations**Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification**

The permittee expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the compliance permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in any compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit

The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

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DEC GENERAL CONDITIONS

General Provisions

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| 7 | 5 | Submission of application for permit modification or renewal-REGION 6 SUBOFFICE - UTICA |
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DEC GENERAL CONDITIONS****** General Provisions ********GENERAL CONDITIONS - Apply to ALL Authorized Permits.****Condition 1: Facility Inspection by the Department****Applicable State Requirement: ECL 19-0305****Item 1.1:**

The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3).

Item 1.2:

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

Item 1.3:

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Condition 2: Relationship of this Permit to Other Department Orders and Determinations**Applicable State Requirement: ECL 3-0301 (2) (m)****Item 2.1:**

Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

Condition 3: Applications for permit renewals, modifications and transfers**Applicable State Requirement: 6 NYCRR 621.11****Item 3.1:**

The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

Item 3.2:

The permittee must submit a renewal application at least 180 days before the expiration of permits for Title V and State Facility Permits.

Item 3.3

Permits are transferrable with the approval of the department unless specifically prohibited by the statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

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Condition 4: Permit modifications, suspensions or revocations by the Department
Applicable State Requirement: 6 NYCRR 621.13

Item 4.1:

The Department reserves the right to exercise all available authority to modify, suspend, or revoke this permit in accordance with 6NYCRR Part 621. The grounds for modification, suspension or revocation include:

- a) materially false or inaccurate statements in the permit application or supporting papers;
- b) failure by the permittee to comply with any terms or conditions of the permit;
- c) exceeding the scope of the project as described in the permit application;
- d) newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;
- e) noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

****** Facility Level ******

Condition 5: Submission of application for permit modification or renewal-REGION 6
SUBOFFICE - UTICA
Applicable State Requirement: 6 NYCRR 621.6 (a)

Item 5.1:

Submission of applications for permit modification or renewal are to be submitted to:
NYSDEC Regional Permit Administrator
Region 6 Sub-office
Division of Environmental Permits
State Office Building, 207 Genesee Street
Utica, NY 13501-2885
(315) 793-2555

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ARTICLE 19: AIR POLLUTION CONTROL - AIR STATE FACILITY PERMIT

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Facility: **RESONETICS SMART MATERIALS INC**
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Authorized Activity By Standard Industrial Classification Code:
3339 - PRIMARY NONFERROUS METALS, NEC

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| 11 | 6 40CFR 60, NSPS Subpart JJJJ: Applicability |
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Emission Unit Level

EU=1-ACID1,EP=79203,Proc=AC1

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FEDERALLY ENFORCEABLE CONDITIONS

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**** Facility Level ****

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS

This section contains terms and conditions which are federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: Sealing - 6 NYCRR 200.5

The Commissioner may seal an air contamination source to prevent its operation if compliance with 6 NYCRR Chapter III is not met within the time provided by an order of the Commissioner issued in the case of the violation. Sealing means labeling or tagging a source to notify any person that operation of the source is prohibited, and also includes physical means of preventing the operation of an air contamination source without resulting in destruction of any equipment associated with such source, and includes, but is not limited to, bolting, chaining or wiring shut control panels, apertures or conduits associated with such source.

No person shall operate any air contamination source sealed by the Commissioner in accordance with this section unless a modification has been made which enables such source to comply with all requirements applicable to such modification.

Unless authorized by the Commissioner, no person shall remove or alter any seal affixed to any contamination source in accordance with this section.

Item B: Acceptable Ambient Air Quality - 6 NYCRR 200.6

Notwithstanding the provisions of 6 NYCRR Chapter III, Subchapter A, no person shall allow or permit any air contamination source to emit air contaminants in quantities which alone or in combination with emissions from other air contamination sources would contravene any applicable ambient air quality standard and/or cause air pollution. In such cases where contravention occurs or may occur, the Commissioner shall specify the degree and/or method of emission control required.

Item C: Maintenance of Equipment - 6 NYCRR 200.7

Any person who owns or operates an air contamination source which is equipped with an emission control device shall operate such device and keep it in a satisfactory state of maintenance and repair in accordance with ordinary and necessary practices, standards and procedures, inclusive of manufacturer's specifications,

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required to operate such device effectively.

Item D: Unpermitted Emission Sources - 6 NYCRR 201-1.2

(a) Except as otherwise provided by this Part, construction or operation of a new, modified or existing air contamination source without a registration or permit issued pursuant to this Part is prohibited.

