

**FOR DISCUSSION PURPOSES ONLY**

(20-09-04)

**PROPOSED RULE 1407.1. CONTROL OF TOXIC AIR CONTAMINANT EMISSIONS  
FROM CHROMIUM ALLOY MELTING OPERATIONS**

(a) Purpose

The purpose of this rule is to reduce emissions of toxic air contaminants from chromium alloy melting operations.

(b) Applicability

This rule applies to an owner or operator of a facility conducting chromium alloy melting, including smelters (primary and secondary), foundries, die-casters, and other establishments conducting miscellaneous melting processes.

(c) Definitions

- (1) AGGREGATE HEXAVALENT CHROMIUM MASS EMISSIONS means the sum of hexavalent chromium mass emissions in milligrams per hour from all chromium alloy furnaces and associated emission control devices.
- (2) ALLOY STEEL means a steel that contains a variety of elements, in addition to iron and carbon, in total amounts between 1.0% and 50% by weight.
- (3) APPROVED CLEANING METHODS means cleaning using wet wash, wet mop, damp cloth, low pressure spray, dry sweeping with use of dust suppressing sweeping compounds, or vacuum equipped with filter(s) rated by the manufacturer to achieve a 99.97% control efficiency for 0.3 micron particles.
- (4) BAG LEAK DETECTION SYSTEM means a system that monitors electrical charge transfer based on triboelectric or electrostatic induction to continuously monitor bag leakage and similar failures by detecting changes in particle mass loading in the exhaust.
- (5) BUILDING means a type of enclosure that is a structure, enclosed with a floor, walls, and a roof to prevent exposure to the elements (e.g. precipitation or wind), with limited openings to allow access for people, vehicles, equipment, or parts.
- (6) CAPTURE VELOCITY means the minimum hood induced air velocity necessary to capture and convey air contaminants into an emission collection system.
- (7) CASTING means the formation of metallic parts or casts by pouring molten metal into a mold and core assembly or into a mold for ingots, sows, or cylinders.

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- (8) CHROMIUM ALLOY means any alloy steel, stainless steel, superalloy, or any metal that is at least 0.5% chromium by weight.
- (9) CHROMIUM ALLOY MELTING FURNACE means any apparatus in which chromium alloy(s) is brought to a liquid state including, but not limited to, blast, crucible, cupola, direct arc, electric arc, hearth, induction, pot, reverberatory, and sweat furnaces, and refining kettles, regardless of the heating mechanism.
- (10) CHROMIUM ALLOY MELTING OPERATION means any process conducted to manufacture metallic products using chromium alloy(s) including, but not limited to, chromium alloy melting furnace, casting, metal grinding, and metal cutting.
- (11) CUSTOMER RETURNS means any material that includes returns, trims, punch-outs, turnings, sprues, gates, risers, and similar material, prior to resale of the product or further distribution in commerce, and includes documentation confirming that the materials contain less than 0.002 percent arsenic and 0.004 percent cadmium by weight.
- (12) DIE-CASTER means any facility, operation, or process where molten metal is forced under pressure into a mold cavity.
- (13) DROSS means the impurities discharged, in solid state, from the chromium alloy melting process.
- (14) DRY SWEEPING means cleaning using a broom or brush to collect and remove dust, dirt, debris, trash, and any solid particulate matter from a surface without the use of water or dust suppressing sweeping compounds.
- (15) DUCT SECTION means any length of duct, including angles and bends, which is contiguous between processes, emission collection systems, emission control devices, or ventilation inlets or outlets. Examples include ducting between a furnace and heat exchanger; baghouse and scrubber; and scrubber and blower, or the exhaust stack itself.
- (16) DUST SUPPRESSING SWEEPING COMPOUND means non-grit-, oil- or waxed, or water-based materials used to minimize dust from becoming airborne during dry sweeping.
- (17) EMISSION COLLECTION SYSTEM means any system, including the associated ducting, installed for the purpose of directing, taking in, confining, and conveying an air contaminant, and which, at a minimum, conforms to design and operation specifications given in the most current edition of *Industrial Ventilation: A Manual of Recommended Practice for Design*, published by the American Conference of

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Governmental Industrial Hygienists at the time the permit application is deemed complete by the South Coast AQMD.

