

PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY

33 N. Stone Avenue, Suite 700 • Tucson, AZ 85701 • Phone: (520) 724-7400

AIR QUALITY PERMIT

(As required by Title 17.12, Article II, Pima County Code)

ISSUED TO

**MATERION BRUSH, INC.
DBA – MATERION CERAMICS
6100 SOUTH TUCSON BOULEVARD
TUCSON, AZ 85706**

This air quality operating permit does not relieve applicant of responsibility for meeting all air pollution regulations

THIS PERMIT ISSUED SUBJECT TO THE FOLLOWING conditions contained in Parts A, B, C and Attachments 1 and 2.

PDEQ PERMIT NUMBER 1571

PERMIT CLASS II

ISSUED: September 15, 2017

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SIGNATURE

Rupesh Patel, Air Permit Manager, PDEQ

TITLE

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SUMMARY

This Class II stationary source operating permit is issued to the Permittee, Materion Ceramics Inc., (Materion) for operation of its beryllium ceramic plant and machine shop in Tucson, Arizona.

Materion's operations are subject to the National Emission Standard for Hazardous Air Pollutants (NESHAPS) for Beryllium (40 CFR 61, Subparts A and C). There are no federal New Source Performance Standards (NSPS) or Maximum Achievable Control Technology (MACT) standards applicable to any operations at the facility. There are applicable State Implementation Plan (SIP) rules (primarily for fugitive dust control) and applicable county rules (fugitive dust and fossil fuel fired commercial and industrial equipment). There are no restrictions on hours of operation at the facility.

The Materion facility processes beryllium oxide powder (BeO) in manufacturing ceramic products. Air pollution control (APC) equipment at the facility includes four (4) systems:

- 15K cfm air pollution control system that includes a 60 filter cartridge housing and a triple filtered final filter housing;
- 40K cfm air pollution control system that includes two 80 filter cartridge housings and a double filtered final filter housing;
- 7K cfm (Torit) air pollution control system that includes a wet media primary filter and a double filtered final filter housing; and
- 6.5K (EF1) cfm air pollution control system that includes One (1) pre-filter stage, one (1) intermediate filter stage, One (1) pre-filter stage and one (1) HEPA filter stage.

All particulate generating production operations involving beryllium are controlled by operational procedures and a combination of ventilation, isolation, or enclosure. Captured particulate emissions are routed to the air pollution control equipment and HEPA filtered prior to exhausting through a single stack to the ambient air.

A base station has been installed with capabilities of monitoring pre-set alarms for notification and response purposes. The alarm levels have been established to be indicative of a primary filter failure. A diagram of the pollution control equipment and the location of the particulate monitoring system probes is provided in Attachment 3 of this permit

The facility utilizes an Aqua Regia Cleaning process used for specialized cleaning and removal of stains and metal marks from beryllium oxide parts. The Cadmium process is not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart XXXXXX because Materion is not primarily engaged in the operations of one of the nine source categories listed in the rule. The Cadmium process is not yet in production and is still being evaluated and developed. Once the R&D process is complete and the product determined viable for production, Materion will be required to apply for a revision to the permit as well as supply potential to emit (PTE) estimates if necessary to add the process as an additional operation.

Materion has received approval from the Administrator to modify EPA Test Method 104 to include the use of an in-stack filter (per EPA Letter to PDEQ dated September 3, 1992)

The potential emissions from the plant's operations and equipment are summarized in Table 1. These values are for information purposes only and are not meant to be enforceable emission limits.

Terms and conditions of this permit that are enforceable by the Administrator of the United States Environmental Protection Agency (U.S. EPA) are noted and labeled as Federally Enforceable Requirements.

Table 1

| POTENTIAL TO EMIT SUMMARY (TONS PER YEAR) | |
|--|---------|
| Beryllium* | 0.004 |
| Volatile Organic Compounds | 10.500 |
| Xylene | 0.067 |
| Nickel | 0.00032 |
| Hydrochloric Acid | 0.04 |
| Total HAPs | 0.13 |

* Beryllium potential to emit based upon the federal standard in 40 CFR 61, Subpart C.

Historical stack testing results over the past 10 years have consistently shown beryllium emissions to be less than 0.1 grams per 24 hours (the federal standard is 10 grams per twenty-four hours). Because of the consistently low results, and Materion's voluntary efforts by installing advanced equipment for monitoring the pollution control systems, the requirement to perform an annual stack test has been removed from the permit. Stack testing can however be required at any time under the authority of the Control Officer.

PART A: GENERAL CONDITIONS

(References to A.R.S. are references to the Arizona Revised Statutes, references to A.A.C. are references to the Arizona Administrative Code, and references to PCC are references to Title 17 of the Pima County Code)

I. PERMIT EXPIRATION AND RENEWAL

[PCC 17.12.165.C.2 and PCC 17.12.185.A.1]

- A. This permit is valid for a period of five years from the date of issuance.
- B. The Permittee shall submit an application for renewal of this permit at least 6 months, but not greater than 18 months prior to the date of permit expiration.

II. COMPLIANCE WITH PERMIT CONDITIONS

[PCC 17.12.185.A.7.a and b]

- A. The Permittee shall comply with all conditions of this permit including all applicable requirements of Arizona Air Quality Statutes and Pima County air quality rules. Permit noncompliance may constitute grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act.
- B. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE

[PCC 17.12.185.A.7.c and PCC 17.12.270]

- A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, termination; or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- B. The permit shall be reopened and revised under any of the following circumstances:
 - 1. Additional applicable requirements under the Clean Air Act become applicable to a Class I source. Such a reopening shall only occur if there are three or more years remaining in the permit term. The reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to PCC 17.12.280. Any permit revision required pursuant to this condition shall comply with provisions in PCC 17.12.280 for permit renewal and shall reset the five-year permit term.
 - 2. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit.
 - 3. The Control Officer determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
 - 4. The Control Officer or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.

- C. Proceedings to reopen and reissue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance. Such reopenings shall, except as provided under condition III.B.1 above, affect only those parts of the permit for which cause to reopen exists. Such reopenings shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in condition III.B.1 above, shall not result in the resetting of the five-year permit term.

IV. POSTING OF PERMIT

[PCC 17.12.080 & ARS 49-485]

The Permittee shall maintain a complete copy of the permit onsite. If it is not feasible to maintain a copy of the permit onsite, the Permittee may request, in writing, to maintain a copy of the permit at an alternate location. Upon written approval by the Control Officer, the Permittee must maintain a complete copy of the permit at the approved alternative location. In addition, the machine(s), equipment, device(s), or other articles listed in Attachment 2 of this permit shall be affixed with a unique and clearly visible and accessible (ID).