(b) If an existing facility or emission source was subject to the permitting requirements of this Part at the time of construction or modification, and the owner or operator failed to apply for a permit or registration as described in this Part, the owner or operator must apply for a permit or registration in accordance with the provisions of this Part. The facility or emission source is subject to all regulations that were applicable to it at the time of construction or modification and any subsequent requirements applicable to existing emission sources.

Item E: Recycling and Salvage - 6 NYCRR 201-1.7

Where practical, any person who owns or operates an air contamination source shall recycle or salvage air contaminants collected in an air cleaning device according to the requirements of 6 NYCRR.

Item F: Prohibition of Reintroduction of Collected Contaminants to the Air - 6 NYCRR 201-1.8

No person shall unnecessarily remove, handle, or cause to be handled, collected air contaminants from an air cleaning device for recycling, salvage or disposal in a manner that would reintroduce them to the outdoor atmosphere.

Item G: Proof of Eligibility for Sources Defined as Exempt Activities - 6 NYCRR 201-3.2 (a)

The owner and/or operator of an emission source or unit that is eligible to be exempt, may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request.

Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item H: Proof of Eligibility for Sources Defined as Trivial

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Activities - 6 NYCRR 201-3.3 (a)

The owner and/or operator of an emission source or unit that is listed as being trivial in 6 NYCRR Part 201 may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item I: Required Emission Tests - 6 NYCRR 202-1.1

An acceptable report of measured emissions shall be submitted, as may be required by the Commissioner, to ascertain compliance or noncompliance with any air pollution code, rule, or regulation. Failure to submit a report acceptable to the Commissioner within the time stated shall be sufficient reason for the Commissioner to suspend or deny an operating permit. Notification and acceptable procedures are specified in 6 NYCRR Subpart 202-1.

Item J: Open Fires Prohibitions - 6 NYCRR 215.2

Except as allowed by section 215.3 of 6 NYCRR Part 215, no person shall burn, cause, suffer, allow or permit the burning of any materials in an open fire.

Item K: Permit Exclusion - ECL 19-0305

The issuance of this permit by the Department and the receipt thereof by the Applicant does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any legal, administrative or equitable rights or claims, actions, suits, causes of action or demands whatsoever that the Department may have against the Applicant for violations based on facts and circumstances alleged to have occurred or existed prior to the effective date of this permit, including, but not limited to, any enforcement action authorized pursuant to the provisions of applicable federal law, the Environmental Conservation Law of the State of New York (ECL) and Chapter III of the Official Compilation of the Codes, Rules and Regulations of the State of New York (NYCRR). The issuance of this permit also shall not in any way affect pending or future enforcement actions under the Clean Air Act brought by the United States or any person.

Item L: Federally Enforceable Requirements - 40 CFR 70.6 (b)

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All terms and conditions in this permit required by the Act or any applicable requirement, including any provisions designed to limit a facility's potential to emit, are enforceable by the Administrator and citizens under the Act. The Department has, in this permit, specifically designated any terms and conditions that are not required under the Act or under any of its applicable requirements as being enforceable under only state regulations.

FEDERAL APPLICABLE REQUIREMENTS
The following conditions are federally enforceable.

Condition 1: Visible Emissions Limited
Effective for entire length of Permit

Applicable Federal Requirement: 6 NYCRR 211.2

Item 1.1:

Except as permitted by a specific part of this Subchapter and for open fires for which a restricted burning permit has been issued, no person shall cause or allow any air contamination source to emit any material having an opacity equal to or greater than 20 percent (six minute average) except for one continuous six-minute period per hour of not more than 57 percent opacity.

Condition 2: Compliance Demonstration
Effective for entire length of Permit

Applicable Federal Requirement: 6 NYCRR 212-1.6 (a)

Item 2.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):
CAS No: 0NY075-00-0 PARTICULATES

Item 2.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

No person shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source, except only the emission of uncombined water. The Department reserves the right to perform or require the performance of an EPA Reference Test Method 9 opacity evaluation at any time during facility operation.

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The facility owner or operator shall conduct visible emission observations once per day while the process is in operation. The facility owner or operator will investigate, in a timely manner, any instance where there is cause to believe that visible emissions have the potential to exceed the opacity standard. If opacity is observed the facility shall make necessary corrections. If visible emissions continue to be observed after making corrections, the Department shall be notified within 1 business day and a Method 9 test shall be conducted within 5 business days.

This limit applies to emission points within emission units listed below.