- (18) EMISSION CONTROL DEVICE means any equipment installed in the exhaust ventilation system of a chromium alloy melting furnace or after the emission collection system for the purpose of collecting and reducing metal emissions.
- (19) ENCLOSED STORAGE AREA means any space used to contain materials that has a wall or partition on at least three sides or three-quarters of its circumference, and that screens the materials stored therein to prevent emissions of the material into the air.
- (20) FACILITY means a source at which chromium alloy melting is conducted, and is located on one or more contiguous or adjacent parcels of property in actual contact, or separated solely by a public roadway or other public right-of-way, and is owned or operated by the same person or person(s), corporation, government agency, public district, public officer, association, joint venture, partnership, or any combination of such entities.
- (21) FOUNDRY means any facility, operation, or process where metal or a metal alloy is melted and cast.
- (22) FUGITIVE METAL DUST EMISSIONS means metal emissions generated from chromium alloy melting operations that enter the atmosphere without passing through a stack or vent designed to direct or control their flow or escape from a stack or vent designed to direct or control their flow without passing through an emission control device.
- (23) HEXAVALENT CHROMIUM means the form of chromium in a valence state of +6.
- (24) LOST CASTING WAX means any wax exposed to the casting process.
- (25) LOW PRESSURE SPRAY means a liquid stream with a pressure of 35 pounds per square inch or less.
- (26) MAINTENANCE AND REPAIR ACTIVITY means a routine process conducted on equipment and/or machinery to keep in working order or to prevent breakdowns. It also includes an operation or activity to return a damaged object or an improperly operating object, to good condition, and it includes any of the following activities that generates or has the potential to generate fugitive metal-dust emissions:
  - (A) Maintenance or repair activities on any emission collection or control device that vents a chromium alloy melting operation;

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- (B) Replacement or removal of any duct section used to vent a chromium alloy melting operation; or
  - (C) Metal cutting, metal grinding, or welding that penetrates the metal structure of any equipment, and its associated components, used to process chromium alloy(s), such that metal dust within the internal structure or its components can become fugitive metal dust.
- (27) METAL CUTTING means a process used to abrasively cut or saw ingot, log, billet stock, castings, or formed parts not conducted under a continuous flow of metal removal fluid.
- (28) METAL GRINDING means a process used to grind ingot, log, billet stock, castings, or formed parts not conducted under a continuous flow of metal removal fluid.
- (29) METAL REMOVAL FLUID means a fluid used at the tool and workpiece interface to facilitate the removal of metal from the part; cool the part and tool; extend the life of the tool; or to flush away metal chips and debris. This does not include minimum quantity lubrication fluids used to coat the tool workpiece interface with a thin film of lubricant and minimize heat buildup through friction reduction. Minimum quantity lubrication fluids are applied by pre-coating the tool in the lubricant or by direct application at the tool workpiece interface with a fine mist.
- (30) MOLTEN METAL means metal or metal alloy in a liquid state, in which a cohesive mass of metal will flow under atmospheric pressure and take the shape of the container in which it is placed.
- (31) NON-FERROUS METAL means a metal, including alloys, that contains less than one percent iron by weight. Non-ferrous metals include aluminum, copper, gold, lead, silver, tin, and zinc.
- (32) OPENING means any opening that is designed to be part of a building, such as passages, doorways, bay doors, wall openings, roof openings, vents, and windows. Stacks, ducts, and openings to accommodate stacks and ducts are not considered openings.
- (33) RERUN SCRAP means any material that includes returns, trims, punch-outs, turnings, sprues, gates, risers, and similar material intended for remelting that has not been coated or surfaced with any material and:
- (A) Was generated at the chromium alloy melting facility as a consequence of a casting or forming process; or

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- (B) Was generated offsite of the chromium alloy melting facility as a consequence of a casting or forming process from materials generated at the chromium alloy melting facility, prior to resale of the product or further distribution in commerce, and includes documentation confirming that the materials were generated at the chromium alloy melting facility.
- (34) **SCHOOL** means any public or private school, including juvenile detention facilities with classrooms, used for the education of more than 12 children at the school in kindergarten through grade 12. School also means an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as preschools, Early Head Start, Head Start, First Five, and Child Development Centers. A school does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property.
- (35) **SCRAP** means any metal or metal-containing material that has been discarded or removed from the use for which it was produced or manufactured and which is intended for reprocessing. This does not include rerun scrap or customer returns.
- (36) **SENSITIVE RECEPTOR** means any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (k-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long-term hospitals, hospices, prisons, and dormitories or similar live-in housing.
- (37) **SLAG** means the by-product material discharged, in melted state, from the chromium alloy melting process.
- (38) **SMELTER** means any facility, operation, or process where heat is applied to ore in order to melt out a base metal.
- (39) **STAINLESS STEEL** means a steel alloy with a minimum of 10.5% chromium content by mass.
- (40) **STEEL** means a metal alloy of iron and carbon and other elements.
- (41) **SUPERALLOY** means a heat-resistant metal alloy based on nickel, nickel-iron, or cobalt.
- (42) **USED CASTING SAND** means any sand that has been exposed to the casting process.

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(d) Emission Control Requirements

- (1) No later than July 1, 2022, an owner or operator of a chromium alloy melting facility shall not exceed the limits listed in Table 1 – Aggregate Hexavalent Chromium Emission Limits for all chromium alloy melting furnaces, with or without associated emission control devices, and associated emission control devices as demonstrated through a source test pursuant to subdivision (g).

**Table 1: Aggregate Hexavalent Chromium Emission Limits**

<b>Distance to Sensitive Receptor<sup>1</sup> (meters)</b>	<b>Aggregate Hexavalent Chromium Emission Limit (milligrams per hour)</b>
Less than 50	0.40
50 to 100	1.5
Greater than 100	1.8

<sup>1</sup> Distance shall be measured, rounded to the nearest meter from the stack or centroid of stacks to the property line of the nearest sensitive receptor.