V. FEE PAYMENT

[PCC 17.12.185.A.8 and PCC 17.12.520]

The Permittee shall pay fees to the Control Officer pursuant to PCC 17.12.520.

VI. ANNUAL EMISSIONS INVENTORY QUESTIONNAIRE

[PCC 17.12.320]

- A. When requested by the Control Officer, the Permittee shall complete and submit an annual emissions inventory questionnaire. The questionnaire is due by March 31 or ninety days after the Control Officer makes the request and provides the inventory form, whichever occurs later, and shall include emission information for the previous calendar year.
- B. The questionnaire shall be on a form provided by or approved by the Control Officer and shall include the information required by PCC 17.12.320.

VII. CERTIFICATION OF TRUTH ACCURACY AND COMPLETENESS

[PCC 17.12.165.H]

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required by this permit shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

VIII. INSPECTION AND ENTRY

[PCC 17.12.220.A.4]

The Permittee shall allow the Control Officer or the authorized representative of the Control Officer upon presentation of proper credentials to:

- A. Enter upon the Permittee's premises where a source is located or emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;
- B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;
- C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- D. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and
- E. Record any inspection by use of written, electronic, magnetic and photographic media.

IX. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD

[PCC 17.12.160.D.3]

If this source becomes subject to a standard promulgated by the Administrator pursuant to Section 112(d) of the Clean Air Act (National Emission Standards for Hazardous Air Pollutants - NESHAP), then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.

X. EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCY REPORTING [PCC 17.12.040]

A. Excess Emissions Reporting

[PCC 17.12.040]

1. Excess emissions shall be reported as follows:

a. Permittee shall report to the Control Officer any emissions in excess of the limits established by this permit. The report shall be in 2 parts as specified below:

i. Notification by telephone, facsimile, or E-Mail within 24 hours of the time the Permittee first learned of the occurrence of excess emissions including all available information in condition X.A.1.b below. The number to call to report excess emissions is **520-724-7400**. The facsimile number to report excess emissions is **520-838-7432**. The e-mail address to report excess emissions is Air.Permits@pima.gov.

ii. Detailed written notification by submission of an excess emissions report within 72 hours of the notification under condition X.A.1.a.i. above. Notifications should be mailed or e-mailed to:

PDEQ Air Program 33 N. Stone Avenue, Ste 700, Tucson, Arizona 85701.

e-mail address: Air.Permits@pima.gov

b. The report shall contain the following information:

i. Identity of each stack or other emission point where the excess emission occurred;

ii. Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;

iii. Date, time and duration or expected duration of the excess emissions;

iv. Identity of the equipment from which the excess emissions emanated;

v. Nature and cause of the emissions;

vi. If the excess emissions were the result of a malfunction, steps taken, to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions; and

vii. The steps that were or are being taken to limit the excess emissions; If the excess emissions resulted from start-up or malfunction, the report shall contain a list of the steps taken to comply with permit procedures.

2. In the case of continuous or recurring excess emissions, the notification requirements of this condition shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification as provided in condition X.A.1.

B. Permit Deviations Reporting

[PCC 17.12.185.A.5]

The Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Prompt reporting shall mean that the report was submitted to the Control Officer by certified mail, facsimile, e-mail, or hand delivery within two working days of the time when emission limitations were exceeded due to an emergency or within two working days of the time when the Permittee first learned of the occurrence of a deviation from permit conditions.

C. Emergency Provision

[PCC 17.12.185.D]

1. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, that requires immediate corrective action to restore normal operation and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emission attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.
2. An emergency constitutes an affirmative defense to an action brought for noncompliance with the technology-based emission limitations if condition X.C.3 below is met.
3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An emergency occurred and that the Permittee can identify the cause or causes of the emergency;
 - b. The permitted facility was being properly operated at the time of the emergency;
 - c. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
 - d. The Permittee submitted notice of the emergency to the Control Officer by certified mail, facsimile, e-mail, or hand delivery, within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective action taken.
4. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

D. Compliance Schedule

[ARS § 49-480.F.3 and 5]

For any excess emission or permit deviation that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Control Officer within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or conditions that have been violated.

E. Affirmative Defenses for Excess Emissions Due to Malfunctions, Startup, and Shutdown. [PCC 17.12.035]

1. Applicability

This condition establishes affirmative defenses for certain emissions in excess of an emission standard or limitation and applies to all emission standards or limitations except for standards or limitations:

- a. Promulgated pursuant to Sections 111 or 112 of the Clean Air Act,
- b. Promulgated pursuant to Titles IV or VI of the Clean Air Act,
- c. Contained in any Prevention of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the U.S. EPA, or
- d. Included in a permit to meet the requirements of PCC 17.16.590.A.5.

2. Affirmative Defense for Malfunctions

Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. When emissions in excess of an applicable emission limitation are due to a malfunction, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of condition X.A above and has demonstrated all of the following:

- a. The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution control equipment beyond the reasonable control of the Permittee;
- b. The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
- c. If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the Permittee satisfactorily demonstrated that the measures were impracticable;
- d. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;
- e. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;
- f. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;
- g. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in PCC Chapter 17.08 that could be attributed to the emitting source;
- h. The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by better operations and maintenance practices;
- i. All emissions monitoring systems were kept in operation if at all practicable; and
- j. The Permittee's actions in response to the excess emissions were documented by contemporaneous records.

3. Affirmative Defense for Startup and Shutdown

- a. Except as provided in condition X.E.3.b below, and unless otherwise provided for in the specific conditions in Part B of this permit, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. When emissions in excess of an applicable emission limitation are due to startup and shutdown, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the owner or operator of the source has complied with the reporting requirements of condition X.A above and has demonstrated all of the following:
- i. The excess emissions could not have been prevented through careful and prudent planning and design;
 - ii. If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution control equipment, production equipment, or other property;
 - iii. The source's air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
 - iv. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;
 - v. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;
 - vi. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in PCC Chapter 17.08 that could be attributed to the emitting source;
 - vii. All emissions monitoring systems were kept in operation if at all practicable; and
 - viii. Contemporaneous records documented the Permittee's actions in response to the excess emissions.
- b. If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to condition X.E.2 above.

4. Affirmative Defense for Malfunctions during Scheduled Maintenance

If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to condition X.E.2 above.

5. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under conditions X.E.2 or 3 above, the Permittee shall demonstrate, through submission of the data and information required by conditions X.E.1 – 5 and X.A above, that all reasonable and practicable measures within the owner or operator's control were implemented to prevent the occurrence of the excess emissions.