Emission Unit: 1-FCE01

Emission Unit: 1-SAW01

Records of the visible emissions observations, any follow-up Method 9 observations, investigations, and corrective actions taken are to be maintained on site for a period of at least five years from the date of the record. Records of opacity shall be kept onsite and maintained in a bound binder or in digital format and made available to the DEC upon request.

Parameter Monitored: OPACITY

Upper Permit Limit: 20 percent

Reference Test Method: EPA Reference Method 9

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING

DESCRIPTION

Averaging Method: 6-MINUTE AVERAGE (METHOD 9)

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 3: Compliance Demonstration
Effective for entire length of Permit

Applicable Federal Requirement: 6 NYCRR 212-2.4 (b)

Item 3.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):

CAS No: 0NY075-00-0 PARTICULATES

Item 3.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING

Monitoring Description:

Emissions from any process emission source for which an application was received by the department after July 1,

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1973 are restricted as follows:

No facility owner or operator shall cause or allow emissions of particulate that exceed 0.050 grains per cubic foot of exhaust gas, expressed at standard conditions on a dry gas basis, except in instances where determination of permissible emission rate using process weight for a specific source category emitting solid particulate is based upon Table 5 and Table 6 of 6 NYCRR 212-2.5 (a) and (b).

Parameter Monitored: PARTICULATES

Upper Permit Limit: 0.050 grains per dscf

Reference Test Method: EPA Method 5

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING

DESCRIPTION

Averaging Method: Arithmetic average of stack test runs

Reporting Requirements: ONCE / BATCH OR MONITORING OCCURRENCE

Condition 4: Compliance Demonstration
Effective for entire length of Permit

Applicable Federal Requirement: 6 NYCRR 226-1.4 (a)

Item 4.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):

CAS No: 0NY998-00-0 VOC

Item 4.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: WORK PRACTICE INVOLVING SPECIFIC OPERATIONS

Monitoring Description:

The remote reservoir part washer used for solvent cleaning is subject to Subpart 226-1. The facility has elected to demonstrate compliance with Part 226-1.4 by utilizing solvents with VOC content of 25 grams per liter at 20°C or less.

Recordkeeping shall serve as this conditions monitoring requirement.

The facility must keep records for a minimum of five (5) years. Records may include but not limited to: an invoice, a bill of sale, a certificate covering multiple sales, manufacturers published information, or other appropriate documentation acceptable to the department may be used to comply with this requirement.

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Documentation includes:

- (1) the name and address of the solvent supplier;
- (2) the type of solvent including the product or vendor identification number; and
- (3) the VOC content of the cleaning solution in grams per liter (gm/l) or the vapor pressure of the solvent measured in mm Hg at 20°C (68°F) as appropriate to verify compliance.

There are no annual reporting requirements. Records must be made available to the Department upon request.

Work Practice Type: PARAMETER OF PROCESS MATERIAL

Process Material: SOLVENT

Parameter Monitored: VAPOR PRESSURE

Upper Permit Limit: 25 grams per liter

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Averaging Method: MAXIMUM - NOT TO EXCEED STATED VALUE - SEE MONITORING DESCRIPTION

Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 5: Compliance Demonstration
Effective for entire length of Permit

Applicable Federal Requirement: 6 NYCRR 226-2.1 (a)

Item 5.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):

CAS No: 0NY998-00-0 VOC

Item 5.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

The facility shall maintain a record of actual emission of volatile organic compounds (VOC's) from industrial cleaning solvents to demonstrate emissions are less than three tons on a 12-month rolling total basis. Therefore, the facility is not subject to Subpart 226-2 Industrial Cleaning Solvents.

The emissions from cleaning solvents by any of the following industries or processes do not count towards the three tons per year applicability threshold:

- (1) the use of cleaning solvents in cold cleaning degreasers (including remote reservoir degreasers), open-top vapor degreasing and conveyorized degreasers; and

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including cleaning items defined as special and extreme solvent cleaning subject to Subpart 226-1 of this Part, and cleaning processes that specifically do not apply to Subpart 226-1 under section 226-1.7(a) of this Part;

(2) the use of cleaning solvents in surface coating processes to clean spray guns subject to Subpart 228-1 of this Title; and for surface preparation, clean-up and coating removal subject to Subpart 228-1 of this Title, including items specified as not being subject to the rule in section 228-1.1(b) of this Title;

(3) the use of cleaning solvents for surface preparation and clean-up of adhesives, sealants and primers subject to Subpart 228-2 of this Title, including items exempt from the rule in section 228-2.2 of this Title;