- (2) An owner or operator of a chromium alloy melting facility shall not melt non-ferrous metals or alloys which have:
- (A) More than 0.002 percent arsenic by weight; or
  - (B) More than 0.004 percent cadmium by weight.
- (3) An owner or operator of a chromium alloy melting facility shall not allow any activity associated with chromium alloy melting operation(s) at a facility, including, emission collection system and emission control device operation, and the storage, handling, or transfer of any metal-containing materials, to discharge into the air any air contaminant, other than uncombined water vapor, for a period aggregating more than three minutes in any one hour which is:
- (A) Half as dark or darker in shade as that designed as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines Information Circular No. 1C8333, (May 1967), as specified in the Health and Safety Code Section 41701 (a); or

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- (B) Of such opacity as to obscure an observer's view to a degree equal to or greater than smoke as described in subparagraph (d)(3)(A) or 10 percent opacity.
  - (4) An owner or operator of a chromium alloy melting facility shall ensure visible emissions from a chromium alloy melting furnace do not escape from the collection location(s) of an emission collection system(s).
  - (5) On or after *[Date of Adoption]*, an owner or operator of a chromium alloy melting facility shall not install a new stack or modify any existing stack to allow emissions associated with chromium alloy melting operations to be released in a horizontal direction.
  - (6) No later than January 1, 2022, an owner or operator of a chromium alloy melting facility with chromium alloy melting furnaces existing prior to *[Date of Adoption]*, shall submit complete South Coast AQMD permit applications for emission control devices to the Executive Officer unless there is an approved source test conducted on after *[Date of Adoption]* demonstrating compliance with paragraph (d)(1).
  - (7) Beginning January 1, 2022, any chromium alloy melting furnace and associated emission control device subject to this rule shall no longer be exempt from the requirement of a written permit pursuant to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II and shall require a permit pursuant to Rule 203 – Permit to Operate.
- (e) Housekeeping Requirements
- (1) On and after July 1, 2021, an owner or operator of a chromium alloy melting facility shall:
    - (A) Store in an enclosed storage area, in a building at least 20 feet away from an opening, or in closed containers, metal-containing materials capable of generating any amount of fugitive metal dust emissions including, but not limited to, slag, dross, ash, feed material, trash, debris, used casting sand, lost casting wax, or waste generated from housekeeping, construction, or maintenance and repair activity requirements of this subdivision. Cover containers at all times, except when material is actively deposited into or actively removed from a receptacle, and keep containers free of any openings;

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- (B) Unless located within a building or an enclosed storage area, transport metal-containing casting sand, lost casting wax, slag, dross, ash, feed material, trash, and debris, and any waste generated from the housekeeping requirements of this subdivision and the construction or maintenance and repair activities of subdivision (f), in covered containers to prevent any fugitive metal dust emissions. Seal containers at all times, except when material is actively deposited into or actively removed from a receptacle, and keep containers free of any openings;
- (C) Collect material(s) captured by an emission control device into sealed containers to prevent any fugitive metal dust emissions;
- (D) Enclose all filter media of emission control devices associated with chromium alloy melting operations at all times while in use;
- (E) Conduct daily cleaning, using an approved cleaning method, of all floor areas within 20 feet of where chromium alloy melting operation(s) occur, except for areas where metal grinding or metal cutting is conducted under a continuous flow of metal removal fluid;
- (F) Conduct weekly cleaning, using an approved cleaning method, of all floor areas within 20 feet of:
  - (i) Placement or storage of materials, including, but not limited to, ingots, scrap, customer returns, rerun scrap, dross, slag, ash, and finished products;
  - (ii) Operation of an emission collection system and emission control device associated with chromium alloy melting operation(s);
  - (iii) Operation of equipment for handling, mixing, reclaiming, or storing casting sand or casting wax;
  - (iv) Storage, disposal, recovery, or recycling of waste generated from casting sand, casting wax, and housekeeping activities, and material(s) captured by an emission control device; and
  - (v) Any entrance or exit point of an enclosed storage area or building that houses chromium alloy melting operation(s);
- (G) Conduct quarterly inspection of vents, openings, and ducting of each chromium alloy melting operation emission control device for blockage from accumulated dust and if necessary, clean using an approved cleaning method;