XI. RECORDKEEPING REQUIREMENTS

[PCC 17.12.185.A.4]

- A. The Permittee shall keep records of all required monitoring information including but not limited to the following as applicable:
 - 1. The date, place as defined in the permit, and time of sampling or measurements;
 - 2. The date(s) analyses were performed;
 - 3. The name of the company or entity that performed the analyses;
 - 4. A description of the analytical techniques or methods used;
 - 5. The results of such analyses; and
 - 6. The operating conditions as existing at the time of sampling or measurement.
- B. The Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.
- C. All required records shall be maintained either in an unchangeable electronic format or in a handwritten logbook utilizing indelible ink.

XII. REPORTING REQUIREMENTS

[PCC 17.12.185.A.5]

The Permittee shall comply with all of the reporting requirements of this permit. These include all of the following:

- A. Excess emissions; permit deviations, and emergency reports in accordance with condition X above.
- B. Performance test results in accordance with condition XVI.F below.
- C. Other reports required by any condition in Part B of this permit.

XIII. DUTY TO PROVIDE INFORMATION

[PCC 17.12.165.G and PCC 17.12.185.A.7.e]

- A. The Permittee shall furnish to the Control Officer, within a reasonable time, any information that the Control Officer may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Control Officer copies of records required to be kept by the permit.
- B. If the Permittee has failed to submit any relevant facts or has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a proposed permit.

XIV. PERMIT AMENDMENT OR REVISION

[PCC 17.12.245, PCC 17.12.255 and PCC 17.12.260]

The Permittee shall apply for a permit amendment or revision for changes to the facility which do not qualify for a facility change without revision under condition XV below, as follows:

- A. Administrative Permit Amendment (PCC 17.12.245);
- B. Minor Permit Revision (PCC 17.12.255);
- C. Significant Permit Revision (PCC 17.12.260).

The applicability and requirements for such action are defined in the above referenced sections of Title 17.

XV. FACILITY CHANGES WITHOUT A PERMIT REVISION

[PCC 17.12.240]

- A. Except for a physical change or change in the method of operation at a Class II source requiring a permit revision under PCC 17.12.235, or a change subject to logging or notice requirements in conditions XV.B or C below, a change at a Class II source shall not be subject to revision, notice, or logging requirements.
- B. Except as otherwise provided in the conditions applicable to an emissions cap created under PCC 17.12.195, the following changes may be made if the source keeps onsite records of the changes as provided in condition XV.I below:
 - 1. Implementing an alternative operating scenario, including raw material changes;
 - 2. Changing process equipment, operating procedures, or making any other physical change if the permit requires the change to be logged;
 - 3. Engaging in any new insignificant activity listed in PCC 17.04.340, Insignificant Activities definition; (a) through (i) but not listed in the permit;
 - 4. Replacing an item of air pollution control equipment listed in the permit with an identical (same model, different serial number) item. The Control Officer may require verification of efficiency of the new equipment by performance tests; and
 - 5. A change that results in a decrease in actual emissions if the source wants to claim credit for the decrease in determining whether the source has a net emissions increase for any purpose. The logged information shall include a description of the change that will produce the decrease in actual emissions. A decrease that has not been logged is creditable only if the decrease is quantifiable, enforceable, and otherwise qualifies as a creditable decrease.
- C. Except as provided in the conditions applicable to an emissions cap created under PCC 17.12.195, the following changes may be made if the source provides written notice to the Department in advance of the change as provided below:
 - 1. Replacing an item of air pollution control equipment listed in the permit with one that is not identical but that is substantially similar and has the same or better pollutant removal efficiency: seven days. The Control Officer may require verification of efficiency of the new equipment by performance tests;

2. A physical change or change in the method of operation that increases actual emissions more than 10% of the major source threshold for any conventional pollutant but does not require a permit revision: seven days;
 3. Replacing an item of air pollution control equipment listed in the permit with one that is not substantially similar but that has the same or better efficiency: 30 days. The Control Officer may require verification of efficiency of the new equipment by performance tests;
 4. A change that would trigger an applicable requirement that already exists in the permit: 30 days unless otherwise required by the applicable requirement;
 5. A change that amounts to reconstruction of the source or an affected facility: seven days. For purposes of this condition, reconstruction of a source or an affected facility shall be presumed if the fixed capital cost of the new components exceeds 50% of the fixed capital cost of a comparable entirely new source or affected facility and the changes to the components have occurred over the 12 consecutive months beginning with commencement of construction; and
 6. A change that will result in the emissions of a new regulated air pollutant above an applicable regulatory threshold but that does not trigger a new applicable requirement for that source category: 30 days. For purposes of this requirement, an applicable regulatory threshold for a conventional air pollutant shall be 10% of the applicable major source threshold for that pollutant.
- D. For each change under condition XV.C above, the written notice shall be by certified mail, facsimile, e-mail or hand delivery and shall be received by the Control Officer the minimum amount of time in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided with less than required notice, but must be provided as far in advance of the change, or if advance notification is not practicable, as soon after the change as possible. The written notice shall include:
1. When the proposed change will occur,
 2. A description of the change,
 3. Any change in emissions of regulated air pollutants, and
 4. Any permit term or condition that is no longer applicable as a result of the change.
- E. A source may implement any change in condition XV.C above without the required notice by applying for a minor permit revision under PCC 17.12.255 and complying with PCC 17.12.255.D.2 and G.
- F. The permit shield described in condition XIX below shall not apply to any change made under this condition, other than implementation of an alternate operating scenario under condition XV.B.1 above.
- G. Notwithstanding any other part of this condition, the Control Officer may require a permit to be revised for any change that, when considered together with any other changes submitted by the same source under this condition over the term of the permit, constitutes a change under PCC 17.12.235.A.
- H. If a source change is described under both conditions XV.B and C above, the source shall comply with condition XV.C above. If a source change is described under both condition XV.C above, and PCC 17.12.235.B, the source shall comply with PCC 17.12.235.B.

- I. A copy of all logs required under condition XV.B above shall be filed with the Control Officer within 30 days after each anniversary of the permit issue date. If no changes were made at the source requiring logging, a statement to that effect shall be filed instead.
- J. Logging Requirements
 1. Each log entry required by a change under XV.B above shall include at least the following information:
 - a. A description of the change, including:
 - i. A description of any process change.
 - ii. A description of any equipment change, including both old and new equipment descriptions, model numbers and serial numbers, or any other unique equipment number.
 - iii. A description of any process material change.
 - b. The date and time that the change occurred.
 - c. The provision(s) of condition XV.B above that authorizes the change to be made with logging.
 - d. The date the entry was made and the first and last name of the person making the entry.
 2. Logs shall be kept for five years from the date created. Logging shall be performed in indelible ink in a bound log book with sequentially numbered pages, or in any other form, including electronic format, approved by the Control Officer.