(4) the use of cleaning solvents for offset lithographic, flexographic, rotogravure, screen printing or letterpress printing processes subject to Part 234 of this Title, including items specified as not being subject to the rule in section 234.1(d) of this Title;

(5) the use of cleaning solvents used in aircraft de-icing operations exempt from permitting under Subpart 201-3 of this Title;

(6) cleaning solvents given an A rating by the department or that are already subject to RACT and/or T-BACT subject to Part 212 of this Title; and

(7) the use of any cleaning solvent specified or regulated under any Federal or State statute or regulation which specifies a VOC limit or exemption;

(8) the use of cleaning solvents:
(i) to clean personal protection equipment;
(ii) for personal hygiene such as hand sanitizers;
(iii) to clean medical equipment;
(iv) in research and development activities; and
(v) in janitorial supplies used for cleaning offices, bathrooms or other similar areas.

Monitoring Frequency: MONTHLY

Averaging Method: ANNUAL MAXIMUM ROLLED MONTHLY

Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 6: Applicability

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Effective for entire length of Permit

Applicable Federal Requirement: 40 CFR 60, NSPS Subpart JJJJ

Item 6.1:

Facilities that have stationary spark ignition internal combustion engines must comply with applicable portions of 40 CFR 60 Subpart JJJJ.

Condition 7: Engines at Area sources of HAP
Effective for entire length of Permit

Applicable Federal Requirement: 40 CFR 63, Subpart ZZZZ

Item 7.1:

Internal combustion engines, constructed or re-constructed on or after June 12, 2006, that meet the requirements of 40 CFR 60 Subpart IIII or Subpart JJJJ meet the requirements of 40 CFR 63 Subpart ZZZZ.

****** Emission Unit Level ******

Condition 8: Compliance Demonstration
Effective for entire length of Permit

Applicable Federal Requirement: 6 NYCRR 212-2.3 (b)

Item 8.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ACID1 Emission Point: 79203
Process: AC1

Regulated Contaminant(s):
CAS No: 007697-37-2 NITRIC ACID

Item 8.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

Nitric acid emissions from the etching process are controlled by the acid scrubber. Emissions from the scrubber must meet the degree of air cleaning required under Part 212-2.3. As a result, the scrubber is required to comply with the Short-term and Annual Guideline Concentration (SGC and AGC). Based on performance testing conducted on the etch scrubber in April 2023, the emission rate potential for nitric acid is 1.64 lb/hr and the

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post-control emission rate is 0.081 lb/hr. Air dispersion modeling was conducted via AERMOD and demonstrated that nitric acid emissions were well below the SGC and AGC while pressure kept in the manufactures recommended range.

The facility shall check the differential pressure gauge prior to the start of etching operations to confirm the pressure is at or below 2.25 inches water gauge according to manufacturer recommendations. This pressure differential will be recorded once each operating day.

Daily records pressure readings shall be recorded in a bound notebook or digital format acceptable to the Department.

Facility shall report annually the records of the scrubber's pressure gauge readings.

Parameter Monitored: PRESSURE

Upper Permit Limit: 2.25 inches of water

Monitoring Frequency: DAILY

Averaging Method: MAXIMUM - NOT TO EXCEED STATED VALUE -

SEE MONITORING DESCRIPTION

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

Subsequent reports are due every 12 calendar month(s).

Condition 9: Compliance Demonstration
Effective for entire length of Permit

Applicable Federal Requirement: 6 NYCRR 212-2.3 (b)

Item 9.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ACID1

Emission Point: 79203

Process: AC1

Regulated Contaminant(s):

CAS No: 007697-37-2 NITRIC ACID

Item 9.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

Nitric acid emissions from the etching process are controlled by the acid scrubber. Emissions from the scrubber must meet the degree of air cleaning required

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under Part 212-2.3. As a result, the scrubber is required to comply with the Short-term and Annual Guideline Concentration (SGC and AGC). Based on performance testing conducted on the etch scrubber in April 2023, the emission rate potential for nitric acid is 1.64 lb/hr and the post-control emission rate is 0.081 lb/hr. Air dispersion modeling was conducted via AERMOD and demonstrated that nitric acid emissions were well below the SGC and AGC thresholds while pH in the scrubber is maintained.

The facility will observe and record the pH of the scrubber solution at the beginning of each shift involving etch operations to confirm the pH is at or above 9.5 prior to beginning etch operations. The facility will also observe and record the pH of the scrubber solution at the end of each etch operating shift to confirm the pH is at or above 9.5.