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- (H) Conduct cleaning, at least once every six months, using an approved cleaning method, of all floor areas outside of the building subject to foot or vehicle traffic that is moving any metal or metal-containing materials, including but not limited to, slag, dross, ash, feed material, trash, debris, used casting sand, lost casting wax, waste generated from casting, housekeeping, construction, and maintenance and repair activities, and material collected from an emission control device;
  - (I) Conduct cleaning, at least once every 12 months, using an approved cleaning method, of the entire facility, including any area not specified in subparagraphs (e)(1)(E) through (e)(1)(H), where fugitive metal dust may deposit;
  - (J) Conduct cleaning, at least once every 24 months, during the months of June, July, or August, using an approved cleaning method, of all roof areas of the building housing chromium alloy melting operation(s); and
  - (K) Within an hour of any construction or maintenance and repair activity or event, including, but not limited to, accidents, process upsets, or equipment malfunction that results in the deposition of fugitive metal dust emissions, conduct cleaning, using an approved method, of the area where the construction or maintenance or repair activity occurred.
- (2) An owner or operator of a chromium alloy melting facility shall not conduct cleaning using dry sweeping or compressed air in areas where chromium alloy melting operation(s) occur.
  - (3) An owner or operator of a chromium alloy melting facility shall not utilize a weather cap that restricts the flow of exhaust air for any vertical stack that is a source of emissions associated with chromium alloy melting operations.
  - (4) For the housekeeping requirements specified in subparagraphs (e)(1)(E) through (e)(1)(K), an owner or operator of a chromium alloy melting facility may use an alternative housekeeping measure that has been approved, in writing, by the Executive Officer to meet the same air quality objective and effectiveness of the housekeeping requirement it is replacing in lieu of an approved cleaning method.
- (A) Approved alternative housekeeping measures may not be used retroactively from the date of their approval.

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- (B) Compliance with the approved alternative housekeeping measures shall constitute compliance with the applicable provisions of subparagraphs (e)(1)(E) through (e)(1)(K).
- (f) **Building Requirements**
- (1) No later than July 1, 2021, an owner or operator of a chromium alloy melting facility shall conduct all chromium alloy melting operations in a building.
  - (2) No later than January 1, 2022, if the building contains openings to the exterior that are on opposite ends of the building where air can pass through any space where chromium alloy melting operations occur, an owner or operator of a chromium alloy melting facility shall close openings on one end for each pair of opposing ends of the building, except during the passage of vehicles, equipment, or people, by using one or more of the following:
    - (A) Door that automatically closes;
    - (B) Overlapping floor-to-ceiling plastic strip curtains;
    - (C) Vestibule;
    - (D) Barrier, such as a large piece of equipment, except for a chromium alloy melting operation, that restricts air from moving through the building;
    - (E) Airlock system; or
    - (F) Approved alternative method to minimize the release of fugitive metal dust emissions from the building that an owner or operator of a facility has demonstrated to the Executive Officer is an equivalent or more effective method(s) to prevent fugitive metal dust emissions escaping a building.
  - (3) No later than January 1, 2022, an owner or operator of a chromium alloy melting facility shall close all openings in the roof that are located directly above any metal melting operation, except during the passage of equipment or parts.
  - (4) An owner or operator of a chromium alloy melting facility may submit a Building Compliance Plan to the Executive Officer for review and approval no later than July 1, 2021 if implementation of the requirements specified in paragraphs (f)(2) and/or (f)(3) cannot be complied with due to conflicting requirements set forth by the United States Department of Labor Occupational Safety and Health Administration (OSHA), California Division of Occupational Safety and Health (Cal/OSHA), or other municipal codes or agency requirements directly related to worker safety.

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- (5) If, after the provisions in paragraphs (f)(2) and (f)(3) have been implemented, the owner or operator of a chromium alloy melting facility becomes aware that the implementation of requirements specified in paragraphs (f)(2) and/or (f)(3) conflict with requirements set forth by the United States Department of Labor Occupational Safety and Health Administration (OSHA), California Division of Occupational Safety and Health (Cal/OSHA), or other municipal codes or agency requirements directly related to worker safety, the owner or operator of a chromium alloy melting facility shall:
  - (A) Notify the Executive Officer of the specific conflict in paragraphs (f)(2) and/or (f)(3) no later than 30 days of the date the owner or operator became aware of the conflict; and
  - (B) Submit a Building Compliance Plan to the Executive Officer for review and approval that meets the requirements of paragraph (f)(6) no later than 90 days from the date the owner or operator became aware of the conflict.
- (6) An owner or operator that elects to submit a Building Compliance Plan pursuant to paragraphs (f)(4) or (f)(5) in lieu of directly complying with provisions under paragraph (f)(2) and/or (f)(3) shall provide:
  - (A) An explanation as to why any of the provisions specified in paragraphs (f)(2) and/or (f)(3) are in conflict with the requirements set forth by OSHA, Cal/OSHA, or other municipal codes or agency requirements directly related to worker safety; and
  - (B) Alternative compliance measure(s) that will be implemented in lieu of the requirements specified in paragraphs (f)(2) and/or (f)(3).
- (7) The Executive Officer will review the request for a Building Compliance Plan and will approve the Building Compliance Plan if the plan was prepared consistent with the provisions specified in paragraph (f)(6), the information provided was complete and accurate, and the alternative compliance measure(s) meet the same air quality objective and effectiveness of the compliance requirement it is replacing in paragraphs (f)(2) and/or (f)(3). The Executive Officer will notify the owner or operator of a chromium alloy melting facility in writing whether the Building Compliance Plan is approved or disapproved.
  - (A) If the Building Compliance Plan is disapproved, an owner or operator shall resubmit the Building Compliance Plan within 30 calendar days after notification of disapproval of the Building Compliance Plan from the

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Executive Officer. The resubmitted Building Compliance Plan shall include any information to address deficiencies identified in the notification of disapproval. If the Building Compliance Plan is not resubmitted within 30 calendar days after the notification of disapproval, the owner or operator seeking alternative compliance measure(s) in lieu of the requirements specified in paragraphs (f)(2) and/or (f)(3) may submit a new Building Compliance Plan to the Executive Officer pursuant to paragraph (f)(5).