XVI. TESTING REQUIREMENTS

[PCC 17.12.050]

- A. New sources required to conduct performance testing shall do so within 60 days after the source has achieved the capability to operate at its maximum production rate on a sustained basis but no later than 180 days after initial startup of such sources. The Permittee shall conduct performance testing as specified in Part B of the permit and at such other times as may be required by the Control Officer. The Permittee shall furnish the control officer a written report or the results of the tests.
- B. Operational Conditions During Testing

Performance tests shall be conducted while the unit is operating at full load under representative operational conditions unless other conditions are required by the applicable test method or in this permit. With prior written approval from the Control Officer, testing may be performed at a lower rate. Operations during start-up, shutdown, and malfunction (as defined in PCC 17.04.340.A) shall not constitute representative operational conditions unless otherwise specified in the applicable requirement.
- C. Test Procedure

Tests shall be conducted and data reduced in accordance with the test methods and procedures contained in the Arizona Testing Manual, 40 CFR 52; Appendices D and E, 40 CFR 60; Appendices A through F; and 40 CFR 61, Appendices B and C unless modified by the Control Officer pursuant to PCC 17.12.050.B.

D. Test Plan

At least 14 calendar days prior to performing a test, the Permittee shall submit a test plan to the Control Officer, in accordance with PCC 17.12.050.D and the Arizona Testing Manual. This test plan must include the test duration, test location(s), test methods, and source operation and other parameters that may affect the test results.

E. Stack Sampling Facilities

The Permittee shall provide or cause to be provided, performance testing facilities as follows:

1. Sampling ports adequate for test methods applicable to the facility;
2. Safe sampling platform(s);
3. Safe access to sampling platform(s); and,
4. Utilities for sampling and testing equipment.

F. Interpretation of Final Results

Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs is required to be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control, compliance may, upon the Control Officer's approval, be determined using the arithmetic mean of the results of the other two runs. If the Control Officer or the Control Officer's designee is present, tests may only be stopped with the Control Officer's or such designee's approval. If the Control Officer or the Control Officer's designee is not present, tests may only be stopped for good cause. Good cause includes: forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation, which demonstrates good cause, must be submitted.

G. Report of Final Test Results

A written report of the results of all performance tests shall be submitted to the Control Officer within 45 days after the test is performed. The report shall be submitted in accordance with the Arizona Testing Manual and PCC 17.12.050.A.

XVII. PROPERTY RIGHTS

[PCC 17.12.185.A.7.d]

This permit does not convey any property rights of any sort, or any exclusive privilege.

XVIII. SEVERABILITY CLAUSE

[PCC 17.12.185.A.6]

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions shall remain valid and in force.

XIX. PERMIT SHIELD

[PCC 17.12.310]

Compliance with the conditions of this permit shall be deemed compliance with any applicable requirement identified in the permit as of the date of permit issuance, provided that such applicable requirements are expressly identified in the permit. The permit shield shall not apply to any change made pursuant to conditions XIV.B and XV above except as provided in condition XV.F above.

XX. ACCIDENT PREVENTION REQUIREMENTS UNDER THE CLEAN AIR ACT (CAA Section 112(r))

Should this stationary source, as defined in 40 CFR, Section 68.3, become subject to the accidental release prevention regulations in 40 CFR, Part 68, then the Permittee shall submit a risk management plan (RMP) by the date specified in 40 CFR, Section 68.10 and shall certify compliance with the requirements of 40 CFR Part 68.

XXI. ASBESTOS REQUIREMENTS (Demolition/ Renovation)

[40 CFR 61, Subpart M]

Should this stationary source, pursuant to 40 CFR 61, Subpart M become subject to the National Emission Standards for Hazardous Air Pollutants - Asbestos for asbestos regulations when conducting any renovation or demolition at this premises, then the Permittee shall submit proper notification as described in 40 CFR Subpart M and shall comply with all other applicable requirements of subpart M. The Permittee shall keep a record of all relevant paperwork on file.

XXII. STRATOSPHERIC OZONE DEPLETING SUBSTANCES

[40 CFR 82 and PCC 17.16.710]

The Permittee shall not use, sell, or offer for sale any fluid as a substitute material for use in any motor vehicle, residential, commercial, or industrial air conditioning system, refrigerator or freezer unit, or other cooling or heating device designed to use a chlorofluorocarbon (CFC) or hydrochlorofluorocarbon (HCFC) compound as a working fluid, unless such fluid has been approved for sale and such use by the Administrator. The Permittee shall keep a record of all paperwork relevant to the applicable requirements of 40 CFR 82, Subpart F onsite.

PART B

BERYLLIUM PROCESSING SPECIFIC CONDITIONS

I. Applicability

This Part contains specific conditions applicable to stationary sources including the ceramic plant and machine shop operations at the facility as defined in 40 CFR Part 61 Subpart C, National Emission Standard for Beryllium.

II. Emission Limitations, Standards and Operational Requirements

- A. The Permittee shall not allow total emissions to the atmosphere from the stationary sources subject to this Part to exceed 10 grams of beryllium over a 24-hour period. [40 CFR 61.32(a)]

[Federally Enforceable Requirement]

- B. The Permittee shall install, operate, and maintain air pollution control equipment listed in Attachment 2 that consists of the following components: [40 CFR 61.12.c & PCC 17.12.185.A.2]

[Federally Enforceable Requirement & Material Permit Condition]

1. A 40K cubic feet per minute capacity HEPA filtered air pollution control device that includes two (2) 80 cartridge filter houses and one (1) two stage final safety filter house.
2. A 15K cubic feet per minute capacity HEPA filtered air pollution control device that includes one (1) 60 cartridge filter house and one (1) three stage final safety filter house.
3. A 7K cubic feet per minute capacity (Torit) HEPA filtered air pollution control device that includes one (1) multi-stage wet separator filter, one (1) primary filter bank, and one (1) final safety filter bank.
4. A 6.5K cubic feet per minute capacity (EF1) HEPA filtered air pollution control device that includes One (1) pre-filter stage, one (1) intermediate filter stage, One (1) pre-filter stage and one (1) HEPA filter stage.
5. The Permittee shall exhaust each of the four systems (i.e., conditions II.B.1-4 above) to a single final exhaust stack.