Daily records of scrubber pH readings shall be recorded in a bound notebook or digital format acceptable to the Department.

Facility shall report annually the records of the scrubber's pH.

Parameter Monitored: ACIDITY/ALKALINITY
Lower Permit Limit: 9.5 pH (STANDARD) units
Monitoring Frequency: PER SHIFT
Averaging Method: MINIMUM - NOT TO FALL BELOW STATED
VALUE - SEE MONITORING DESCRIPTION
Reporting Requirements: ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
Subsequent reports are due every 12 calendar month(s).

Condition 10: Compliance Demonstration
Effective for entire length of Permit

Applicable Federal Requirement: 6 NYCRR 212-2.4 (b)

Item 10.1:

The Compliance Demonstration activity will be performed for:

Emission Unit: 1-FCE01

Regulated Contaminant(s):
CAS No: 000000-00-0 PARTICULATES

Item 10.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING

Monitoring Description:

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Facility shall demonstrate compliance with Part 212 grain loading standard of 0.050 grains per dry standard cubic foot of exhaust gas for emission unit 1-FCE01 by conducting a stack test, once every 10 years to verify emissions of particulate. Each furnace in emissions unit 1-FCE01 will be required to complete an emissions test.

Emission Unit: 1-FCE01
-Vacuum Induction Melt furnace (VIM)
-Vacuum Arc Melt furnace (VAR)

Submit a stack test protocol at least 30 days prior to the proposed testing date for review and approval.

Provide the stack test report within 60 days of completion of the stack test. There are no on-going reporting or recordkeeping requirements for this permit condition.

Upon request of the Department, the facility shall include particulate speciation with emission testing.

Parameter Monitored: PARTICULATES
Upper Permit Limit: 0.050 grains per dscf
Reference Test Method: EPA Reference Method 5
Monitoring Frequency: ONCE EVERY TEN YEARS
Averaging Method: 1-HOUR AVERAGE
Reporting Requirements: ONCE / BATCH OR MONITORING OCCURRENCE

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STATE ONLY ENFORCEABLE CONDITIONS

**** Facility Level ****

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS

This section contains terms and conditions which are not federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: Emergency Defense - 6 NYCRR 201-1.5

An emergency, as defined in 6 NYCRR subpart 201-2, constitutes an affirmative defense to penalties sought in an enforcement action brought by the department for noncompliance with emissions limitations or permit conditions for all facilities in New York State.

(a) The affirmative defense of emergency shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) an emergency occurred and that the facility owner or operator can identify the cause(s) of the emergency;

(2) the equipment at the facility was being properly operated and maintained;

(3) during the period of the emergency the facility owner or operator took all reasonable steps to minimize the levels of emissions that exceeded the emission standards, or other requirements in the permit; and

(4) the facility owner or operator notified the department within two working days after the event occurred. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and any corrective actions taken.

(b) In any enforcement proceeding, the facility owner or operator seeking to establish the occurrence of an emergency has the burden of proof.

(c) This provision is in addition to any emergency or malfunction provision contained in any applicable requirement.

Item B: Public Access to Recordkeeping for Facilities With State Facility Permits - 6 NYCRR 201-1.10 (a)

Where facility owners and/or operators keep records pursuant to compliance with the requirements of 6 NYCRR Subpart 201-5.4, and/or the emission capping requirements of 6 NYCRR Subpart 201-7, the Department will make such records available to the public upon request in accordance

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with 6 NYCRR Part 616 - Public Access to Records.
Facility owners and/or operators must submit the records
required to comply with the request within sixty working
days of written notification by the Department.

Item C: **General Provisions for State Enforceable Permit Terms and
Condition - 6 NYCRR Part 201-5**

Any person who owns and/or operates stationary sources
shall operate and maintain all emission units and any
required emission control devices in compliance with all
applicable Parts of this Chapter and existing laws, and
shall operate the facility in accordance with all
criteria, emission limits, terms, conditions, and
standards in this permit. Failure of such person to
properly operate and maintain the effectiveness of such
emission units and emission control devices may be
sufficient reason for the Department to revoke or deny a
permit.

The owner or operator of the permitted facility must
maintain all required records on-site for a period of five
years and make them available to representatives of the
Department upon request. Department representatives must
be granted access to any facility regulated by this
Subpart, during normal operating hours, for the purpose of
determining compliance with this and any other state and
federal air pollution control requirements, regulations or
law.