- (B) The Executive Officer will either approve the revised and resubmitted Building Compliance Plan or modify the Building Compliance Plan and approve it as modified. An owner or operator shall implement the Building Compliance Plan modified by the Executive Officer. An owner or operator may appeal the Building Compliance Plan modified by the Executive Officer to the Hearing Board pursuant to Rule 216 – Appeals and Rule 221 – Plans.
- (8) An owner or operator of a chromium alloy melting facility shall implement the Building Compliance Plan, as approved by the Executive Officer, no later than 90 days after receiving notification of approval. Compliance with the approved alternative compliance measures shall constitute compliance with the applicable provisions of paragraphs (f)(2) and/or (f)(3).
- (9) The Building Compliance Plan is subject to plan fees pursuant to Rule 306 – Plan Fees.
- (g) Source Testing Requirements
  - (1) No later than 90 days prior to source tests required pursuant to paragraph (g)(2), an owner or operator of a chromium alloy melting facility shall submit a source test protocol to the Executive Officer for approval. The source test protocol shall include the following:
    - (A) The source test criteria, all assumptions, and required data;
    - (B) Calculated target hexavalent chromium mass emission standard;
    - (C) Planned sampling parameters, including the total sample volume for each sample sufficient to demonstrate compliance with the aggregate hexavalent chromium emission limits pursuant to paragraph (d)(1) at the method reporting limit;
    - (D) Evaluation of the capture efficiency and velocity of the emission collection system; and

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- (E) Information on equipment, logistics, personnel, and other resources necessary to conduct an efficient and coordinated source test.
- (2) An owner or operator of a chromium alloy melting facility shall conduct the following source tests of all chromium alloy melting furnaces, including chromium alloy melting furnaces without emission control devices, and associated emission control device(s) to determine compliance with the aggregate hexavalent chromium emission limits pursuant to paragraph (d)(1) and the minimum capture efficiency or velocity of the emission collection system pursuant to paragraphs (i)(3) and (i)(5):
    - (A) An initial source test, no later than July 1, 2022, for chromium alloy melting furnaces and/or associated emission control devices installed before *[Date of Adoption]*;
    - (B) An initial source test, within 180 days after the Permit to Operate is granted, for new or modified chromium alloy melting furnaces and/or associated emission control devices installed on or after *[Date of Adoption]*; and
    - (C) Periodic source testing, within 48 months after the initial source test specified under subparagraphs (g)(2)(A) and (g)(2)(B), and once every 48 months thereafter.
  - (3) An owner or operator of a chromium alloy melting facility shall notify the Executive Officer, in writing, of the intent to conduct source testing, at least seven days prior to conducting any source test required by paragraph (g)(2). The owner or operator of a chromium alloy melting facility shall report a change in the source test date to 1-800-CUT-SMOG at least twenty-four hours prior to cancelling or rescheduling. The date of any rescheduled source test shall be set so that the Executive Officer is notified of the rescheduled source test, in writing, at least seven days prior to conducting the source test.
  - (4) An owner or operator of a chromium alloy melting facility shall notify the Executive Officer within five calendar days of receiving source test result(s) that exceeded any of the aggregate hexavalent chromium emission limits specified in paragraph (d)(1) or failed the minimum capture efficiency or velocity of the emission collection system specified in paragraphs (i)(3) and (i)(5). The owner or operator of a chromium alloy melting facility shall make notifications to 1-800-CUT-SMOG and follow up in writing to the Executive Officer with the result(s) of the source test(s) within 10 calendar days of notification.