- C. The Permittee shall not emit or allow to be emitted, beryllium emissions from any operations, roof vent, doorway or other opening from stationary sources except through the air pollution control equipment and the stack identified in II.B of this Part, by implementing an emissions prevention plan as required in condition III.D of this Part. [PCC 17.12.185.A.2]

[Material Permit Condition]

- D. The Permittee shall not emit or allow to be emitted, beryllium emissions when changing filters or collector drums on any of the air pollution control equipment identified in condition II.B of this Part by implementing the following operation and maintenance procedures: [PCC 17.12.185.A.2]

1. 40K Final Safety Filter Change Procedure, (EV-3-0011) dated 10/12/2006.
2. 15K Final Safety Filter Change Procedure, (EV-3-0012) dated 10/12/2006.
3. Torit Final Safety Filter Change Procedure, (EV-3-0013) dated 10/12/2006.
4. Dust Collector Drum Change out Procedure, (EV-3-0009) Revised 5/10/2010.

- E. The Permittee shall set the alarm level on each particulate monitoring device at 100 pico amps sustained for a period of 5 minutes or longer. [PCC 17.12.185.A.2]

[Material Permit Condition]

F. Any changes to the operation and maintenance procedures originally approved by the Control Officer and identified in conditions II.D and III.E.5 of this Part, shall be submitted to and approved by the Control Officer prior to implementation.

G. The Permittee shall operate the air pollution control equipment and the Particulate Monitoring System (PMS) at all times when there is the potential to emit beryllium or beryllium containing compounds. In the event of PMS failure, the Permittee may continue to operate the facility while repairs to the PMS are made. [PCC 17.12.185.A.2]

[Material Permit Condition]

H. The Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne, without taking reasonably necessary and feasible precautions to control generation of airborne particulate matter. Sources may be required to cease temporarily the activity or operation that is causing or contributing to the emissions until reasonably necessary and feasible precautions are taken.

[SIP Rule 343 & PCC 17.16.050.D]

[Federally Enforceable Requirement]

I. The Permittee shall maintain and operate the source, including associated equipment for air pollution control and the Particulate Monitoring System, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator and Control Officer that may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the source.

[40 CFR 61.12(c) & PCC 17.12.350]

[Federally Enforceable & Material Permit Condition]

J. The Permittee shall not build, erect, install, or use any article machine, equipment, process, or method, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous dilutants to achieve compliance with a visible emissions standard, and the piecemeal carrying out of an operation to avoid coverage by a standard that applies only to operations larger than a specified size.

[40 CFR 61.19]

[Federally Enforceable Requirement]

K. Where the Permittee locates a stack, vent or other outlet at such a level that fumes, gas, mist, odor, smoke, vapor or any combination thereof constituting air pollution are discharged to adjoining property, the Control Officer may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by the owner or operator thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to adjoining property.

[PCC 17.16.430.G]

[Material Permit Condition]

L. The Permittee shall not cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from any fuel burning operation in excess of the amount calculated by the following equation:

[SIP Rule 332 & PCC 17.16.165.C.1]

[Federally Enforceable Requirement]

$$E = 1.02Q^{0.769}$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

Q = the heat input in million BTU per hour.

M. The actual values shall be calculated from the applicable equations and rounded off to two decimal places.

[PCC 17.16.165.D]

- N. The Permittee shall use only Pipeline Quality Natural Gas. [PCC 17.12.185.A.2]
[Material Permit Condition]
- O. The opacity of effluent from any stack or point source shall not exceed 40%, as determined by reference Method 9 of the Arizona Testing Manual. [SIP Rule 321]
[Federally Enforceable Requirement]
- P. The Permittee shall not allow the opacity of any plume or effluent to be greater than 20% in any area that is attainment or unclassified for each particulate matter standard except as provided in PCC 17.16.130.d and e. [PCC 17.16.130.B.3]
- Q. No person shall transport or store VOCs without taking necessary and feasible measures to control evaporation, leakage or other discharge into the atmosphere. [PCC 17.16.400]

III. Monitoring & Recordkeeping Requirements

[PCC 17.12.185.A.3 & 4]

- A. The Permittee shall record each instance of activation of each air pollution control device, identified in II.B of this Part. At minimum, the record shall include the date, start and stop time(s) of activation of each device, and name of the person making the entry. Once an individual's name is entered into the log, the person's initials may be entered instead of their name.
- B. The Permittee shall digitally record all particulate monitoring device alarm instances greater than 100 pico amps sustained for a period of 5 minutes or longer. Each digital record shall include sufficient notes that clarify the circumstance of the alarm event (weather, maintenance, other).
- C. The Permittee shall perform weekly checks of the powered exhaust vents (as listed in Table 3 of this Part), doorways, and outside duct work including all collection and filtering systems that have a potential for carrying beryllium containing compounds for evidence of any emissions. At a minimum, the inspection record shall include the date, the identification of the collection or filter system, vent, or doorway being checked, the name of the person making the check, and the results of the check (i.e., any indications of any emissions, leaks or damage that were identified, and, if so, what corrective action was taken).
- D. The Permittee shall implement the Emissions Prevention Plan procedures approved by the Control Officer. The plan is herein incorporated by reference. Any changes to the Emissions Prevention Plan shall follow the procedures in XIV and XV of Part A.
- E. The Permittee shall perform the following: [PCC 17.12.185.A.2]
1. Operate photohelic gauges to continuously monitor the pressure drops across both the primary and final filters of the 15k cfm and 40k cfm air pollution control systems.
 2. Operate photohelic gauges to continuously monitor pressure drops across the final filters of the 7k cfm and 6.5k cfm air pollution control systems.
 3. Maintain air pollution control systems so that they operate within operating ranges specified in Table 2 of this Part.
 4. Interlock the photohelic gauges, identified in III.E.1-2 of this Part, to the fans powering the air pollution control systems to provide automatic shutdown in the event pressure drops reach failure indication levels given in Table 2 of this Part.
 5. Maintain the particle monitoring system according to the 'APC Referenced Procedures and Forms'.
 6. Operate the particle monitoring system to continuously monitor the exhaust air whenever the pollution control equipment is in operation.

- F. The Permittee shall operate the above monitoring and automatic shutdown system, III.E.1-2 of this Part, whenever there is the potential to emit beryllium or beryllium containing compounds. For purposes of IV.A.3 of this Part, a deviation from permit requirements shall be determined to have occurred if the pressure drop across the filter system segments falls outside the values listed in column four, Table 2 of this Part:

Table 2

| Air Pollution Control Device Collection System | Segment | Operating Range (inches water gauge) | ¹Efficiency Boundary Range (inches water gauge) | Meter ID Code (stenciled at the location) |
|---|-------------------|---|---|--|
| 40K cfm | Primary Filters | 1.5 – 2.5 | <0.1, >7.0 | A, B |
| 40K cfm | Final Filters | 0.4 – 2.4 | <0.1, >7.0 | D |
| 15K cfm | Primary Filters | 1.5 – 2.5 | <0.1, >7.0 | C |
| 15K cfm | Final Filters | 0.4 – 1.5 | <0.1, >7.0 | E |
| 7K cfm (Torrit) | Final Filters | 0.4 – 2.4 | <0.1, >7.0 | F |
| 6.5K cfm (EF1) | Primary and Final | 1.5 – 4.0 | <0.1, >7.0 | G |