STATE ONLY APPLICABLE REQUIREMENTS

The following conditions are state only enforceable.

Condition 11: Contaminant List
Effective for entire length of Permit

Applicable State Requirement:ECL 19-0301**Item 11.1:**

Emissions of the following contaminants are subject to contaminant specific requirements in
this permit(emission limits, control requirements or compliance monitoring conditions).

CAS No: 007439-96-5
Name: MANGANESE

CAS No: 007440-02-0
Name: NICKEL METAL AND INSOLUBLE COMPOUNDS

CAS No: 007440-47-3
Name: CHROMIUM

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CAS No: 007697-37-2

Name: NITRIC ACID

CAS No: 0NY075-00-0

Name: PARTICULATES

CAS No: 0NY998-00-0

Name: VOC

Condition 12: Malfunctions and Start-up/Shutdown Activities
Effective for entire length of Permit

Applicable State Requirement: 6 NYCRR 201-1.4

Item 12.1:

(a) The facility owner or operator shall take all necessary and appropriate actions to prevent the emission of air pollutants that result in contravention of any applicable emission standard during periods of start-up, shutdown, or malfunction.

(b) The facility owner or operator shall compile and maintain records of all equipment maintenance and start-up/shutdown activities when they are expected to result in an exceedance of any applicable emission standard, and shall submit a report of such activities to the department when required by a permit condition or upon request by the department. Such reports shall state whether an exceedance occurred and if it was unavoidable, include the time, frequency and duration of the exceedance, and an estimate of the emission rates of any air contaminants released. Such records shall be maintained for a period of at least five years and made available for review to department representatives upon request. Facility owners or operators subject to continuous monitoring and quarterly reporting requirements need not submit additional reports of exceedances to the department.

(c) In the event that air contaminant emissions exceed any applicable emission standard due to a malfunction, the facility owner or operator shall notify the department as soon as possible during normal working hours, but not later than two working days after becoming aware that the malfunction occurred. In addition, the facility owner or operator shall compile and maintain a record of all malfunctions. Such records shall be maintained at the facility for a period of at least five years and must be made available to the department upon request. When requested by the department, the facility owner or operator shall submit a written report to the department describing the malfunction, the corrective action taken, the air contaminants emitted, and the resulting emission rates and/or opacity.

(d) The department may also require the facility owner or operator to include, in reports described under Subdivisions (b) and (c) of this Section, an estimate of the maximum ground level concentration of each air contaminant emitted and the effect of such emissions.

(e) A violation of any applicable emission standard resulting from start-up, shutdown, or malfunction conditions at a permitted or registered facility may not be subject to an enforcement action by the department and/or penalty if the department determines, in its sole discretion, that such a violation was unavoidable. The actions and recordkeeping and reporting requirements listed above must be adhered to in such circumstances.

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Condition 13: Emission Unit Definition
Effective for entire length of Permit

Applicable State Requirement: 6 NYCRR Subpart 201-5

Item 13.1:

The facility is authorized to perform regulated processes under this permit for:

Emission Unit: 1-ACID1

Emission Unit Description:

Acid etching/metal cleaning. Wire etch is operated to clean metal wire. Sheet etch is used to clean metal sheets. Fumes are exhausted to acid scrubber then discharged to atmosphere.

Building(s): RSM

Item 13.2:

The facility is authorized to perform regulated processes under this permit for:

Emission Unit: 1-FCE01

Emission Unit Description:

Emission unit consists of furnaces used for melting and refining of metal alloys. Vacuum-Induction-Melt (VIM) and Vacuum-Arc-Remelt (VAR) furnances are used for initial metling and remelting of virgin metal.

Building(s): RSM

Item 13.3:

The facility is authorized to perform regulated processes under this permit for:

Emission Unit: 1-SAW01

Emission Unit Description:

Industrial sized saws to cut metal billets. Emissions consist of particulate matter, nickel, titanium, and trace impurity metals including: chromium, cobalt, copper, and niobium. Additional consituents (VOCS and HAPs) may be emitted as particulate matter due to break down of the abrasive wheels.

Building(s): RSM

Condition 14: Renewal deadlines for state facility permits
Effective for entire length of Permit

Applicable State Requirement: 6 NYCRR 201-5.2 (c)

Item 14.1:

The owner or operator of a facility having an issued state facility permit shall submit a complete application at least 180 days, but not more than eighteen months, prior to the date of permit

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expiration for permit renewal purposes.