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- (5) An owner or operator of a chromium alloy melting facility shall conduct source tests representative of typical operating conditions, and in accordance with California Air Resources Board (CARB) Method 425 – *Determination of Total Chromium and Hexavalent Chromium Emissions from Stationary Sources*.
  - (A) The total sample volume for each sample must be sufficient to demonstrate compliance with the aggregate hexavalent chromium emission limits pursuant to paragraph (d)(1) at the method reporting limit. Alternatively, run the test for a minimum sampling time of 8 hours for each sample, assuming a method reporting limit for hexavalent chromium of 0.05 micrograms per sample or less.
  - (B) For the purposes of this rule, if at least one test run is below the method reporting limit, the following quantification procedures shall be used:
    - (i) In situations in which all test runs and analyses indicate levels below the method reporting limit, the compound can be identified as “not detected.”
    - (ii) In cases in which one or more of the test runs and analyses show measured values above the method reporting limit, the runs or analysis that were below the method reporting limit shall be assigned one half of the method reporting limit for that run.
- (6) An owner or operator of a chromium alloy melting facility may use alternative or equivalent source test methods, as defined in United States Environmental Protection Agency (U.S. EPA) 40 CFR Part 60, Section 60.2, if approved in writing by the Executive Officer, in addition to the CARB or the U.S. EPA, as applicable.
- (7) An owner or operator of a chromium alloy melting facility shall use a test laboratory approved under the South Coast AQMD Laboratory Approval Program for the test methods cited in this subdivision. If there is no approved laboratory, then approval of the testing procedures used by the laboratory may be granted by the Executive Officer on a case-by-case basis based on South Coast AQMD protocols and procedures.
- (8) When more than one test method or set of test methods are specified for any testing, the application of these test methods to a specific set of test conditions is subject to approval by the Executive Officer. In addition, a violation established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

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- (9) An existing source test conducted on or after *[36 months prior to Date of Adoption]* for a chromium alloy melting furnace or emission control device for a chromium alloy melting furnace existing before *[Date of Adoption]* may be used as the initial source test specified in paragraph (g)(2) to demonstrate compliance with the emission limits of subdivision (d) so long as the source test meets the following criteria:
- (A) The source test conducted is the most recent since *[36 months prior to Date of Adoption]*;
  - (B) The source test demonstrated compliance with the emission limit requirements of subdivision (d);
  - (C) The source test demonstrated compliance with emission collection system requirements of paragraph (i)(3) and (i)(5);
  - (D) The source test was conducted using applicable and approved test methods and test laboratories specified in paragraphs (g)(5) through (g)(7); and
  - (C) The report from the source test was evaluated and approved by the Executive Officer.
- (10) An owner or operator of a chromium alloy melting facility shall submit reports from source testing conducted pursuant to subdivision (g) to the South Coast AQMD within 90 days of completion of source testing.
- (h) **Material Testing Requirements**
- (1) An owner or operator of a chromium alloy melting facility shall use the following test method(s) most applicable to the sample matrix, method detection limit, and interferences:
- (A) U.S. EPA-approved method(s);
  - (B) Active ASTM International method(s);
  - (C) Metallurgical assay(s) for raw materials; or
  - (D) Alternative method(s) approved, in writing, by the Executive Officer.
- (2) Using the test method(s) identified in paragraph (h)(1), an owner or operator of a chromium alloy melting facility shall conduct material testing, for each furnace charge, to determine the weight average percentage of arsenic and cadmium contained in material melted in non-ferrous metal melting furnaces, excluding rerun scrap and material generated at another facility that has documentation confirming the material has no more than 0.002% arsenic and 0.004% cadmium. In lieu of material testing pursuant to paragraph (h)(1), the owner or operator may use

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documentation confirming the weight average percentage of arsenic and cadmium including, but not limited to, certificates of analysis and material specification sheets.

(i) Parameter Monitoring Requirements

(1) Bag Leak Detection System

Effective January 1, 2022, an owner or operator of a chromium alloy melting facility shall operate, calibrate, and maintain a Bag Leak Detection System (BLDS) for all baghouses subject to Rule 1407.1, regardless of size, pursuant to the Tier 3 requirements of Rule 1155 – Particulate Matter (PM) Control Devices.

(2) Pressure Across the Filter Media

Effective January 1, 2022, for each emission control device, an owner or operator of a chromium alloy melting facility shall:

- (A) Use a gauge to continuously monitor the pressure drop across each filter stage of the emission control device;
- (B) Maintain the pressure drop across each filter stage of the emission control device within the range specified by the manufacturer or according to conditions of the Permit to Operate for the emission control device;
- (C) Position the gauge so that it is easily visible and in clear sight of an owner or operator or maintenance personnel; and
- (D) Ensure that the gauge:
  - (i) Is equipped with ports to allow for periodic calibration in accordance with manufacturer's specifications;
  - (ii) Is calibrated according to manufacturer's specifications at least once every calendar year;
  - (iii) Is equipped with a continuous data acquisition system (DAS) that records the data output from the gauge in inches of water column at a frequency of at least once every 60 minutes;
  - (iv) Generates a data file from the computer system interfaced with each DAS each calendar day saved in Microsoft Excel (xls orxlsx) or plain text (txt or csv) formats, or other format as approved by the Executive Officer, that tabulates chronological date and time and the corresponding data output value from the gauge in inches of water column; and
  - (v) Is maintained in accordance with manufacturer's specifications.