- G. The Permittee shall record each instance when the filters in any of the four air pollution control devices are replaced. The record shall include, at a minimum, the time and date the filters were replaced, the segment of the air pollution control equipment affected, the basis for replacing the filters, procedures used to replace the filter, and the name of the person replacing the filters.
- H. The Permittee shall record each instance when the dust collector drum is changed out. At a minimum, the record shall include the date, identification of the collection point location, the condition of the drum, the amount of material in the drum, the name of the person making the change out, and any occurrence of beryllium spill from this collection activity. The Permittee shall submit detailed written reports of any beryllium spills from this activity, including photographs of any spills occurring outside negative pressure containment.
- I. The Permittee shall place an identifying sign at the interior location of the power switch for each of the powered exhaust vents located in production areas and listed in Table 3 of this Part below. The specific vents are identified using the same numbering scheme found on the Materion schematic entitled "Building Penetrations" dated January 25, 2001, and provided to the Control Officer as part of the amended application. The sign shall state that, in the event of a beryllium powder spill, the exhaust fan(s) in the vent(s) affected by the spill shall immediately be shut off. Such a requirement shall be incorporated in the Materion's emission prevention plan.

¹ Manufacturer's upper limit (failure limit)

Table 3

| Vent Description | Capacity (cfm) | Vent Number |
|-------------------------|-----------------------|--------------------|
| Firing Room #1 | 13,000 | 1 |
| Lapping Room | 10,000 | 2 |
| Lapping Room | 10,000 | 3 |
| Firing Room #1 | 13,000 | 4 |
| Firing Room #1 | 13,000 | 5 |
| Firing Room #2 | 13,000 | 6 |
| Firing Room #2 | 10,000 | 7 |

- J. The Permittee shall not allow emissions of beryllium powder from any of the powered exhaust vents located in the areas listed in Table 3 of this Part.
- K. The Permittee shall record each instance when a powered exhaust fan in a vent listed in Table 3 of this Part is shut down in response to a beryllium powder spill.
- L. When requested by the Control Officer, the Permittee shall perform testing on any of the powered exhaust vents listed in Table 3 of this Part. Testing shall be performed in accordance with methods approved by the Control Officer.
- M. Fuel-Fired Equipment

The Control Officer may request the Permittee observe the exhaust stack or stacks of the fuel-fired equipment once per calendar quarter for evidence of abnormal emissions. The Permittee shall record the results of each of these quarterly observations in a log containing the date of the check, the person making the check, the specific stack observed, and whether abnormal emissions were observed. If abnormal emissions were observed, the Permittee shall include in the log entry any corrective action taken.

N. Record Retention

Records of all monitoring data and support information including calibration, maintenance records, established 'APC Referenced Procedures and Forms' and manufacturer instruction manuals shall be maintained on site for a period of the permit term. [PCC 17.12.185.A.4]

IV. Reporting Requirements

[PCC 17.12.185.A.5 & PCC 17.12.210]

A. Special Reporting for the Affected Source or Process

1. Initial Notifications

- a. The Permittee notified the Administrator and Control Officer regarding start-up of the existing stationary sources on June 2, 1980.
- b. The Permittee shall furnish the Administrator and Control Officer with written notification of the anticipated date of initial startup of a new stationary source not more than 60 days nor less than 30 days before that date and a notification of the actual date of initial startup of the source within 15 days after that date. [40 CFR 61.09]

[Federally Enforceable Requirement]

2. Reporting of Stack Particle Probe Alarm Triggers

- a. During operational hours, including scheduled maintenance hours, when the exhaust stack and any of the air pollution control systems identified in condition II.B are on-line and in operation, the Permittee shall (as soon as possible, but within 24 hours of the time the Permittee first learned of the occurrence) report to the Control Officer any instances when the alarm triggers on the stack particle probe sustained for a period of five minutes or more. The Permittee shall also submit a detailed alarm event report (as soon as possible, but within 72 hours of the time the Permittee first notified the Control Officer). [PCC 17.24.050]
- b. After operational hours, when the exhaust stack and all of the air pollution control systems identified in condition II.B are off-line and not in operation, the Permittee shall not be required to report alarm triggers of the stack particle probe due to precipitation events, provided the Permittee maintains documentation of the precipitation events, digital records as provided in condition III.B, and information that the stack exhaust motors were off-line. [PCC 17.24.050]

3. Reporting of Permit Deviations

The Permittee shall report deviations from permit requirements within two working days of the time the deviation occurred. (see X.B of Part A).

4. Reporting of Air Pollution Control Automatic Shutdowns (Photohelic Gauge Interlocks)

The Permittee shall promptly (as soon as possible, but within 72 hours of the time the Permittee first learned of the occurrence) submit a written report to the Control Officer of any instance the air pollution control system is automatically shutdown by the continuous monitoring and automatic shutdown system, (III.E.1-4 of this Part). [PCC 17.24.050]

5. Reporting of Beryllium Spill and Vent Emissions

In the event of a beryllium spill in the lapping and firing rooms, the Permittee shall promptly turn off the exhaust roof vents. The Permittee shall follow approved EPP procedures to inspect the roof vents. If emissions are detected at the vents during this inspection, the Permittee shall notify the Control Officer as soon as possible, but within 24 hours of the time the Permittee first learned of the occurrence of a beryllium spill in the lapping and firing rooms. The Permittee shall submit detailed written reports within 72 hours of the first notification pursuant to procedures established in X.A.1 of Part A. [PCC 17.12.040]

B. Emissions Inventory Reporting [PCC 17.12.320]

The Permittee shall complete and submit to the Control Officer an annual emissions inventory questionnaire when requested by the Control Officer. The questionnaire shall include emission information for the previous calendar year and shall be on a form provided or approved by the Control Officer and shall include the information required by PCC 17.12.320 (see VI of Part A).

C. Annual Beryllium Technology Assessment [PCC 17.20.010]

The Permittee shall annually submit (no later than 30 days after the permit anniversary) a report that evaluates the following:

1. New technologies or techniques regarding continuous emissions monitoring (CEM) for beryllium.
2. New technologies or techniques for field assessment or real time beryllium detection.
3. Applicability of technologies to Materion and their associated cost.