Condition 15: CLCPA Applicability
Effective for entire length of Permit

Applicable State Requirement:6 NYCRR 201-5.3 (c)

Item 15.1:

Pursuant to The New York State Climate Leadership and Community Protection Act (CLCPA) and Article 75 of the Environmental Conservation Law, emission sources shall comply with regulations to be promulgated by the Department to ensure that by 2030 statewide greenhouse gas emissions are reduced by 40% of 1990 levels, and by 2050 statewide greenhouse gas emissions are reduced by 85% of 1990 levels.

Condition 16: Compliance Demonstration
Effective for entire length of Permit

Applicable State Requirement:6 NYCRR 201-5.3 (c)

Item 16.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 16.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

Any reports or submissions required by this permit shall be submitted to the Regional Air Pollution Control Engineer (RAPCE) at the following address:

Division of Air Resources
NYS Dept. of Environmental Conservation
Region 6
State Office Building
317 Washington Ave.
Watertown, NY 13601

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 17: Air pollution prohibited
Effective for entire length of Permit

Applicable State Requirement:6 NYCRR 211.1

Item 17.1:

No person shall cause or allow emissions of air contaminants to the outdoor atmosphere of such quantity, characteristic or duration which are injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life or property. Notwithstanding the existence of specific air quality standards or emission limits, this prohibition applies, but is not limited to, any particulate, fume, gas, mist, odor, smoke, vapor,

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pollen, toxic or deleterious emission, either alone or in combination with others.

Condition 18: Compliance Demonstration
Effective for entire length of Permit

Applicable State Requirement: 6 NYCRR 212-2.1 (a)

Item 18.1:

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):
CAS No: 007440-47-3 CHROMIUM

Item 18.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

Chromium compounds are classified as a High Toxicity Contaminant (HTAC). The facility owner or operator shall limit the actual annual manganese emissions from all process operations at the facility to not exceed the Mass Emission Limit (MEL) listed for the individual HTAC of 250 lbs per year. The facility shall notify the department prior to undergoing any physical or operational changes that would result in increased emissions of Chromium compounds beyond the MEL. Increases to potential emissions may require a re-evaluation of the facility's off-site impacts with respect to the AGC and SGC or demonstrate compliance with the air cleaning requirements for the HTAC as specified in subdivision 212-2.3(b), table 4 – degree of air cleaning required for non-criteria air contaminants.

The facility shall calculate and record total actual annual emissions of Chromium compounds from all process operations in a manner acceptable to the Department. The facility shall also maintain operating hours of the furnaces (emission unit 1-FCE01) and saw (emission unit 1-SAW01). Monthly rolled totals shall be submitted to the department on an annual basis.

Monitoring Frequency: MONTHLY

Averaging Method: ANNUAL MAXIMUM ROLLED MONTHLY

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

Subsequent reports are due every 12 calendar month(s).

Condition 19: Compliance Demonstration
Effective for entire length of Permit

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Applicable State Requirement:6 NYCRR 212-2.1 (a)**Item 19.1:**

The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):

CAS No: 007440-02-0 NICKEL METAL AND INSOLUBLE
COMPOUNDS

Item 19.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

Nickel is classified as a High Toxicity Contaminant (HTAC). The facility owner or operator shall limit the actual annual nickel emission from all process operations at the facility to not exceed the Mass Emission Limit (MEL) listed for the individual HTAC of 10 lbs per year. The facility shall notify the department prior to undergoing any physical or operational changes that would result in increased emissions of nickel beyond the MEL. Increases to potential emissions may require a re-evaluation of the facility's off-site impacts with respect to the AGC and SGC or demonstrate compliance with the air cleaning requirements for the HTAC as specified in subdivision 212-2.3(b), table 4 – degree of air cleaning required for non-criteria air contaminants.

The facility shall calculate and record total actual annual emissions of nickel from all process operations in a manner acceptable to the Department. The facility shall also maintain operating hours of the furnaces (emission unit 1-FCE01) and saw (emission unit 1-SAW01). Monthly rolled totals shall be submitted to the department on an annual basis.

Monitoring Frequency: MONTHLY

Averaging Method: ANNUAL MAXIMUM ROLLED MONTHLY

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

Subsequent reports are due every 12 calendar month(s).

Condition 20: Compliance Demonstration
Effective for entire length of Permit

Applicable State Requirement:6 NYCRR 212-2.1 (a)**Item 20.1:**

The Compliance Demonstration activity will be performed for the Facility.