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- (3) Effective January 1, 2022, an owner or operator of a chromium alloy melting facility shall operate the emission collection system associated with an emission control device at a minimum capture velocity according to conditions of the Permit to Operate for the emission control device or specified in the most current edition of the *Industrial Ventilation: A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists at the time a permit application is deemed complete with the South Coast AQMD.
- (4) Effective January 1, 2022, for each emission collection system, an owner or operator of a chromium alloy melting facility shall conduct and pass a smoke test during source testing, pursuant to paragraph (g)(2), and at least once every 180 days thereafter, using the procedure set forth in Attachment A – Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device of this rule. If conducting the smoke test can be demonstrated to the Executive Officer that the smoke test would create an unreasonable risk, the owner or operator of a chromium alloy melting facility shall notify the Executive Officer in writing of the unreasonable risk and does not need to perform the smoke test.
- (5) Effective January 1, 2022, and every 180 days thereafter, for each emission collection system, an owner or operator of a chromium alloy melting facility shall use and keep onsite a calibrated anemometer to measure the face velocity for each intake of the emission collection system of each emission control system, based on its location within a chromium alloy melting operation and its design configuration.
  - (A) An emission collection system designed with a hood or enclosure shall maintain a capture velocity of at least 200 feet per minute as measured at the face of the enclosure or maintain at least the minimum velocity that verifies 100 percent collection efficiency as prescribed in the permit.
  - (B) An emission collection system without an enclosing hood that is designed with collection slots shall maintain a capture velocity of at least 2,000 feet per minute or maintain at least the minimum slot velocity that verifies 100 percent collection efficiency as prescribed in the permit.
  - (C) An emission collection system designed with a canopy hood without an enclosure shall maintain a capture velocity of at least 200 feet per minute across the entirety of all open sides extending from the perimeter of the hood and operating without cross drafts or maintain at least the minimum

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velocity that verifies 100 percent collection efficiency as prescribed in the permit.

- (6) The owner or operator of a chromium alloy melting facility shall report, within 24 hours, to 1-800-CUT-SMOG:
  - (A) A cumulative number of hours of BLDS alarm activation pursuant to paragraph (i)(1) and Rule 1155 within any continuous six-month rolling period that has exceeded more than five percent of the total operating hours in that period;
  - (B) An average pressure across a stage of the emission control device that has not been maintained at the range specified in subparagraph (i)(2)(B) as determined by hourly or more frequent recordings by the DAS for the averaging periods below:
    - (i) A four-hour time period on three or more separate occasions over 60 consecutive days; or
    - (ii) Any consecutive 24-hour period;
  - (C) A DAS that has not been recording or generating the data output from the gauge pursuant to clauses (i)(2)(D)(iii) and/or (i)(2)(D)(iv);
  - (D) A smoke test pursuant to paragraph (i)(4) that has failed; or
  - (E) An anemometer reading indicating that the required velocity in paragraph (i)(5) has not been maintained.
- (7) Starting 24 hours after discovery of failure and until the emission control device(s) or emission collection system(s) passes the required parameter monitoring, an owner or operator of a chromium alloy melting facility shall not use the associated furnace(s) for production if the emission control device(s) or emission collection system(s) fails any of the following:
  - (A) To minimize the BLDS alarm activation pursuant to paragraph (i)(1) and Rule 1155;
  - (B) To maintain the average pressure pursuant to subparagraph (i)(2)(B);
  - (C) To record or generate the data output from the gauge using a DAS pursuant to clauses (i)(2)(D)(iii) and/or (i)(2)(D)(iv);
  - (F) A smoke test pursuant to paragraph (i)(4); or
  - (G) To maintain the velocity pursuant to paragraph (i)(5).
- (8) In the case of a failure of a DAS pursuant to clauses (i)(2)(D)(iii) and/or (i)(2)(D)(iv) to record or generate the data output of the gauge due to an emergency

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situation beyond the control of an owner or operator of a chromium alloy melting facility, including, but not limited to, power outages and computer malfunctions, the owner or operator shall:

- (A) Restore the DAS to working condition no later than 24 hours after the end of the emergency situation; and
- (B) Manually record the data output from the gauge at least once every 60 minutes until the DAS is restored.

The period of missing DAS data due to the emergency situation shall not be used to determine compliance with clauses (i)(2)(D)(iii) and/or (i)(2)(D)(iv).

(j) Recordkeeping Requirements

An owner or operator of a chromium alloy melting facility shall maintain records of the following:

- (1) Quarterly quantities of raw materials processed, including ingots, scrap, customer returns, and rerun scrap and the purchase records, if applicable, to verify these quantities melted per year as required by paragraph (k)(1);
- (2) Material testing data as required by subdivision (h), including description of each material tested, test method(s) used, method detection and reporting limits, and arsenic and cadmium percent in weight for each material tested;
- (3) Source test protocols and reports as required by subdivision (g);
- (4) Housekeeping activities conducted as required by subdivision (e), including the name of the person conducting the activity and the dates and times at which specific activities were completed;
- (5) Construction and maintenance and repair activities conducted on any equipment or structures associated with the chromium alloy melting operation(s) including emission collection systems, emission control devices, and buildings housing chromium alloy melting operation(s);
- (6) Inspection, calibration documentation, and maintenance of emission control devices as required by subdivision (i), including the name of the person conducting the activity and the dates and times at which specific activities were completed;
- (7) DAS data files as required by clause (i)(2)(D)(iv);
- (8) Smoke test documentation as required by paragraph (i)(4) and pursuant to Attachment A – Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device; and

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- (9) Anemometer data collected as required by paragraph (i)(5), including capture velocities, dates of measurement, and calibration documentation.