V. Testing Requirements

A. Initial Test

[40 CFR 61.13 & 40 CFR 61.33]

[Federally Enforceable Requirement]

1. The Permittee shall test emissions from the source according to Method 104 of Appendix B to 40 CFR Part 61. Method 103 of appendix B to 40 CFR Part 61 is approved by the Administrator as an alternative method. The emission test shall be performed:
 - a. Within 90 days of the effective date in the case of an existing source or a new source which has an initial startup date preceding the effective date; or
 - b. Within 90 days of startup in the case of a new source that did not have an initial startup date preceding the effective date.
 - c. **Initial testing was successfully completed before October 28, 1980.**
2. The Control Officer shall be notified at least 30 days prior to an emission test so that he may at his option observe the test.
3. The Permittee shall provide emission testing facilities as follows:
 - a. Sampling ports adequate for test methods applicable to each source.
 - b. Safe sampling platform(s).
 - c. Safe access to sampling platform(s).
 - d. Utilities for sampling and testing equipment.
 - e. Any other facilities that the Administrator or Control Officer needs to safely and properly test a source.
4. Samples shall be taken over such a period or periods as are necessary to accurately determine the maximum emissions that will occur in any 24-hour period. Where emissions depend upon the relative frequency of operation of different types of processes, operating hours, operating capacities, or other factors, the calculation of maximum 24-hour-period emissions will be based on that combination of factors which is likely to occur during the subject period and which result in the maximum emissions.
5. All samples shall be analyzed and beryllium emissions shall be determined within 30 days after the source test. All determinations shall be reported to the Control Officer by mail or hand delivered letter no later than 45 days following the performance test.
6. Records of emission test results and other data needed to determine total emissions shall be retained at the source and made available, for inspection by the Administrator or the Control Officer, for a minimum of 2 years.

B. Periodic Testing.

[PCC 17.12.185.A.3]

1. Emissions testing shall be required upon the request of the Control Officer. The Permittee shall test emissions from the source according to Method 104 of Appendix B to 40 CFR Part 61. The Permittee has been authorized by the Administrator to use an in-stack filter during the test.

[PCC 17.12.185.A.3.b]

2. The Permittee shall arrange for the test to be conducted by an independent company (i.e., a company not affiliated with Materion). Laboratory analyses of the test results shall also be conducted by a certified laboratory not affiliated with Materion. [PCC 17.12.050.C]
 3. The Permittee shall submit an initial test protocol to the Control Officer for approval at least 30 calendar days prior to the test. The approved initial test protocol will be valid for any subsequent tests during the duration of this current air quality operating permit. The Permittee will re-submit to the Control Officer for approval the test protocol if a modification is required. Only tests conducted in accordance with an approved protocol shall be recognized by the Control Officer. [PCC 17.12.050.B]
 4. The Control Officer shall be notified at least 30 days prior to an emission test so that he may, at his option, observe the test. [40 CFR 61.33(b)]
 5. The Permittee shall provide emission testing facilities as follows: [PCC 17.12.050.E]
 - a. Sampling ports adequate for test methods applicable to each source.
 - b. Safe sampling platform(s).
 - c. Safe access to sampling platform(s).
 - d. Utilities for sampling and testing equipment.
 - e. Any other facilities that the Control Officer needs to safely and properly test a source.
 6. Samples shall be taken over such a period or periods as are necessary to accurately determine the maximum emissions that will occur in any 24-hour period. Where emissions depend upon the relative frequency of operation of different types of processes, operating hours, operating capacities, or other factors, the calculation of maximum 24-hour-period emissions will be based on that combination of factors which is likely to occur during the subject period and which result in the maximum emissions. No changes in the operation shall be made, which would potentially increase emissions above that determined by the most recent source test, until a new emission level has been estimated by calculation and the results reported to the Control Officer. [PCC 17.12.050.C]
 7. All samples shall be analyzed and beryllium emissions shall be determined within 45 days after the source test. All determinations shall be reported to the Control Officer before the close of the next business day (the 46th day) following such determination. [PCC 17.12.050.C]
 8. Records of emission test results and other data needed to determine total emissions shall be retained at the source and made available, for inspection by the Control Officer, for a minimum of 5 years.
- C. The Control Officer shall require the Permittee to monitor, sample, or otherwise quantify the emissions of air pollution, which may reasonably be attributed to the Permittee if the Control Officer determines in writing that all of the following conditions are met: [PCC 17.20.010.B & D]
1. The actual or potential emissions of air pollution may adversely affect public health or the environment and;
 2. An adequate scientific basis for the monitoring, sampling, or quantification method exists, and;
 3. The monitoring, sampling, or quantification method is technically feasible for the subject contaminant and source, and;
 4. The monitoring, sampling, or quantification method is reasonably accurate, and;

5. The cost of the method is reasonable in light of the use to be made of the data, and;
 6. Before requiring such monitoring, sampling, or other quantification, the Control Officer shall consider the relative cost and accuracy of any alternatives which may be reasonable under the circumstances such as emission factors, modeling, mass balance analyses, or emissions projections.
- D. Mass emission testing to determine compliance with the particulate matter standard in II.L of this Part is not normally necessary as standard emission factors yield emission estimates of particulate matter that are far less than the standard allowed by the referenced equation. The Control Officer may require the Permittee to quantify its particulate matter emissions if the Control Officer has reasonable cause to believe a violation of a standard has been committed. [PCC 17.20.010]

PART C

AQUA REGIA ACID CLEANING SPECIFIC CONDITIONS

I. Applicability

This Part contains specific conditions applicable to the stationary source and addresses the Aqua Regia acid cleaning process which removes surface contamination, such as metal marks, from the fired beryllium oxide. The process is subject to applicable sections under Pima County Code (PCC) 17.16.430 – Standards of Performance for Unclassified Sources. **Note:** Not all sections under PCC 17.16.430 are applicable to the Aqua Regia acid cleaning process.

II. Emission Limitations, Standards and Other Requirements

- A. The Permittee shall install, operate, and maintain the air pollution control equipment listed under the Aqua Regia Cleaning Process in Attachment 2. [PCC 17.12.185.A.2]
[Material Permit Condition]

- B. The Permittee must operate and maintain the machining process, including associated air pollution control equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether acceptable operation and maintenance procedures are being used will be based on information available to the Control Officer which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [PCC 17.12.185.A.2]

- C. The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under his control in such quantities or concentrations as to cause air pollution. [PCC 17.16.430.D]

- D. Materials including solvents or other volatile compounds, paints, acids, alkalies, pesticides, fertilizers and manure shall be processed, stored, used and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory. [PCC 17.16.430.F]

- E. Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor or any combination thereof constituting air pollution are discharged to adjoining property, the control officer may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by the owner or operator thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to adjoining property. [PCC 17.16.430.G]

- F. The Permittee shall establish a schedule and procedures for inspection and maintenance of the acid cleaning process and associated equipment by implementing an Aqua Regia Operations & Maintenance Plan (O&M Plan). The O&M Plan shall be kept onsite. [PCC 17.12.185.A.2]

III. Monitoring & Recordkeeping Requirements

[PCC 17.12.185.A.3 & 4]

The Permittee shall inspect the acid cleaning process and associated system(s) according to established procedures (O&M Plan) for any leaks and to ensure that it is operating according to good engineering practice. A record of the inspection shall be maintained with details on the date the inspection was performed, the person conducting the inspection, results of the inspection and any corrective actions taken.