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Regulated Contaminant(s):
CAS No: 007439-96-5 MANGANESE

Item 20.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

Manganese compounds are classified as a High Toxicity Contaminant (HTAC). The facility owner or operator shall limit the actual annual manganese emissions from all process operations at the facility to not exceed the Mass Emission Limit (MEL) listed for the individual HTAC of 10 lbs per year. The facility shall notify the department prior to undergoing any physical or operational changes that would result in increased emissions of manganese compounds beyond the MEL. Increases to potential emissions may require a re-evaluation of the facility's off-site impacts with respect to the AGC and SGC or demonstrate compliance with the air cleaning requirements for the HTAC as specified in subdivision 212-2.3(b), table 4 – degree of air cleaning required for non-criteria air contaminants.

The facility shall calculate and record total actual annual emissions of manganese compounds from all process operations in a manner acceptable to the Department. The facility shall also maintain operating hours of the furnaces (emission unit 1-FCE01) and saw (emission unit 1-SAW01). Monthly rolled totals shall be submitted to the department on an annual basis.

Monitoring Frequency: MONTHLY
Averaging Method: ANNUAL MAXIMUM ROLLED MONTHLY
Reporting Requirements: ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
Subsequent reports are due every 12 calendar month(s).

****** Emission Unit Level ******

**Condition 21: Emission Point Definition By Emission Unit
Effective for entire length of Permit**

Applicable State Requirement: 6 NYCRR Subpart 201-5

Item 21.1:

The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: 1-ACID1

Permit ID: 6-3048-00138/00002

Facility DEC ID: 6304800138

Emission Point: 79203
Height (ft.): 38 Diameter (in.): 20
NYTMN (km.): 4769.627 NYTME (km.): 472.399 Building: RSM

Item 21.2:

The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: 1-FCE01

Emission Point: 79501
Height (ft.): 29 Diameter (in.): 12
NYTMN (km.): 4769.611 NYTME (km.): 472.404 Building: RSM

Emission Point: EP0C2
Height (ft.): 29 Diameter (in.): 12
NYTMN (km.): 4769.619 NYTME (km.): 472.415 Building: RSM

Item 21.3:

The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: 1-SAW01

Emission Point: 79502
Height (ft.): 29 Diameter (in.): 12
NYTMN (km.): 4769.6 NYTME (km.): 472.421 Building: RSM

Condition 22: Process Definition By Emission Unit
Effective for entire length of Permit

Applicable State Requirement: 6 NYCRR Subpart 201-5

Item 22.1:

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-ACID1
Process: AC1 Source Classification Code: 3-04-010-10
Process Description:
Acid Etching operation for the production of shape memory
allows. Fumes are exhausted to an acid scrubber then
discharged to atmosphere.

Emission Source/Control: WSCR1 - Control
Control Type: WET SCRUBBER

Emission Source/Control: SHEET - Process

Emission Source/Control: WIRE1 - Process

Emission Source/Control: WIRE2 - Process

Item 22.2:

This permit authorizes the following regulated processes for the cited Emission Unit:

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Emission Unit: 1-FCE01

Process: VAR

Source Classification Code: 3-04-010-99

Process Description:

Vacuum-Arc-Remelting Process. Molded electrodes are remelted under vacuum conditions for refining.

Emission Source/Control: VARC3 - Process

Item 22.3:

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-FCE01

Process: VIM

Source Classification Code: 3-04-010-06

Process Description:

Vacuum-Induction-Melt furnaces. Virgin metals are pre-weighed in appropriate proportions for the specified alloy, then charged in the furnace under continuous vacuum. Melting is accomplished by induction coils surrounding the melting chamber. The resulting cylindrical mass is termed an "electrode". The only source of emissions from this unit is the vacuum exhaust. 6 NYCRR 201-3.3(c)(62) designates "vacuum producing devices where only ambient air and the oil emissions from the vacuum producing mechanism itself is exhausted," as trivial activities. However, since air from the melt chamber come in contact with the molten metals, hazardous material is entrained in the exhaust stream. Source testing was evaluated to identify and quantify potential emissions. Emissions of Particulate Matter (including oil mist) and trace amount of HAP metals (chromium, cobalt, nickel) and refractory constituents were identified.

Emission Source/Control: VIMN1 - Process

Item 22.4:

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SAW01

Process: SAW

Source Classification Code: 3-04-010-11

Process Description: Plate Saw in the facility for cutting metal.

Emission Source/Control: SPSAW - Process

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