An owner or operator shall maintain all records and keep onsite for five years and make available to the South Coast AQMD upon request.

(k) Exemptions

- (1) An owner or operator of a chromium alloy melting facility that melts no more than one ton of chromium alloy(s) per year shall only be subject to paragraph (j)(1).
- (2) Educational facilities, including, but not limited to, universities, colleges, and schools, that melt chromium alloy(s) for purposes of education, and jewelers shall be exempt from the requirements of this rule.
- (3) Rules 1420.1 and 1420.2  
Equipment and operations subject to the requirements of Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Facilities and Rule 1420.2 – Emission Standards for Lead from Metal Melting Facilities shall be exempt from the requirements of this rule.
- (4) Brazing, dip soldering, metal cutting, and metal grinding performed for maintenance and repair activities, except for those associated with the chromium alloy melting operation(s), emission collection systems and emission control devices, and except any activities pursuant to subdivisions (e) and (f) that generate or have the potential to generate fugitive metal dust, are exempt from the requirements of this rule.

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**ATTACHMENT A**

**Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device**

1. Applicability and Principle:
  - 1.1 Applicability  
This method is applicable to all furnaces where an emission control device is used to capture and control emissions from chromium alloy melting operations.
  - 1.2 Principle  
Collection of emissions from a chromium alloy melting operation is achieved by the emission collection system associated with the emission control device for the chromium alloy melting operation. Emission control efficiency at the exhaust of an emission control device is related to capture efficiency at the inlet of the emission collection system. For this reason, 100 percent capture efficiency shall be maintained. A smoke generator placed within the area where collection of emissions by the emission collection system occurs reveals this capture efficiency.
2. Apparatus:
  - 2.1 Smoke Generator  
The smoke generator shall be adequate to produce a persistent stream of visible smoke (e.g. Model S102 Regin Smoke Emitter Cartridges). The smoke generator shall not provide excessive momentum to the smoke stream that may create a bias in the determination of collection efficiency. If the smoke generator provides slight momentum to the smoke stream, it shall be released perpendicular to the direction of the collection velocity.
3. Testing Conditions:
  - 3.1 Equipment Operation  
Any equipment to be smoke tested that is capable of generating heat as part of normal operation shall be smoke tested under those normal operating conditions. Operating parameters of the equipment during the smoke test shall be recorded. The smoke test shall be conducted while the emission collection system and the emission control device are in normal operation. The position of any adjustable dampers that can affect air flow shall be documented. Precautions shall be taken by

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the facility to evaluate any potential physical hazards to ensure the smoke test is conducted in a safe manner.

#### 3.2 Cross-Draft

The smoke test shall be conducted while the emission collection system and emission control device are in normal operation and under typical draft conditions representative of the facility's chromium alloy melting operations. This includes cooling fans and enclosure openings affecting draft conditions including, but not limited to, vents, windows, doorways, and bay doors, as well as the operation of other work stations and traffic. The smoke generator shall be at full generation during the entire test and operated according to manufacturer's suggested use.

#### 4. Procedure:

##### 4.1 Collection Slots

4.1.1 For work stations equipped with collection slots or hoods, the smoke shall be released at points where emissions from non-chromium metal melting operations are generated (e.g. the point where melting occurs). Smoke shall be released at points not to exceed 12 inches apart across ventilated work areas.

4.1.2 Observe the collection of the smoke from the smoke generator and emissions from the operations to the collection location(s) of the emission collection system. Record these observations at each of the points providing a qualitative assessment of the collection of smoke and emissions to the emission collection system.

##### 4.2 Equipment Enclosures

4.2.1 Equipment enclosures include equipment where emissions are generated inside the equipment, and the equipment is intended to have inward air flow through openings to prevent the escape of process emissions. The smoke shall be released at points outside of the plane of the opening of the equipment, over an evenly spaced matrix across all openings with points not to exceed 12 inches apart.

4.2.2 Observe the inward movement of the smoke from the smoke generator and emissions from the operations to the collection location(s) of the emission collection system. Record these observations at each of the points providing a qualitative assessment of the collection of smoke and emissions to the emission collection system.

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5. Results:

A passing smoke test shall demonstrate a direct stream of smoke and emissions to the collection location(s) of the emission collection system without meanderings out of this direct path.

6. Documentation:

The smoke test shall be documented by photographs or video at each point that clearly show the path of the smoke and emissions. Documentation shall also include a list of equipment tested and any repairs that were performed in order to pass the smoke test. As previously discussed, the documentation shall include the position of adjustable dampers, cross-draft conditions, and the heat input of the equipment, if applicable. The documentation shall be signed and dated by the person performing the test.