IV. Reporting Requirements

[PCC 17.12.185.A.3 & 5]

1. There are no other specific reporting requirements for the Aqua Regia Cleaning Station. Refer to XII & XVI of Part A for general reporting & testing requirements.

ATTACHMENT 1:

APPLICABLE REGULATIONS

Regulations Specifically Identified As Applicable

Compliance with the terms contained in this permit shall be deemed compliance with the following federally applicable requirements in effect on the date of permit issuance.

Code of Federal Regulations:

- 40 CFR Part 61, Subpart A: General Provisions
- 40 CFR Part 61, Subpart C: National Emission Standard for Beryllium

Pima County State Implementation Plan:

- Rule 316: Particulate Materials
- Rule 343: Visibility Limiting Standard
- Rule 321: Emission-Discharge Opacity Limiting Standards
- Rule 332: Emissions-Discharge Mass Limiting Standard

Compliance with the terms contained in this permit shall be deemed compliance with the following non-federally applicable requirements in effect on the date of permit issuance.

Pima County Code (PCC) Title 17

- 17.12.185.A.2 Permit Contents for Class II and Class III Permits
- 17.16.050 Visibility Limiting Standard
- 17.16.100 Particulate Materials
- 17.16.130 Applicability
- 17.16.165 Standards of Performance for Fossil Fuel-Fired Industrial and Commercial Equipment
- 17.16.400 Organic Solvents and Other Organic Materials
- 17.16.430.F & G Standards of Performance for Unclassified Sources
- 17.20.010 Source Sampling, Monitoring, and Testing
- 17.24.050 Reporting as a Permit Requirement

ATTACHMENT 2: EQUIPMENT LIST

| Air Pollution Control Equipment | | | | | | |
|--|---|--|---|---|--|-----------------|
| Area | Description | Make | Serial Number | Date of Manufacture | Type | Capacity |
| 37 | Farr dust collector system -Fan Cartridge filter housing -Cartridge filter Final filter housing -Primary filter -Secondary filter -final filter) | Brod & McClung – Pace Co. Farr APC Farr APC or equivalent Farr APC Farr APC or equivalent Farr APC or equivalent Farr APC or equivalent | 84-48116-01 84DC0915 N/A 5024 (Materion part no.) N/A N/A N/A | 1984 1984 N/A 1984 N/A N/A N/A | Electric N/A 95.95% N/A 30% 95% HEPA | 15,000 CFM |
| 37 | Farr dust collector system Fan Cartridge filter housing (east) Cartridge filter housing (west) Cartridge filter Final filter housing Secondary filter Final filter | Brod & McClung – Pace Co. Farr APC Farr APC Farr APC or equivalent Farr APC Farr APC or equivalent Farr APC or equivalent | 80-37946-01 80-02 81DC0194 N/A 800018 N/A N/A | 1980 1980 1980 N/A 1980 N/A N/A | Electric N/A N/A 95.95% N/A 30% HEPA | 40,000 CFM |
| 37 | Torit dust collector system Fan Primary filter housing Wire mesh screen Mist stop filters Final filter housing Prefilter Final filter | New York Blower Co. Donaldson Torit Airsan Corp. or equivalent Purapak or equivalent Donaldson Torit Farr APC or equivalent Farr APC or equivalent | M12245100 5105 (Materion part no.) N/A N/A 5099 (Materion part no.) N/A N/A | 1995 1985 N/A N/A 1995 N/A N/A | Electric N/A N/A 95% N/A 95% HEPA | 7,000 CFM |
| 37 | EF1 dust collector system Fan Filter housing Prefilter Rigaflow filter Prefilter Final filter | Loren Cook Co. Flanders / CSC Corp. Farr APC or equivalent Farr APC or equivalent Farr APC or equivalent Farr APC or Equivalent | 180 CIC BG1-2H2W-2H2W- 2GGF-304-D1 N/A N/A N/A N/A | 2001 2001 N/A N/A N/A N/A | Electric N/A 30% 95% N/A 30% HEPA | 6,500 CFM |

ATTACHMENT 2: EQUIPMENT LIST (continued)

| Natural Gas Equipment | | | | | |
|------------------------------|----------------------|----------------------|----------------------------|------------------|-----------------------------|
| Description | Make/ Model | Serial Number | Date of Manufacture | Fuel Type | Date of Installation |
| Parker Steam Boiler | Parker Boiler 104-30 | NB# 62574 | 2015 | Nat. Gas | 1,260,000 Btu/hr |
| Futura II Water Heater | RBI – Futura II | 89-41161 | 2006 | Nat. Gas | 1,062,500 Btu/hr |
| Futura II Water Heater | RBI – Futura II | 080643663 | 2006 | Nat. Gas | 1,062,500 Btu/hr |

| Aqua Regia Cleaning Station | | | | | |
|------------------------------------|----------------------|----------------------|----------------------------|------------------|-----------------------------|
| Description | Make/ Model | Serial Number | Date of Manufacture | Fuel Type | Date of Installation |
| Wet Bench | MEI, LLC | 7974-001 | 12/2/09 | N/A | 1/31/10 |
| Scrubber | TRI-MER/ V/F-018-060 | TMC-024125 | October 09 | N/A | 1/31/10 |

| Cadmium process (The equipment below is used in the Cadmium process and is <u>not</u> subject to NESHAP Subpart XXXXXX) | | | | | |
|--|-------------------------|----------------------|----------------------------|-----------------|--|
| Description | Make/ Model | Serial Number | Date of Manufacture | Capacity | |
| Blender | WAB/ T2F | 971161 | | 2 liters | |
| Vent Hood | Custom | 4053 | | | |
| Lathe | ACRA/ ATL1660TE | 16606101472 | 2005 | 16” x 60” | |
| 11SOPRESS | NATLFORGE/ S1A043301022 | 317 | 1987 | 33 kpsi | |
| Lathe | Haas | 3090845 | 2012 | | |
| Mill | Haas | 31761 | 2003 | | |
| Lab Hood | Air Clean | AC796BE-976 | 2012 | | |

ATTACHMENT 3

MATERION CERAMICS

ATTACHMENT A

Diagram of Pollution Control Equipment and location of Auburn Particle Detector Probes

Note – Not to scale

